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Gender Difference in Researcher Career Interest:
The Effect of Sense of Belonging, Occupational Goals
and Social Identity Threat

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Abstract

Men are more interested in a researcher career than women, and awareness about the gender imbalance within the Academia increases men's interest (Tellhed, 2013). This study aimed to examine what causes the increase in men's interest and impairments in women's interest towards a researcher career. Two hundred and eight (99 males, 109 females) students received information about the Academia as being gender imbalanced or in progress towards gender equality (or no information). Thereafter, the students' interest in a researcher career and their expectations of sense of belonging, social identity threat, goals and goal affordances in relation to the researcher domain and its community were assessed by self-reports. A gender difference in interest was only found on one interest-item, where men showed more interest than women. This could be explained by feelings of belongingness in the control group. Women across all conditions expected social identity threats as a researcher. This finding suggests that women can be discouraged from a researcher career because of expectations of negative treatment, judgments and stereotypes because of their gender. The manipulation had no effect and no other variables explained the gender difference. Alternative explanations are discussed due to the lack of result and non-effect of the manipulation.

Keywords: gender difference, gender roles, gender stereotypes, goal affordance, interest, occupational goals, researcher career, sense of belonging, social identity threat

Sweden is reported to be one of the most gender equal countries in the world (Hausmann, Tyson, & Zahidi, 2012). There is a clear and strong emphasis on gender equality and it is a part of the Swedish norm system, as well as an important political goal of the Swedish government (Skr. 2008/09:198). One institution that is making progress towards gender equality is the Academia. The Swedish National Agency for Higher Education (HSV) reports that in 2010/2011 there were 65 % women and 35 % men that graduated, and that there were almost as many women as men who applied for and begun post graduate studies (HSV, 2012). Eventhough the gender equality within the Academia increases, it is far from gender equal. Women dominate the Academia at the student level, but it is highly male-dominated at the higher positions. There are about 50 % women and 50 % men who apply for post graduate school, which suggest that many talented women either drop out of or stay at the lower levels within the Academia - when this percentage is compared to the 65 % who graduate. So, women graduate to a higher extent than men, but more men than women proceed to post graduate school. Also, prognoses from HSV (2012) predict that this will not change within a near future. They rather predict the opposite; that male post graduate students will continue to have greater opportunities of becoming a professor.

Despite the reported positive trend towards gender equality the Swedish labor market is in fact gender segregated, where women are a majority within traditional female professions and men are a majority within traditional male professions (Löfström, 2005; Yrkesregistret, SCB). In other words, women tend to work within caretaking- and other-oriented fields, whereas men tend to work within leadership-and self-oriented fields (Cejka & Eagly, 1999; Diekman, Brown, Johnston, & Clark, 2010; Su, Rounds, & Armstrong, 2009). As mentioned, the gender imbalance is also found within the Academia in Sweden. Its hierarchy is strongly skewed, where 78 % of the professors are men and 22 % are women (HSV, 2012). This is far from an isolated phenomenon. For example, the European Commission reported that in 2010 59 % of all EU graduate students were women but only 20% were senior academicians (European Commission, 2013). In the light of this, there seem to be a pattern where women do stay within the Academia - but they do not make careers that make them climb the academic ladder.

The previous information can provide us with an overview of *how* the gender segregation is manifested both on the labor market and within the Academia. However, it does not provide us with answers to *why* it is that women to a lesser extent than men choose to continue to climb the academic ladder. Sex differences in occupational interests have been presented as a possible explanation for the sex segregation on the labor market. More specific,

women's preferences towards working with people and men's preferences towards working with things is suggested to influence intention to choose, persist and pursue a career within a certain field (Su, et al., 2009). The current work focuses specifically on sex differences in interest for a future career as a researcher. In relation to this, a recent study by Tellhed (2013) showed that men were more interested in a future researcher career than women. More specific, when men were provided with information that either highlighted the male dominance within the Academia or its progress towards becoming gender equal, the male students became even more interested in a researcher career.

Men and women, who become or already are students, might or might not have knowledge about the gender imbalance on the labor market and within the Academia. Regardless of this, in time they will become aware of, as well as affected, by it. This is a critical issue and need to be studied because it is about letting an individual's career opportunities and choices to be based on interest and potential. Also, it is about letting different domains and fields not to miss out on individuals with the requested and most adequate competence to be on the right place in the right time. The consequences have impact not only on the individual, but also on the economy and society (European Commission, 2011). Hence, it is important to, on an individual as well as on a societal level, understand what psychological processes that might explain the interest, or disinterest, in pursuing an academic career. The main purpose of the present study is to continue the exploration of what influence men's and women's interest in becoming a researcher. In the present study I will examine interest in relation to gender differences in occupational goals, social identity threats and sense of belonging. After the presentation of the theoretical framework, the previously mentioned concepts will be presented in more detail.

Theoretical Framework

Social role theory -women as communal and men as agentic. The current work has its base in social psychology, and uses the social role theory (SRT) as the main theoretical framework. The SRT is useful when approaching factors that may influence the difference between men and women in a future academic career. In relation to this, the SRT will in the following section be used to explain sex differences, gender stereotypes and gender roles.

In SRT, *sex* refers to the categorization of males and females based on biological differences, such as genitals, reproductive organs and physical attributes. *Gender* refers to the socially constructed and ascribed beliefs of men and women (Eagly, 1987). The SRT reasons that "biology, social structure, and the environment interact reciprocally to produce the sex-typed roles that constitute a society's division of labor" (Wood & Eagly, 2002, p. 718), and

therefore combine both evolutionary- and social constructionistic perspectives. Even though SRT acknowledge biological and physical differences between males and females the theory opposes towards the evolutionary theory of being able to explain psychological differences between men and women. Instead, psychological differences are reasoned to be a result or consequence of the social roles that a caregiver or breadwinner fosters. Thus, there is not necessarily a natural or static link between sex and gender, the link is rather something that is socially constructed (Eagly & Wood, 1999; Wood & Eagly, 2002). *Sex differences* and similarities stems from the sex segregated distribution of social roles on the labor market – which derives from the beliefs and ideas of women as primary caregivers and men as providers. Thus, the segregation is a result of beliefs and associations that men and women are suited for different social roles within the social structure. The differences between the sexes have traditionally, culturally and historically been maintained by social interactions. That is, people have internalized and passed on gender norms while interacting with each other. Communicated beliefs about what men and women can, should and want to do in correspondence to their social role have been reproduced and maintained as men and women have been distributed into different types of positions within the social structure (Eagly & Steffen, 1984; Eagly, Wood, & Diekman, 2000; Diekman, et al., 2011; Diekman & Eagly, 2008). Two of these beliefs and/or dimensions are referred to as *communion* and *agency*. Communal beliefs are more strongly associated with women, which refers to traits, preferences and qualities for other-oriented professions, caring for others and domestic responsibilities. Agentic beliefs are more strongly associated with men and refer to attributes of self-orientation, status, prestige and power (Cejka & Eagly, 1999; Diekman et al., 2010; Eagly, 1987; Eagly et al., 2000; Eagly & Steffen, 1984; Prentice & Carranza, 2002).

According to the SRT, *gender stereotypes* are created by combining a group or person with an attribute or situation, which then are applied to the people that correspond with the specific stereotypes' criteria – in this case based on gender (e.g., Eagly, 1987). The belief about men's and women's different social roles does not only create gender stereotypes, but also *gender roles* and prejudices that influences societal-, social- and personal expectations and opportunities of what men and women ought to be, strive for and desire (Diekman & Eagly, 2008; Eagly, Diekman, Johannesen-Schmidt, & Koenig, 2004; Eagly & Karau, 2002; Prentice & Carranza, 2002). Gender roles are described as diffuse roles as they are applicable in many various parts of people's daily life, and can function as a filter that runs in the background of other more, so called, specific roles. *Specific roles* are more context-bound than gender roles, such as an occupation or a relation, but can still be influenced by the

content of a gender role (Diekman & Eagly, 2008). Eagly (1987) describes gender roles to be "the social roles a society defines for women and men" (p. 6). Gender roles are more complex than gender stereotypes as they contain both expectations and assumptions about a person or group from a certain social category, and a conception about what responsibilities, qualities and ideals that correspond with the specific social role (Eagly & Steffen, 1984; Eagly, Wood, & Diekman, 2000). The labels *descriptive norms* and *injunctive norms* are used to describe these two dimensions of a social role such as gender (Cialdini & Trost, 1998). Descriptive norms refers to the expectation (stereotype) dimension of a gender role, and injunctive norms refers to the dimension of idealized and desired attributes, behaviors and orientations of a gender role (Cialdini & Trost, 1998; Eagly & Karau, 2002). Through socialization the individual becomes aware of role congruity and incongruity concerning oneself and others as the gender related knowledge gets incorporated into the self-concept (Hannover, 2000). Thus, gender roles not only influence what people ought to expect and desire from others, but also what to wish for and expect of oneself as it gets incorporated in an individual's self-concept (Athenstaedt, 2003; Hannover, 2000; Eagly et al., 2000). *Occupational stereotypes* contains beliefs of what skills that are required and what goals that can be afforded within the occupation. These skills and goals tend to be based on agentic or communal requirements. As the traditional gender role that is applied to women is of a communal kind, whereas the gender role for men is of an agentic kind a link between gender roles and occupations are created and acted upon (Cejka & Eagly, 1999; Eagly & Steffen, 1984).

The distribution of gender roles with their communal and agentic beliefs can be described as an ongoing spiral; the vertical and horizontal gender differentiated labor market concentrate men and women into different positions that influence their social status and positions. As men and women are concentrated into different occupations and social roles, as well as different levels within societal hierarchies; perceptions and formations of stereotypes are created by observing men and women within different specific positions. Thus, observations of women in traditional female occupations instead of occupying high status positions can foster the stereotype of women as more communal and less agentic. The stereotype of men as more agentic and less communal is also affected by the absence of their occupancy of traditional female positions. That is, the observation of men and women in sex-typical roles maintains and reproduces the traditional gender roles (Eagly & Diekman, 2003; Eagly & Diekman, 2000; Eagly et al., 2000; Eagly & Steffen, 1984; Weisgram, Bigler, & Liben, 2010).

In sum, men and women are socialized into their different social roles that different interpersonal and societal mechanisms regulate through norms and social structures. Internalization of gender roles starts with the socialization process, and encourages men and women to behave in accordance with their gender (Hannover, 2000). Gender roles hold beliefs about status, qualities and ambitions. They are pervasive as they are prescriptive, and have effects on individuals as well as on society (Prentice, & Carranza, 2002). The gender norms and stereotypes portray women as (more) communal and less agentic, and men as (more) agentic and less communal, and can foster assumptions of occupational suitability (Cejka & Eagly, 1999; Diekman et al., 2010; Eagly, 1987; Eagly et al., 2000; Eagly & Steffen, 1984; Parks-Stamm, Heilman, & Hearns, 2008; Prentice & Carranza, 2002).

Role congruity - to align with social roles. The role congruity perspective is a development of the SRT. It focuses on consistency or inconsistency between gender roles and other social roles, and how this affect the evaluation and perception of who is considered being able, or not able, to fulfill various social roles (Eagly et al., 2000; Eagly & Karau, 2002). Individuals are motivated to achieve and maintain role congruency because of its positive effects such as acceptance and compliance. Role incongruity, on the other hand, refers to violation of the social role demands and can lead to negative effects such as devaluation and rejection (Diekman & Eagly, 2008; Eagly et al., 2000; Eagly & Karau, 2002). By this, an individual has two choices, either to confirm their gender role and by that not engaging in role-violating activities or occupations, or violate it and be at risk of devaluation and gender normative barriers (Parks-Stamm et al., 2008; Eagly & Karau, 2002). However, not all occupations or domains have a sharp line drawn in relation to gender roles and expectations, which makes occupations more or less likely to evoke role incongruity. The more gender stereotypic occupation - the sharper the line (Eagly & Karau, 2002).

Although gender stereotypes and gender roles have historically and traditionally been maintained and reproduced (Eagly et al., 2000; Eagly & Steffen, 1984; Prentice & Carranza, 2002), research has also shown the dynamics and changeability of them (Diekman & Eagly, 2000; Twenge, 1997; 2001; Löfström, 2005). When the labor market goes through changes gender roles can also change (Eagly & Diekman, 2003; Twenge, 1997; 2001). Research also shows how expected and imagined changes in a gender role not only can change the descriptive norms of the gender role, but also the injunctive norms. That is, when members of a diffuse role group, such as gender, start to or could be expected to soon occupy and engage in specific activities or occupations, a link between the stereotypical belief, the diffuse role and the specific role is created. Thus, the possibility of changes in gender roles can be opened

if group members engage in cross-gendered fields and contexts, or could be expected to do so within a not too distant future (Diekman & Goodfriend, 2006).

Agency is shown to be under progress as the boundaries between men and women are getting blurred. Twenge's (1997, 2001) meta-analyses demonstrates this by highlighting women's participation on the paid labor market, as well as them increasingly incorporate more agentic traits in their self-concepts. Thus, within some activities and occupations not only the gender stereotypes have changed - but also the injunctive norms of what, women in particular, ought to desire (Diekman & Goodfriend, 2006; Twenge, 1997, 2001). However, men have not engaged in, and are not perceived to engage in, as much cross-gendered activities and acquired as many cross-gendered traits as women. By this, the male gender role seems to have been, and still is, less dynamic than the female gender role (Diekman & Eagly, 2000; Twenge, 1997, 2001).

In sum, gender roles function as guidelines of what is expected of men and women. Gender roles also include a moralizing and idealizing dimension that informs men and women of what is considered as desirable of them, as well as what is accepted to strive for on a personal level (Diekman & Eagly, 2008; Eagly, 1987; Eagly, et al., 2000).

Previous Research

Previous research has found that gender differences in occupational interest to some extent can be explained by gender differences in other psychological factors such as career self-efficacy (Betz & Hackett, 1981; Tellhed, 2013), perceived similarity towards others in the profession or field (Cheryan, Davies, & Steele, 2009; Cheryan & Plaut, 2010), occupational goals and goal affordances (Evans & Diekman, 2009; Diekman et al, 2010; Diekman, Clark, Johnston, Brown, & Steinberg, 2011; Morgan, Isaac, & Sansone, 2001), feelings of belongingness to a specific domain (Good, Rattan, & Dweck, 2012), levels of academic self-concept and dedication towards a career (Ülku-Steiner, Kurtz-Costes, & Kinlaw, 2000) and family concerns (Frome, Alfeld, Eccles, & Barber, 2008; Heilbronner, 2012). Previous research has also identified psychological factors that can partly explain avoidance towards entering or pursuing certain fields or professions, for example fear and anticipation of experiencing social identity threats (Cheryan & Plaut, 2010; J. Steele, James, & Barnett, 2002). The present study focuses on interest in relation to occupational goals, perceived risk of social identity threat and expected sense of belonging within the researcher domain and its community.

Occupational goals and values. Research shows that due to the different gender roles and the sex-division of labor, men and women have come to endorse more or less different

gender stereotypic goals and values which consequently affects their career interest. In other words, gender roles becomes frameworks for what goals and values to endorse, and in turn what careers and opportunities that are perceived as important and stimulating to seek. Individuals try to estimate what and how an occupation can fulfill their personal values and goals, and are motivated towards the occupation that is perceived as the best opportunity for fulfilling their goals and values (Diekman et al., 2011; Diekman & Eagly, 2008; Evans & Diekman, 2009; Morgan et al., 2001). Evans and Diekman (2009) refer to this as an opportunity structure based on gender roles. The potential match or mismatch between valued goals and occupations are described to influence an individual's career interest (Diekman, et al., 2011; Diekman & Eagly, 2008; Evans & Diekman, 2009; Morgan et al., 2001).

Two separate social cognitions are argued to guide and influence individual's goals and career interest. These are described as certain *goals* and *goal affordance stereotypes*. Goals can either be chronically endorsed (e.g., through gender roles) or activated within a certain setting and context. Put simply, individuals can have internalized personal communal or/and agentic goals that guide their preferences and behavior. Or, they can be situated in a setting that makes different goal-related stimuli salient, and by that influence their goals regardless of what goals they chronically endorse. Goal affordance stereotypes are assumptions and beliefs about what positions or careers that might impede or facilitate certain goals. Together these two social cognitions becomes an influential force in relation to career attitudes, goal selection and goal pursuit as they can result in either goal congruity or goal incongruity (Diekman et al., 2011).

Evans and Diekman (2009) established a link between gender roles, goals, goal affordances and career interest. As the male and female gender role differ in their content, for example in beliefs about the occupancy of agency and communion, different goals are argued to develop based on these beliefs which in turn are perceived to be facilitated differently by different careers. In their work, agentic goals refer to different status and occupational goals, whereas communal goals refer to domestic- and care giving goals. Evans and Diekman (2009) found that gender stereotypical occupations were perceived to fulfill different (gender stereotypical) goals. Both the male and female participants reported that they considered male stereotypical careers (e.g., lawyer) of being better at fulfilling agentic goals, whereas female stereotypical careers (e.g., nurse) were perceived to provide a greater opportunity for fulfilling communal goals. Further, Evans and Diekman (2009) found that distant goals (i.e., life goals) could affect career preferences. The individuals that considered that agentic goals to be an important part of their future also showed greater interest towards male-stereotypical careers,

whereas individuals that considered communal goals as being important of their future showed greater interest towards female-stereotypical careers. In line with prevalent gender roles, their results specifically showed how the male participants valued agentic goals more than women, and had greater preferences towards male-stereotypical occupations. Women were shown to value communal goals more than men, and had greater preferences towards female-stereotypical occupations. Thus it is reasoned that individuals that value traditionally gender stereotypic goals also show greater career interest towards gender stereotypical careers. This reflects the current structure in society, where gender differences in agency has decreased due to changes in the female gender role. Gender differences in communion is rather unchanged as the male gender role has not become more communion, parallel with women both being perceived to, and personally report themselves as more communal than men (Diekman & Eagly, 2000; Twenge, 1997).

Research by Diekman et al. (2010) focused particularly on women's underrepresentation within STEM-fields (science, technology, engineering and math). They studied the reasons behind women's continued underrepresentation within STEM-fields despite the fact that women have increased their entrance in other male-dominated fields such as medicine and law. Their undergraduate participants rated their interest and goal affordance in male-stereotypic (e.g., dentist) female-stereotypic (e.g., social worker) and STEM-related (e.g., computer scientist) careers, along with their personal preference in different agentic and communal goals. They found that goal incongruity could predict disinterest in pursuing a STEM-career, and what differed STEM-careers compared to other male-stereotypic and female-stereotypic careers was the perception of it being less compatible with fulfilling communal goals *and* agentic goals. Male stereotypical careers were not either considered as compatible with communal goals compared to female stereotypical careers. Moreover, as a communal orientation is considered to be feminine, the participants who experienced the greatest inhibition were the women, within both STEM-careers and male-dominated careers (Diekman et al., 2010). Diekman et al. (2010) suggests that also competent women within the field may have their interest decreased towards a STEM-career (or male-stereotypical) due to the goal congruity between personal goals and occupational goal affordances. Even though women more commonly report to endorse more communal goals than men, the interest decrease that a goal incongruent profession or career can evoke can also affect men who endorse communal goals. Thus, people who value communal goals may not perceive them compatible within a STEM-field (or male stereotypical field); rather these communal goals are considered to be more or less at risk of being impeded. This goal incongruity can in turn

make individuals who endorse communal goals less interested in pursuing a STEM-career (or a male-stereotypic career).

Research by Diekman et al. (2011) showed that goal pursuit could be influenced by both chronically and situationally activated communal goals. To clarify, a communal goal in their study refers to a general concept of communal (e.g., working with others, helping others, help society), which differs from Evans and Diekman (2009) study that focused on a more specific kind of communion such as family dedication. STEM-careers have previously been found to impede communal career goals (Diekman et al., 2010), and did so also the study of Diekman et al. (2011). They established support for gender differences in goals, occupational stereotypes based on goal affordance, and that goal congruity motivated men and women towards different career paths. However, unlike previous research (Diekman et al., 2010; Evans & Diekman, 2009) that have focused on chronic goal endorsement, Diekman et al. (2011) also demonstrated the influence of situationally activated goals. By activating a negative personal experience of communion through self-reports their participants, regardless of gender, showed less interest in a STEM-career compared to the control group where no such experience was made salient. Thus, communion can collide with the stereotype concerning STEM-careers' disability to fulfill communal goals both for men and women. Contrastingly, Diekman with colleagues (2011) could also explain increased interest in a STEM-career when it was perceived as able to fulfill communal goals. In specific, when participants were provided with presentations of the scientist profession as being able to facilitate communal goals, women in particular became more interested compared to the participants that were provided with a presentation that portrayed the profession as unable to fulfill communal goals. From this, decreased interest in gender stereotypic careers because of perceived role- and goal incongruity can impede social change and thus maintain current gender roles, whereas changes in gender roles or in occupational stereotypes can foster new cross-gendered goals and roles which enable both men and women to enter and fulfill their goals within currently gender stereotypic fields.

In sum, people are motivated towards role congruity as well as goal congruity because of their several positive outcomes. The different goals that individuals hold can both be a result of individual differences, but also because of the gender differences in communal and agentic preferences that are parts of the current gender roles. In line with the prevalent gender roles, women tend to report higher communal preferences in relation to occupations and goals than men, and men tend to report higher agentic preferences than women (Diekman et al., 2010; Diekman et al., 2011; Konrad, Richie, Lieb, & Corrigall, 2000). Men and women can

hold both agentic and communal goals and values, but are motivated and encouraged towards role- and goal-congruent career choices. The largest gender difference is located within the communal goal-dimension, which is also reflected in the social structure (Löfström, 2005; Yrkesregistret, SCB). That people differ in career preferences, values and goals might not be a problem per se. However, when people avoid certain fields and occupations due to perceived role- and goal incongruity this can affect the society and individual by not letting individuals develop, participate and contribute outside of the current gendered opportunity structure. As research has shown that the researcher profession can be perceived as male stereotypic (Tellhed, 2013; Sinclair, Tellhed, & Björklund, 2013), it is possible that individuals who endorse communal goals may perceive a researcher career as incompatible with communal values and unable to fulfill communal goals which consequently could impair their interest towards a career as a researcher.

   Social identity threat. Social settings and contexts contain a lot of cues that help individuals to understand their social world. Some of these cues signal information that concerns an individual's identity, and how it is viewed upon in the current social context. Social identity threat (SIT) is a broad definition of the psychological state that occurs when an individual perceives a possible threat to one of his or her social identities in a current setting or situation. The phenomena not only refers to the fear of being stereotyped and devalued due to socially shared cultural and societal stereotypes towards stereotyped and minority group members, it also refers to the concern that can arise within *anyone* that perceives a potential harm towards ones social identity (Murphy, Steele, & Gross, 2007; Petriglieri, 2011; C. M. Steele, Spencer, & Aronson, 2002). In relevance of the current work, such harms could be manifested as concerns of possible discrimination, fear of being negatively stereotyped and devalued, being the target of prejudices, marginalization and rejection (Adams, Garcia, Purdie-Vaughns, & Steele, 2006; Branscombe, Ellemers, Spears, & Doosje, 1999; Cheryan & Plaut, 2010; Major & O'Brien, 2005; Murphy et al., 2007; Petriglieri, 2011; C. M. Steele et al., 2002), based on one's gender in an academic context. People hold a range of different social identities and people tend to identify the strongest with the social identity that is currently being (the most) stereotyped and/or stigmatized (Branscombe et al., 1999; C. M. Steele, et al., 2002). It has also been argued and empirically confirmed that the realization of being under SIT also makes individuals more observant and vigilant towards threatening cues in the current environment. This can in various ways help them cope with the threat and protect their self-concept by either meet the threat or avoid it (Kaiser, Vick, & Major, 2006; Murphy et al., 2007; C. M. Steele, et al., 2002).

The experience of social identity threat can arise both from situational cues (e.g., a setting that signal cues of possible devaluation or discrimination) and chronic perceptions (internalization of permanent devaluation, societal and cultural knowledge of how different social groups in certain settings or/and fields are evaluated). These two dimensions can alone or together trigger SIT (Adams et al., 2006; Kaiser et al., 2006; C. M. Steele, et al., 2002; Townsend, Major, Gangi, & Mendes, 2011). Research suggests that men and women differ in their tendency to activate these two dimensions of SIT due to men's and women's different societal status, where women are, and historically have been, more at risk of sexism and perceived as inferior in comparison to men (Adams et al., 2006; Eagly & Steffen, 1987; Schmitt, Branscombe, Kobrynowicz, & Owen, 2002). From this, in gender salient threatening settings, women are suggested to be more susceptible to trigger SIT both from situational and chronic cues, whereas men due to their higher societal status are more likely to activate SIT caused by situational cues (Adams et al., 2006; Townsend et al., 2011). Research by Cheryan and Plaut (2010) can exemplify this as they studied the underrepresentation of women in male-dominated academic fields (i.e., STEM, more specific computer science), and the underrepresentation of men in female-dominated academic fields (i.e., humanities, more specific English). Among different psychological factors, their results showed that women were less interested in computer science and reported greater fear of SIT towards the field. Men reported less interest towards English than women, along with greater fear of being devalued (a kind of SIT) in the field. However, women reported greater fear of sexism and stereotype threat (two kinds of SIT) than men also in English. Their results suggest that women can double-activate SIT through both chronic and situational cues. Further, men can experience SIT caused by cues in the current context, but their higher societal status may help to buffer against the chronic perceptions of SIT even in settings that they are underrepresented or marginalized in (see also Branscombe et al., 2002).

As previously described, the Academia is gender skewed, and can be considered as male-dominated because there are more men than women located at the higher positions (HSV, 2012). Research on stereotype threat, which is a more specific kind of SIT that often refers to performance impairments due to the fear of confirming a negative stereotype (see C. M. Steele et al., 2002, for a review), has shown that the individuals who identify the most with the current threatened identity or/and domain are the ones that are at most risk of perceiving and experiencing the threat (Steele, 1997; C. M. Steele et al., 2002). Social identity threats does not necessarily impair individuals' interest, it is rather suggested being able to make threatened individuals consider changing their occupational career paths towards less

threatening ones. Thus, social identity threats can make highly identified and interested individuals not pursuing their career and academic aspirations (see J. Steele et al., 2002). To illustrate this, previous research by J. Steele and colleagues (2002) showed that women within masculine academic domains and disciplines experienced and anticipated more social identity threats than women in non-stereotypic male-dominated academic fields. In more detail, they found that stereotype threat, sex discrimination and anticipated sex discrimination to oneself as well as others from ones gender group, affected women's intention to pursue a career within their major. The women from male-dominated domains, such as STEM, reported the highest levels of stereotype threat, discrimination and thoughts about changing their major, tentatively to another female-dominated field such as the social sciences and humanities. The women from the female-dominated fields did not show as strong SIT-effect as the STEM-women. However, the STEM-women were *not* less identified with their field compared to participants in the other groups. J. Steele et al. (2002) suggests that due to higher levels of perceived or expected stereotype threat and discrimination the STEM-women became more susceptible towards the idea of changing their major, but not less interested in their current major. This occurrence is referred to as disengagement (or disidentification when referring to a more severe and long-term effect) and is an individual's way of coping with social identity threats. When trying to protect one's self-concept the individual can try to reduce or exclude the importance or salience of the identity that is under threat. That is, disidentify from the threatening domain so that the domain do not provide a source for self-evaluation. When a person disidentify towards a domain it can consequently reduce the chances of developing and improving within the area - and thus, in a sense, result in confirmation of the situational or chronic perception of how ones social identity is conceptualized within the current context (Steele, 1997; C. M. Steele et al., 2002). Thus, gender gaps within different domains and fields are necessarily not caused by a lack of ability or interest. It can rather be a result of SIT along with reduced opportunities of participation and learning within the field (C. M. Steele et al., 2002; J. Steele et al., 2002).

Avoidance and disrupted interest can also be the result of making prejudices towards a group more salient in specific situations (Cheryan et al., 2009; Davies, Spencer, & Steele, 2005; Murphy et al., 2007). Murphy et al. (2007) found that this could be evoked by exposing individuals to balanced or unbalanced group constellations. Their research showed that the perception of being numerically underrepresented could make highly domain-identified individuals feel uncomfortable and un-welcome, whereas the perception of belonging to a numerical majority could make individuals feel comfortable and secure. More specific, in

their experiment, students within a STEM-field were shown a video that showed a sequence of a discussion from a MSE (math, science and engineering) conference that was relevant to their education. After seeing a video where the debate-participants were either a majority of men or as many men as women, the students reported their interest in participating in a potential conference that they had seen and their feelings of belongingness to belonging to it. Murphy et al. (2007) also measured the participants' memory recall of the video and the experimental room, and different types of physiological activation (e.g., finger pulse, skin conductance). Results showed that women in the sex unbalanced condition reported less preference towards participating in the conference and lower feelings of belongingness, the highest levels of physiological activation and best memory recall, compared to the women in the sex balanced condition. The male participants were unaffected by the gender composition, even though they showed greater preference towards a sex balanced groups than sex unbalanced groups. Their research illustrate how the impact of gender composition can make threatened individuals more vigilant to threats to their identity, and how it can erode highly-identified individuals' belongingness, will and intention to participate in certain domains.

A study that highlighted majority and minority status within the Academia was conducted by Tellhed (2013). When studying interest towards a researcher career, the participants were provided with information about the current state of the Academia in Sweden that either emphasized the male dominance or the progress towards gender equality. The results showed how the female students perceived a higher risk of being discriminated against than the male students if they were to become a researcher – across all conditions. However, the lowest fear among the women was found in the gender equality condition, where no difference between men and women was detected. That is, providing women (or other currently stigmatized group members) with positive and non-stigmatizing information relevant to the current context, can buffer against SIT. This buffering effect is referred to as identity safety, and is described to "clear the air" from social identity threats (Davies et al., 2005). Research has also shown that by observing or learning about competent stigmatized group members who have entered a threatening field or domain also can functions as role-models and create a boosting effect (Marx & Stapel, 2002; C. M. Steele et al., 2002). However, successful role models can also cause a reverse effect (Parks-Stamm et al., 2008; Rudman & Phelan, 2010). Research has shown that women can direct a disliking against successful women within male-stereotyped occupations. This is because the upward social comparison can be perceived to threaten their self-view and consequently make them feel less competent. To protect their self-view the perceived threat motivates them to, instead of

getting encouraged and inspired; penalize the role-model for having violated gender norms by being agentic (Parks-Stamm et al., 2008; Rudman & Phelan, 2010). This is done by perceiving and treating the female role model as "not a 'real' woman, and therefore irrelevant to women's self-evaluation" (Parks-Stamm et al., 2008, p. 239). From this, there are two sides of the effect of role models; one that is boosting and another that is threatening.

Not only numerical under- or overrepresentation cues can provide individuals with information about their social identities status. The awareness of a being evaluated by a sexist man in an instructor situation (Adams et al., 2006), or interacting with men that is perceived to be sexist (Kaiser, et al., 2006; Logel, Walton, Spencer, Iserman, von Hippel, & Bell, 2009) has also shown to cause SIT among women. Research has also shown that just by indicating ones social group membership, such as ethnicity, on the first page of a questionnaire in a performance context can evoke SIT (stereotype threat) among stigmatized group members (Steele & Aronson, 1995). Other research has shown how the actual academic environment can trigger SIT and deter students' intention to enter a domain when the interior of the setting is made stereotypical, as this can convey a sense of who is valued or not (Cheryan et al., 2009). From this, the mere situational cue of being a minority, less valued or not "fitting in" in a current setting or occupational stereotype can result in SIT, and make those individuals who perceive the threat less keen to participate and aim for certain activities, fields or careers eventhough they may be considered as interesting and valuable (Cheryan et al., 2009; Murphy et al., 2007; Tellhed, 2013). Further, SIT also reflects a reality within the Academia, where women to a higher extent are being discriminated and underrecognized because of their gender (Knobloch-Westerwich & Glynn, 2013).

In sum, SIT can evoke fear and discouraging feelings within an individual. In the current context this concerns individuals, especially women's, persistence and advancements within the Academia. Given the empirical evidence of SIT having negative effects on individuals' intention to enter or persist within a field (Cheryan et al., 2009; Murphy et al., 2007; J. Steele et al., 2002; Tellhed, 2013), women who learn, or are aware, about the male dominance within the Academia could come to expect to experience SIT. SIT is not predicted to explain the sex differences in academic interest because it does not have to result in women becoming less interested or in women leaving the Academia. It can however discourage them from pursuing a higher academic career (e.g., J. Steele et al., 2002), or even hinder the possibility of a higher academic interest to develop in the first place (Cheryan et al., 2009).

Sense of belonging within the Academia. Belongingness towards and within the Academia has been found to be an important factor that influences interest in pursuing an

academic path (Cheryan et al., 2009; Good et al., 2012; Mallett, Mello, Wagner, Worrell, Burrow, & Andretta, 2011; Ostrove, Stewart, & Curtin, 2011). The need to belong has been argued to be a fundamental human motive that can affect psychological and physical health (Baumeister, & Leary, 1995; Leary & Cox, 2007; MacDonald, & Leary, 2005). There are different kinds of sense of belonging. *General belongingness* can be fulfilled by strong and mutual social bonds and social connectedness to one's family, friends or other significant social relationships (Baumeister & Leary, 1995; Walton & Cohen, 2007). A general sense of belonging is what takes form in social situations and relations, whereas an *academic sense of belonging* refers to an individual's experience and perception of being a valued part inside of an academic discipline and community (Good et al., 2012).

Research on the general sense of belonging, thus with a focus on social connectedness, demonstrates the importance of sense of belonging in relation to school environments (Mallett et al., 2011; Walton & Cohen, 2007). It is argued that belongingness can be perceived as certain or uncertain. *Belonging certainty* can make an individual feel confident about one's social bonds and experience acceptance of their membership, for example within an academic context. *Belonging uncertainty*, on the other hand, is a state that can impair that and occurs when an individual experience uncertainty of the quality of one's social bonds and could expect possible rejection, which can make an individual doubt its right to even be in the social context (Mallett et al., 2011; Walton & Cohen, 2007). Stigmatized group members have been showed to be at risk of experience belonging uncertainty (Mallett et al., 2011; Walton & Cohen, 2007). The research of Mallett et al. (2011) showed that when Black students reported their ethnic identification by answering questions concerning their ethnic identity (Study 1), or wrote about ethnic discrimination experiences (Study 2) at the beginning of a questionnaire, they reported to feel less belongingness to school, less interest and less future academic expectations of themselves. The Black students who had answered the ethnic identity questions at the end of the questionnaire did not show this negative effect belonging uncertainty. This result suggests that belonging uncertainty can be triggered by the mere thought of one's social membership in an identity threatening setting. It also demonstrates the impact of question order and how it can either detect or mask individuals' perceptions and experiences. Research has also shown that lack of social connectedness, by perceiving oneself as having few friends within an academic domain, can discourage individuals from certain domains, and also make stigmatized group members more likely to discourage others from the same social group from entering the specific domain (Walton & Cohen, 2007).

The previous findings demonstrate *social* belongingness, and do not explain how an individual's sense of belonging towards a specific *domain* (such as an academic domain) can influence interest and persistence within that particular field. From this lack of research on academic belongingness, Good et al. (2012) developed a new scale dedicated to this specific aspect, and conducted two studies that confirmed the scale's validity as well as the impact of academic belongingness on academic interest. Good with colleagues (2012) defines academic sense of belonging as "the feeling that one fits in, belongs to, or is a member of the academic community in question" (p. 700). As with SIT, a setting or a field may signal and awaken a concern, or calm, within the individual about ones presence and participation within a specific domain. Academic sense of belonging is about perceiving oneself in correspondence with the concept of being a mathematician in a math domain, a researcher in a researcher domain, and so forth. It does not necessarily exclude the aspect of social belongingness, but the focus is rather on the feeling of membership in relation to the domain, than on social connectedness with peers and friends. Thus, it is about feelings of being an accepted member and on the inside of an academic domain and discipline. Good with colleagues (2012) suggests that the general need for belonging can be met by close relations to a various degree, but this kind of belongingness does not have to be connected to an individual's academic sense of belonging. Hence, an individual can have high levels of general sense of belonging and at the same time have a low sense of belonging in an academic domain, and consequently experience the negative effects of lacking sense of belonging. An individual can be described to strive for belongingness, and as a student try to determine whether the academic domain or community is a place where they will be included and valued as a member or not. The higher perceived probability for inclusion, the stronger the persistence and interest the individual will experience (Good et al., 2012). Previous research has shown that this risk of being excluded from a domain can discourage individuals from entering or pursuing academic paths (e.g., Cheryan et al., 2009; Good et al., 2012). This suggests that individuals who expect to be excluded will get less interested within the specific domain or occupation, and therefore seek for belongingness elsewhere where inclusion and acceptance is considered as more likely (Good et al., 2012).

The present study's approach on sense of belonging differs from the general sense of belonging. It shares more of the assumptions concerning academic sense of belonging presented by Good and her colleagues (2012), as it focus on belongingness within a specific academic domain and its community – the researcher community. In relation to this, research by Good and her colleagues (2012) showed that their concept of academic sense of belonging

could predict an individual's intention to stay within a math academic domain (considered as masculine), and interest in pursuing a career within it. In particular, by conducting a longitudinal study (Study 3) among students that were taking their first calculus course during the time period of a semester, they studied how different individual perceptions of the academic learning environment affected male and female students' sense of belonging. They found that different views and perceptions of intelligence in their academic environment along with (negative) gender stereotypes influenced women's sense of belonging. Women who reported to perceive their math environment having an entity view of intelligence parallel with it holding negative stereotypes about women's lack of ability in this specific academic context showed lower sense of belonging and less interest in taking math courses in the future. Men's sense of belonging were unaffected by their perception of their academic environment. However, the female students who perceived their academic environment having a malleable view of intelligence considered ability as a process and something an individual can improve. By this, they also maintained their sense of belonging regardless of whether they had a perception of their academic environment as holding negative gender stereotypes about them or not. They also had a more positive view on their future continuance within the math domain. Eventhough men were unaffected by their perceptions of the academic environment viewed intelligence as a fixed or malleable trait, sense of belonging was also shown to be an important predictor of future interest in math for them. From their research, Good with colleagues (2012) suggests that academic sense of belonging is a crucial part of an academic career interest. Their results shows that environments that provide stigmatized individuals with counter-stereotypical policies and/or ideologies that is relevant in the current context can protect them from threats to their identities and their sense of belonging - which is a step towards approaching every student's possibility of learning, developing and participating on equal terms.

Research has also shown that gender differences in academic interest can be influenced by environmental cues about what members are preferred and valued within a specific academic community and domain (Cheryan et al., 2009). As with SIT, different stereotypes, prejudices and negative attitudes can convey a sense of who is accepted and fits in or not. Cheryan with colleagues (2009) refer to this as ambient belonging, where *ambient identity cues* are objects within a specific environment that can prevent those who do not meet the prototypical member criteria from entering the field. That is, ambient cues can either hinder or boost an individual's feelings of belongingness and make the individual expect inclusion or exclusion based on the perceived compatibility with the signaled stereotypes,

which refers to the current environment and its members. Cheryan et al. (2009) studied the underrepresentation of women within computer science (considered as masculine), and examined the possible impact of ambient cues on interest. In their Study 1 their results demonstrated how female students' sense of belonging and interest was negatively affected when they were located in a setting where stereotypic computer science objects had been made salient, which for example were sci-fi posters and video games. Further, from their four studies they could conclude that these ambient cues also affected women when they were asked to imagine workplaces that had been presented with computer science stereotypic objects - even if the work-place were portrayed as gender equal or entirely occupied by women. The research of Cheryan et al. (2009) showed that by perceiving an environment as stereotypically masculine could lower women's sense of belonging and impair their interest in computer science and in other occupations that conveyed a sense of being masculine. The male participants were not affected by the setting or information. However, an interesting finding was that both men and women showed greater preferences towards a non-stereotypical environment. This suggests that stereotypical ambient cues can discourage women, but also some men, from entering a field because of perceived lack of resemblance with the specific academic community, its members, and the specific domain. In relation to this, research conducted in the Netherlands on female professors showed how women-friendly environments are perceived as being better to facilitate the aspirations of becoming female professors, than those environments that are perceived as being non-women-friendly (Sanders, Willemsen, Carla, & Millar, 2009).

The current work does not focus on actual objects within an academic environment that can function as ambient identity cues as Cheryan et al. (2009) did. It rather shares Good et al. (2012) focus on students' perceptions of their academic environment. However, the study of Cheryan et al. (2009) is still considered illustratively useful as it demonstrates how different cues within a social context can affect an individual's sense of belonging and in turn their academic and occupational interest. That is because real objects, or prevailing ideologies, cultures, attitudes and stereotypes are all factors that can provide a framework of who could expect inclusion or exclusion within the given context.

In sum, although previous research has focused on different kinds of sense of belonging they all demonstrate the influence that belongingness can have on achievement and interest in pursuing an academic path. High sense of belonging encourages students' intentions and interest within school or within the Academia, whereas low sense of belonging can impair individuals from interest in fulfilling an academic aspiration (Cheryan et al., 2009;

Good et al., 2010; Mallett et al., 2011; Walton & Cohen, 2007). From this, the awareness of the male dominance within the Academia may communicate to women that they are unwelcome and will have greater difficulties in becoming a member of the researcher community which in turn can lower their interest. The awareness may instead convey a sense of belonging and "fitting in" to men and thus affect their interest positively.

Overview of the Current Work

In the current work the gender imbalance within the Academia is of interest - where men dominate the top of its hierarchy. Tellhed's (2013) study showed that men and women differ in interest in post graduate school. Information about the current state of the Academia as being gender imbalanced made men become even more interested towards the researcher profession compared to the men in the control condition. No gender difference in interest was found in the control group. However, women showed lower interest than men regardless of what information they had received about the Academia. Unanswered questions from Tellhed's (2013) study concerns *why* and *what* mechanisms that functioned as interest increasers for the male participants. Did the men simply benefit from hearing information about their dominance? Or was this information connected to other psychological aspects? Also, women's general low interest will be studied, in order to explain why it was that their interest was relatively low regardless of what they were told about the Academia.

The main purpose of the present study is to examine why more men than women apply for post graduate school and become researchers. The present study will examine some psychological factors that may shed some light to these unanswered questions. In the current work I will explore male and female students' interest towards a future career as a researcher. I will do this by measuring their sense of belonging to the researcher community, their personal goals along with their perception of how well the researcher profession facilitates those goals, and lastly their personal expectation of social identity threats if they would become a researcher in the future. As the study of Tellhed (2013), I will use information about the Academia as being either gender imbalanced or in progress towards gender equality as experimental manipulation. Then I will examine how this information affects the students on the mentioned psychological factors and consequently the students' interest. The specific hypotheses in the current work are as follows:

1) Men will show greater interest towards a future researcher career than women.
2) Men's interest towards a researcher career will increase when they are reminded of the gender imbalance within the Academia.

3) The gender difference in interest is mediated by gender differences in occupational goals. Women will endorse more communal goals than men, and the researcher profession will be considered as more compatible with agentic goals than communal goals. Thus, as women to a greater extent than men endorse communal goals, they will consequently show less interest towards a researcher career.

4) The gender difference in interest is mediated by a gender difference in expected sense of belonging to the researcher domain and its community, where men are predicted to expect more sense of belonging than women.

5) Women will expect more social identity threat than men when they think of a future career as a researcher, but this is not predicted to mediate the gender difference in interest.

Method

Design

A 2 (sex: man vs. woman) ^{x} 3 (gender balance manipulation: gender imbalance information, gender equality information, and neutral information) between-groups factorial design was used to measure the dependent variable; interest in a future researcher career. The participants were randomly assigned to one of the three conditions.

Participants

Two hundred and eight (99 men, 109 women) mainly social science students at Lund University participated in the study. The mean age for the participants were 24.02 ($SD =$ 4.22), ranging from 19 to 46 years of age. Participants were recruited on several different social science lectures at Lund University. This was done after receiving approval from the lecturers and teachers of the concerned classes. Some participants were also obtained on campus by asking them to voluntarily participate. All participants were offered a chocolate bar for their participation.

Measures

Manipulation - gender imbalance information. Three different sheets of information were attached to the second page of the questionnaire (which prevented participants to notice the varying information sheets), and were randomly distributed among the participants. This was the same experimental manipulation that was used in Tellhed's (2013) study. All information was based on statistical facts, but the focus of the presented facts differed in the different manipulation conditions. In the male dominance condition,

participants were informed that the Academia still today is gender imbalanced. This followed by four examples that supported the statement (e.g., approximately 80 % of all professors in Sweden are men, despite the fact that women have been a majority among students at the universities since the 1970's). As previously described, the Academia in Sweden is making progress in becoming more gender equal. In the light of this, one of the four statements in the gender equality condition was "Today in Sweden, there are as many women as men that are admitted for post graduate school". In the control condition, participants were only informed that we were interested in their opinions in a future academic career.

    Manipulation check. One item functioned as a manipulation check, and was used to examine what effectiveness and impact that the experimental manipulation had had on the participants. This was the same item used that was used in Tellhed's (2013) study. This item was assessed by asking the participants "When you hear the word 'researcher', do you mainly think of a man or a woman?". The item was measured on a 7-point Likert scale (1=*mainly a woman*; 7=*mainly a man*). Values lower than four was considered indicative of a female researcher association, while values higher than four was considered indicative of a male researcher association.

    Interest. Interest was measured by three items. Two of these were "How interested are you in applying for post graduate studies?" and "How interested are you in working as a researcher in the future?" and were retrieved from Tellhed's (2013) study. The third item was "How enjoyable do you think it seems is to be doing research?" and was adapted from Eccles and Wigfield (2002). The items were measured on a 7-point Likert scale (1=*not interested/enjoyable at all*; 7=*very interested/enjoyable*). For the present sample Cronbach's alpha was .96 for the total interest scale.

    Sense of belonging. The Sense of Belonging to Math Scale (Good et al., 2012) is a 28-item scale that contains five different dimensions; Membership (e.g. feel membership to the researcher community); Acceptance (e.g., feel accepted); Affect (e.g., feel calm); Trust (e.g., feel that even when I perform poorly, my supervisor and colleagues will have faith in my potential); Desire to fade (e.g., try to say as little as possible). The Desire to fade-subscale was reversed for the analysis. In the present study, the scale was modified from a math setting to a "future researcher setting". Every new page that contained questions from this scale was preceded by the phrase "If I would come to work as a researcher at the university I think I would...", and the items were measured on a 7-point Likert scale (1=*strongly disagree*; 7=*strongly agree*). For the present sample Cronbach's alpha was .93 for the total Sense of

Belonging scale. Alpha reliabilities for the subscales were; .96 for Membership; .88 for Acceptance; .87 for Affect; .75 for Trust; and .83 for Desire to fade.

Occupational goals. Participants were asked to indicate how important different goals were to them personally (goals endorsement). This was followed by two questions concerning how well the participants expected the researcher profession would fulfill these goals (perceived goal affordance). The goal endorsement items were retrieved from the study of Diekman et al. (2010) and was used to measure the perceived importance of agentic (e.g., power, success, and financial rewards) and communal (e.g., helping others, working with people, and spiritual rewards) goal endorsement. Participants were asked to respond to the several goals that were preceded by the phrase "How important are each of the following goals to you personally?". These were measured on a 7-point Likert scale (1=*not important at all*; 7=*very important*). For the present sample the Cronbachs alpha was .86 for agentic goals, and .86 for communal goals.

The two perceived goal affordance items were also retrieved from the study of Diekman et al. (2010) and were modified to a "researcher setting". Communal goal affordance was assessed by asking "If you were to work as a researcher, how much do you think it would endorse goals of working with, and helping others?". Agentic goal affordance was measured by asking "If you were to work as a researcher, how much do you think it would endorse goals of power, achievement and new experiences or excitement?". These two items were originally developed by Pohlmann (2001) and were adapted and modified by Diekman et al. (2010), and were measured on a 7-point Likert scale (1=*not at all*; 7=*much*).

Social identity threat. Social identity threat was measured by three items previously used by Cheryan and Plaut (2010), and these were modified to a researcher context in the present study. The three items that were "How sexist do you think the researcher profession is?", "If you were a researcher, how much would you worry that people would draw conclusions about you, based on what they think about your gender?" and "How much do you feel your gender would be valued in the researcher community?" (this item was reversed for the analysis). Three more social identity threat items were included, all retrieved from Tellhed's (2013) study. They were assessed by asking "If you choose to work as a researcher in the future, how likely is it that you will be met by negative stereotypes (i.e., negative pre-assumptions about your sex's qualities), based on your gender?", "If you choose to work as a researcher in the future, how likely is it that you will be met by negative prejudices (i.e., be disliked) based on your gender?" and "If you choose to work as a researcher in the future, how likely is it that you will be discriminated (i.e., be treated unfair), based on your gender?"

All of the items were measured on a 7-point Likert scale (1=*not at all probable*; 7=*highly probable*). Alpha reliabilities for the present sample showed .79 for the total scale of social identity threat.

Procedure

The survey was presented in different social science classes approximately five minutes before their 15-minutes break, lunch-break or at the end of their lecture. My colleague and I first presented ourselves and the projects aim to the participants (i.e., to identify students interest for a future academic career, and that it was a part of a larger research project at the Department of Psychology at Lund University). This was followed by information about the approximate time for completing the questionnaire (i.e., 10-15 minutes), and that everyone who participated would receive a chocolate bar. Thereafter, all participants were informed that participation was voluntary, anonymous and that they could withdraw their participation at any time (this information could also be read on the first page of the questionnaire and also functioned as consent to the participation). We also clarified that the questionnaire should be done individually and private without discussing one's answers with others while filling in the questionnaire, and that the questionnaire contained questions on both sides of the papers. The students that wanted to participate were asked to stay in the lecture hall while filling in the questionnaire, where my colleague and I observed the whole event. All participants were debriefed after their participation in the survey. They were informed about the three different condition groups (gender imbalance information, gender equality information and the control condition), and that these three conditions were used as data in the attempt of explaining sex differences in future academic interest. No participant communicated that they had experienced any discomfort because of the manipulation or the questions in the questionnaire. The participants were also informed that the current research aim, as well as continued research in the same area hopefully will lead to a more gender balanced Academia in the future. The participants that were obtained on the campus were informed and debriefed in the same way as those obtained in the classrooms.

Result

Preliminary Analysis

One participant was deleted from the data set because of more than five percent of missing values across items, leaving 207 participants (98 men, 109 women). Other missing values were handled by pairwise exclusion, a procedure recommended by Pallant (2010).

Manipulation Check

A two-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of gender imbalance information on the participants association and perception of a researcher. There was a significant, small main effect of sex [$F(1, 201) = 5.31$, $p = .02$, $\eta^2 = .03$]. Both men and women indicated that they associated a researcher more with a man than a women, but the men ($M = 5.15$, $SD = 1.19$) associated a researcher with a man more than the women ($M = 4.73$, $SD = 1.36$). The main effect of the manipulation did not reach statistical significance [$F(1, 201) = .48$, $p = .62$, $\eta^2 = .01$], neither did the interaction effect between the manipulation and sex [$F(1, 201) = .03$, $p = .97$, $\eta^2 = .00$]. Pearson's correlation analysis was conducted to explore the relationship between researcher association and interest, but did not show a significant correlation. This result suggests that the manipulation did not affect the participants' researcher association; therefore I did not expect the manipulation to produce the expected effect that I previously have articulated in the hypotheses. However, the experimental manipulation was still included in the forthcoming analyses.

Gender Differences in Interest

To explore the impact of participant sex and the gender imbalance information on the participants' interest in a future researcher career (Hypotheses 1 & 2) a two-way between-groups ANOVA was conducted on the total interest scale. The dependent variable was the total scale of interest that consisted of the three interest items and the between factors were the manipulation (male dominance/gender equality/control) and sex (male/female).

The main effect of sex, and the interaction effect between sex and the manipulation did not reach statistical significance ($F's < 1$), neither did the main effect for the manipulation [$F(1, 201) = .17$, $p = .83$, $\eta^2 = .00$]. The mean for the whole sample's interest in a future researcher career were 3.89 ($SD = 1.61$).

A two-way between-groups ANOVA was conducted separately on the interest items and showed that there was a small significant main effect of sex on the item "To work as a researcher", [$F(1, 201) = 3.88$, $p = .05$, $\eta^2 = .02$]. Consistent with Hypothesis 1, which predicted that men would show greater interest than women, the men ($M = 3.86$, $SD = 1.91$) were more interested in working as a researcher than the women ($M = 3.39$, $SD = 1.64$). This item was used in further analysis to investigate the hypotheses of what variables might explain gender differences in interest in a future academic career as a researcher.

Occupational Goals

A two-way between-groups ANOVA was conducted to explore the impact of participant sex and the gender imbalance information on personal importance of communal

goal endorsement. The dependent variable was the total scale of communal goals and the between factors were the manipulation (male dominance/gender equality/control) and sex (male/female). There was a significant, large main effect of sex in communal goals [$F(1, 199) = 30.16$, $p = < .01$, $\eta^2 = .13$]. Results showed that the women ($M = 6.01$, $SD = .69$) more than the men ($M = 5.32$, $SD = 1.07$) endorsed communal goals. The main effect of the manipulation [$F(1, 195) = .15$, $p = .86$, $\eta^2 = .00$] and the interaction effect between sex and manipulation [$F(1, 195) = .19$, $p = .82$, $\eta^2 = .00$] did not reach statistical significance.

A two-way between-groups ANOVA was conducted to explore the impact of participant sex and the gender imbalance information on personal importance of agentic goal endorsement. The dependent variable was the total scale of agentic goals and the between factors were the manipulation (male dominance/gender equality/control) and gender (male/female). There was a significant, moderate main effect of sex in agentic goals [$F(1, 199) = 10.9$, $p = < .01$, $\eta^2 = .06$], where women ($M = 5.2$, $SD = .72$) more than men ($M = 4.84$, $SD = .79$) endorsed agentic goals. The main effect of the manipulation [$F(1, 199) = .12$, $p = .89$, $\eta^2 = .00$] and the interaction effect between sex and the manipulation ($F < 1$) did not reach statistical significance. Pearson's correlation analysis did not show any significant correlations between interest in working as a researcher and communal or agentic goal endorsement. Therefore Hypothesis 3, that women's higher communal goal endorsement would impede with interest towards a future researcher career and consequently result in the gender difference in interest, did not gain support in this study.

To investigate and compare the participants' responses on the two dimensions of goal endorsement a paired sample t-test was conducted. Analysis separated for the men showed a significant difference between agentic goals ($M = 4.84$, $SD=.8$) and communal goals ($M = 5.32$, $SD = 1.07$), [$t(95) = 4.21$, $p = < .01$ (two-tailed)]. The mean decrease between agentic and communal goals was .48 with a 95% CI ranging from .25 to .7. Analysis separated for the women also showed a significant difference between agentic goals ($M = 5.19$, $SD = .72$) and communal goals ($M = 6.01$, $SD = .69$), [$t(104) = 9.6$, $p = < .01$ (two-tailed)]. The mean decrease between agentic and communal goals was .82 with a 95% CI ranging from .65 to .99. Results suggest that there was a significant difference between endorsing communal and agentic goals, where the endorsement for communal goals was slightly higher than for agentic goals, both for the men and the women.

A two-way between-group ANOVA was conducted to explore the effect of sex and the gender imbalance information on the participants' expectations of the researcher professions ability to fulfill communal goals (i.e., perceived goal affordance). The dependent

variable was communal goal affordance and the between factors were the manipulation (male dominance/gender equality/control) and gender (male/female). There were no significant main effect of sex ($F < 1$) or the manipulation [$F(2, 200) = .25$, $p = .78$, $\eta^2 = .00$], neither was there a significant interaction effect between sex and the manipulation [$F(2, 200) =. 67$, $p =. 51$, $\eta^2 = .01$] on perceived communal goal affordance.

A two-way between-group ANOVA was conducted to explore the effect of sex and the gender imbalance information on the participants' expectations of the researcher professions ability to fulfill agentic goals. The dependent variable was agentic goal affordance and the between factors were the manipulation (male dominance/gender equality/control) and sex (male/female). There was however a significant, small main effect of sex in perceived agentic goal affordance [$F(1, 200) = 5.84$, $p = .02$, $\eta^2 = .03$]. Women ($M = 4.78$, $SD = 1.32$) more than men ($M = 4.28$, $SD = 1.61$) perceived a researcher career to afford agentic goals. The main effect of the manipulation [$F < 1$] and the interaction effect [$F(2, 200) = 1.11$, $p = .34$, $\eta^2 = .01$] did not reach statistical significance. Pearson's correlation analysis showed a medium, positive correlation between working as a researcher and agentic goal affordance ($r = .38$, $n = 206$, $p < .01$), suggesting that participants with high levels of agentic goal affordances are associated with high levels of interest in the researcher profession.

Sense of Belonging

A two-way between-groups ANOVA was conducted to explore the impact of participant sex and the gender imbalance information on the total sense of belonging scale (i.e., sense of belonging to the researcher domain and its community). The dependent variable was the total scale of sense of belonging and the between factors were the manipulation (male dominance/gender equality/control) and sex (male/female). The main effect for sex did not reach statistical significance [$F(1, 201) = .07$, $p = .8$, $\eta^2 = .00$], neither did the main effect of the manipulation [$F(1, 201) = .45$, $p = .64$, $\eta^2 = .01$], or the interaction effect between manipulation and sex [$F < 1$].

There was however a significant, small interaction effect between sex and the experimental manipulation on the sense of belonging subscale "Membership", [$F(2, 200) = 3.54$, $p = .03$, $\eta^2 = .03$]. As predicted by Hypothesis 4 concerning men's greater expected sense of belonging, the men ($M = 4.51$, $SD = 1.46$) reported more confidence in expected sense of membership to the researcher community than the women ($M = 4.42$, $SD = 1.41$). An inspection of the mean showed that there was only a sex difference in the control group. In this group, the men ($M = 4.71$, $SD = 1.47$) had more confidence in becoming a member of the researcher community than the women ($M = 3.85$, $SD = 1.42$; $t(63) = 2.04$, $p = .02$, two-

tailed). This subscale will from now on be referred to as "sense of membership". Pearson's correlation analysis showed a large, positive correlation between interest in working as a researcher associated and sense of membership ($r =. 54$, $n = 65$, $p < .01$) in the control group.

Further, two one way between groups ANOVA:s separate for the men and women showed that the men's sense of membership towards the researcher community was unaffected by the experimental manipulation ($F < 1$), but the women's sense of membership was affected and the analysis showed a moderate effect size [$F(2, 106) = 4.16$, $p = .02$, $\eta^2 = .07$]. Post-hoc comparisons using the Tukey's HSD test indicated that the women in the control condition ($M = 3.85$, $SD = 1.42$) expected to feel significantly less sense of membership than the women in the male dominance condition ($M = 4.7$, $SD = 1.45$). The women in the control group also expected to feel significantly less sense of membership compared to the women in the gender equality condition ($M = 4.63$, $SD = 1.21$).

Social Identity Threat

A two-way between-groups ANOVA was conducted to explore the impact of sex and the gender imbalance information on total scale of social identity threat. The dependent variable was the total scale of social identity threat and the between factors were the manipulation (male dominance/gender equality/control) and sex (male/female). There was a significant, large main effect of sex [$F(1, 199) = 65.15$, $p = < .01$, $\eta^2 = .25$]. As predicted by Hypothesis 5, the women ($M = 4.06$, $SD = 1.18$) in general reported greater anticipated social identity threat than the men ($M = 2.86$, $SD = .9$). The main effect of the manipulation did not reach statistical significance [$F(1, 201) = .44$, $p= .65$, $\eta^2 = .00$], neither did the interaction effect between the manipulation and sex [$F < 1$]. As predicted, Pearson' correlation analysis did not show a significant correlation between interest in working as a researcher and social identity threat.

Mediators for Interest in Working as a Researcher

The main purpose in the current study was to examine why men are more interested in the researcher profession than women. In other words, what psychological factor(s) that might mediate this gender difference. In this study, for a variable to be considered as a potential mediator it had to show a significant sex difference and correlate with interest in working as a researcher. Two variables met this criteria; agentic goal affordance, and sense of membership (subscale to Sense of Belonging Scale) in the control group.

A series of mediation analyses (Baron & Kenny, 1986) was conducted to test agentic goal affordance as a potential mediator for the sex difference in interest in working as a future researcher. The analysis showed that agentic goal affordance did not meet the criteria's for

being a significant mediator, and therefore could not explain the gender difference in interest towards working as a researcher.

Next I assessed Hypothesis 4, that sense of membership mediates the gender difference in interest in working as a researcher in the control group. A series of mediation analyses (Baron & Kenny, 1986) was conducted to examine this relationship. As shown in Figure 1, when interest in working as a researcher was regressed on sex, sex significantly predicted the interest (B = -.91, β = -.25, p = .05), and the regression was significantly different from zero [R^2 = .06 (Adjusted R^2 = .05), $F(1, 64)$ = 4.18, p = .05]. When sense of membership was regressed on sex, sex significantly predicted membership (B = -.86, β = -.29, p = .02), and the regression was significantly different from zero [R^2 = .08 (Adjusted R^2 =.07), $F(1, 63)$ = 5.78, p = .02]. When interest in working as a researcher was regressed on sense of membership, sense of membership significantly predicted interest (B = .66, β = .54, p = < .01), and the regression was significantly different from zero [R^2 = .29 (Adjusted R^2 =.28), $F(1, 63)$ = 25.67, p = < .01]. When interest were regressed on both sense of membership and on sex results showed that sense of membership significantly predicted interest (B = .63, β = .51, p = < .001) but sex no longer significantly predicted interest (B = -.37, β = - .1, p = .37). The regression was significantly different from zero [R^2 = .3 (Adjusted R^2 = .28), $F(2, 62)$ = 13.2, p = < .01]. The Sobel test (1982) revealed that sense of membership was a significant mediator for the relationship between sex and interest in working as a researcher in the control group (Z = -2.13, p = .03).
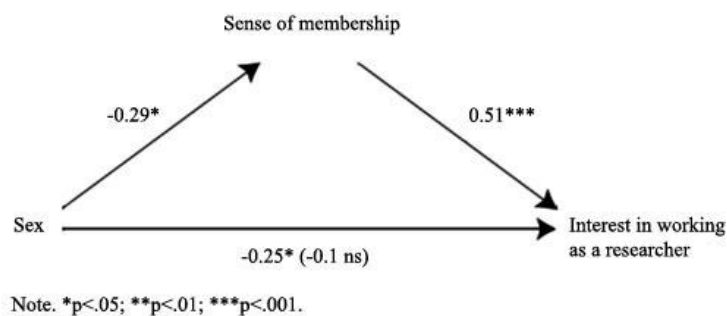

Note. *p<.05; **p<.01; ***p<.001.

Figure 1. Sense of membership mediate the effect of sex on interest in working as a researcher in the control group.

Discussion

The aim of this study was to explain why more men than women are interested in a future researcher career. The students were provided with information about the Academia as being either gender imbalanced or in progress towards becoming gender equal (or no

information). Thereafter, in relation to a future a researcher career, the students' expected sense of belonging, their personal goals, goal affordances and perceived risk of experiencing social identity threats were assessed through self-reports. The hypotheses were that men would be more interested in a researcher career than women, and that this interest would increase among men who were informed about the male dominance within the Academia. This increase in interest was hypothesized to occur due to feelings of higher sense of belonging, and/or endorsing agentic goals that were thought to be especially compatible with a researcher career. Women were hypothesized to be less interested in a researcher career because of less goal congruity towards the researcher profession by endorsing communal goals more than men, and by expecting less belongingness towards the researcher domain and its community. This study confirmed a gender difference in interest, where the men showed more interest than the women. However, the gender difference in interest was only found on one measure, which I will return to. The prediction that there would be a gender difference in sense of belonging was confirmed, although only on one subscale and solely in the control group. This positively correlated with interest, and could explain the gender difference in the control group. This study could not support the hypotheses concerning the other predictors of interest; neither of them could contribute to explain the gender difference found in interest in working as a researcher. In this study it was also hypothesized and confirmed that women expects more social identity threats than men if they were to become a researcher in the future. In line with the prediction, social identity threats did not mediate a gender difference in interest.

Gender Difference in Working as a Researcher

Previous research has shown that men's interest in a researcher career is higher than women's, and that it increases when they learn about the gender imbalance within the Academia (Tellhed, 2013). This study confirms the prediction that there is a gender difference in interest towards the researcher profession, and that men are more likely to show interest than women. However, in this study a gender difference was only found on the item where the participants were asked about their interest in working as a researcher. Contrary to the results of Tellhed's (2013) study is also that the men and women in the present study were unaffected by the information concerning the state of the Academia. In general, both men and women showed relatively low interest towards the researcher profession. A possible explanation is that the current sample was not particularly interested in post graduate school or the researcher profession compared to the participants from Tellhed's (2013) study. The participants may not yet have had an opportunity to be exposed to and encountered a fair

opinion, consideration and conception about post graduate school, the researcher profession and its community.

Although the manipulation had no effect, one other possible explanation for the small, and lack of, gender difference in interest is that the women in the present study may have been more interested towards the researcher profession compared to the women in Tellhed's (2013) study, and thus may have balanced out the gender difference. This could have been a result of me and my colleague who distributed the surveys providing the female students with an association between women and researchers that inspired them and raised their interest a bit compared to the female students in Tellhed's (2013) study, where the surveyor was a man. This will be further discussed further on in this thesis in terms of the effect of role models.

Sense of Belonging to the Researcher Domain and its Community

Previous research has shown how women's interest in pursuing an academic path can be negatively affected when experiencing low academic sense of belonging towards the specific academic domain (Good et al., 2012). Good et al. (2012) found that belongingness, along with perceiving ones academic environment having a malleable view on ability, could explain women's retention within the Academia. Specifically, low sense of academic belongingness could explain women's disinterest in pursuing their academic path. The present study could partly establish a link between women's lower sense of belonging to the researcher domain and (dis)interest in a future career as a researcher. A gender difference was found, but only on the membership subscale of sense of belonging, and this gender difference was solely demonstrated in the control group. The men in the control group showed more confidence in becoming valuable members within the researcher community compared to the women, and this could explain the gender difference in interest in working as a researcher in the future. The results also showed that men did not differ across conditions. The men from all three groups reported values above the mean, suggesting that they felt that they would have a rather fair chance of becoming members of the researcher community.

The women in the control condition did however report less expectation of becoming valuable members of the researcher community than the women from the male dominance and gender equality condition. As men did not differ across conditions, a possible explanation for the gender difference only to emerge within the membership-subscale can be that the membership dimension triggered some aspect that were of particular importance to the women. Good et al. (2012) do not describe their different dimensions thoroughly, so it is my own speculation that the membership dimension may be viewed upon as similar to a general sense of belonging, but with focus on social connectedness towards and within a domain.

Research that has focused on social belonging that reflect a more general sense of belonging has demonstrated the positive effects of feeling belongingness with others and its positive relation to retention in school. Low or lack of social connectedness has, on the other hand, negative effect on students and their desire to persist within an academic context (Mallett et al, 2011; Walton & Cohen, 2007). Thus, women in the control group may have expected difficulties of making friends within the researcher community which in turn lowered their interest.

When gender was not emphasized, as in the control condition, the gender difference emerged and women showed less sense of membership as predicted. One possible explanation for that the women in the manipulation conditions reported to expect more sense of membership from can be interpreted in terms of a reactance effect because of the gender imbalance information's emphasis on gender. In line with this, Cheryan et al. (2009) found that mechanisms - ambient cues - can discourage students from certain stereotypical domains where they do not feel resemblance with the salient domain stereotype. They reasoned that environments contain clues that signal who can expect to become a valued and accepted member or not, which in turn affect individuals expected sense of belonging in that certain context. Further, the research of Good et al. (2012) was not experimental as participants were only asked to report their perception of their educational environment. In line with this, a possible explanation for the gender difference to only occur in the control group, and the potential reactance effect among the women who had received information about the gender imbalance within the Academia, is that unidentified environmental cues may before this study already have signaled to the women and the men that it would either be easy or difficult to for them to become valuable members of the academic researcher community. Thus, a perception of the chances of becoming a member of the researcher community may already have made an impact both on the men and women. When gender was highlighted the women from the two manipulation conditions may have become particularly motivated to disprove the perceived claim of that they would have difficulties in the future becoming members in the researcher community, whereas the women in the control condition represented the baseline that did not receive information that could have evoked this reactance effect.

Communal and Agentic Goals in Relation to a Researcher Career

As predicted, there was a gender difference in communal goals, where women endorsed communal goals more than men. However, both men and women endorsed communal goals more than agentic goals. Unexpectedly, results also showed a gender difference in agentic goals, where women endorsed agentic goals more than men. Further, a

gender difference in agentic goal affordance was found, where women showed a greater belief of the researcher profession being compatible with agentic goals than men. Agentic goal affordance was also shown to positively correlate with interest in working as a researcher. Contrary to the hypotheses, neither goals nor goal affordances could explain the gender difference in interest in working as a researcher.

Previous research demonstrates that agentic goals are perceived as particularly compatible with male-stereotypic careers, and that communal goals are particularly compatible with female-stereotypic careers. This link between goals and goal affordances has been shown to affect career interest (Evans & Diekman, 2009; Diekman et al., 2010). This is because occupational stereotypes can foster a perception of career goal affordances, which may welcome or lock people out from different domains even though the career may afford their goals (Evans & Diekman, 2009; Diekman et al., 2010; Diekman et al., 2011). The present study shows that the association held by the participants was that it was more likely for a researcher to be a man than a women a, which can suggest them perceiving the profession as being more male-stereotypic than female-stereotypic. However, unlike previous research (Diekman et al., 2010; Diekman et al., 2011; Evans & Diekman, 2009) the current work could not explain the gender difference towards working as a researcher based on the assumption of communal goals being impeded within a male-stereotypic career.

Gender differences were found both on agentic and communal goals, where women endorsed both communal and agentic goals more than men. A possible explanation for the non-correlation between interest in working as a researcher and communal goals is that that working as a researcher may not have been perceived to impede with personal communal goals. The results even showed that both men and women had relatively high perceptions of the researcher profession being able to afford communal goals. It is plausible, that as the majority of the participants reported a social scientific major, they may have perceived a researcher career within the social science not as a career that impairs the opportunity of fulfilling communal goals. Diekman et al. (2010) found that STEM-careers was particularly perceived as incompatible with communal goals, that male-stereotypic careers neither were perceived to afford communal goals, and that female-stereotypic careers were considered as highly compatible with communal goals. As STEM-careers were perceived as most incompatible with communal goals, the individuals who especially endorse communal goals showed less interest in a career within a STEM-field. This pattern was also shown towards male-stereotypic careers. Although the results of this study showed that participants had a male-researcher association, it is plausible that the women and men may have perceived the

researcher profession within a social science field as being able to fulfill their communal goals, and in turn not cause disinterest due to goal incongruity among women or discourage men who especially value communal goals. In other words, a male-stereotypic profession was shown to be perceived to afford communal goals when it was within a female-dominated discipline, such as the social science. An unexpected finding was also that the male students reported communal goals as *more* important to them personally than agentic goals. One possible explanation for this is that men within social science discipline, and for example majoring in psychology or sociology, may endorse different goals than men that are within other disciplines such as STEM. The social science is a discipline with a people-focus, and this may particularly attract men who endorse communal goals. Although, this should be interpreted with caution as it can be a product of the current sample and should be further studied.

One unexpected finding of this study was that of women reporting greater importance of agentic goal endorsement than men. Although research (e.g., Twenge, 1997) has shown that women increasingly have incorporated agentic traits, values and orientations, it has not been to that extent that women have showed *more* agency than men. Men and women have become more similar, and are expected to become even more similar. However, this is due to that women continue to acquire agentic traits and orientations, not because men are becoming, or expects to become, more communal. Therefore, the biggest gender difference is located within the communion-dimension (Diekman & Eagly, 2000, Twenge, 1997). The perception of future gender roles withhold the female gender role as more communal than the male gender role, thus it seem to be an important stereotype and norm concerning women (Eagly et al., 2000; Diekman & Goodfriend, 2006). Findings of this study confirm the pattern of gender difference in communion, but also extend with the finding of women endorsing more agentic goals than men. Perhaps in Sweden gender differences in agency may have changed to what can be described as reversed - which to my notion have not been reported from research in the U.S. (Twenge, 1997). It is possible that women, more than men, are motivated and ambitious towards making a career, parallel with being highly motivated towards fulfilling communal goals and preferences. It is plausible that this general high goal endorsement of both agentic and communal goals make women "double strive" both for career-fulfillment and care-taking-fulfillment. The possible effect and consequences of this double striving is however beyond the spectrum of this thesis and something that future research should address.

Further, research has demonstrated how agentic goal endorsement can foster an interest in male-dominated careers (Diekman et al., 2010). The current finding shows that

parallel with the researcher profession not being perceived as impeding with communal goals, and the that the women endorsed both agentic and communal goals more than men. Both men and women also perceived a researcher career to be more compatible with agentic goals. Women even perceived it to afford agentic goals more than what the men did. Further, a positive relation was established between agentic goal affordance and the researcher profession. This suggests that participants who perceived the researcher profession being able to fulfill agentic goals also showed greater interested in the profession. However, contrary to the findings of Diekman et al. (2010), the predictability of agentic goal affordances on gender differences interest in working as a researcher was not be established, thus no conclusion can be drawn about if agentic goal affordances can explain the gender difference in interest in the researcher profession.

The SRT suggests that gender roles are is created and formed by observing men and women in different positions in a society. This shapes the gender roles and leads to prejudices and expectations of men and women - what they are and ought to be (Diekman & Eagly, 2008; Eagly et al., 2000; Eagly & Karau, 2002; Prentice & Carranza, 2002). Gender roles can influence what goals men and women personally value and (ought to) strive for (Diekman, et al., 2011; Diekman & Eagly, 2008; Evans & Diekman, 2009; Morgan et al., 2001). In this study, both men and women reported that they associated a researcher more with a man than with a woman, which can suggest them perceiving the profession as more male-stereotypic than female-stereotypic. In the current study it was hypothesized that women would be less interested in working as a researcher career as it would be perceived to impede with personal communal goals. Even though a gender difference in communal goals was found it could not explain the gender difference in interest in working as a researcher. A possible explanation to the lesser interest among women in working as a researcher is perhaps not due to a concern of goal incongruity. Instead, it may be due to a role congruity conflict, where the researcher role and the female gender role is not perceived to be congruent, and from this women anticipates a risk of others evaluating them negatively due to the role perceived violation (Parks-Stamm et al., 2008; Eagly & Karau, 2002). This would explain how the women could value communal goals, perceive the researcher profession to afford communal goals - but still show less interest towards working as a researcher because of the masculine occupational stereotype. Another possibility is that this study may have focused on dimensions of agentic goals and communal goals where men and women do not differ most, which are perhaps not crucial for the interest in a future researcher career.

Expectations of Perceiving Social Identity Threats as a Female Researcher

As predicted, a large gender difference was found in expected SIT, where the women showed greater perceived risk of experiencing SIT than the men. SIT did not predict the gender difference in interest, which was in line with the hypothesis and previous research (Cheryan & Plaut, 2010; Tellhed, 2013). The current works finding shows that women did not perceive the researcher profession and its community as a particularly women-friendly environment. Rather, they perceived it as an environment where they probably would experience negativities such as discrimination, stereotypes and devaluation because of their gender. The result shows how the women, regardless of the manipulation, perceived a greater risk of experiencing SIT than men. The fear of SIT has been shown to negatively affect women in male-dominated fields, and how it can make women less willing to pursue an academic path, including women who are highly interested in the domain (Cheryan & Plaut, 2010; J. Steele et al., 2002; Steele, 1997). The current study's results confirm the pattern and prediction of women being more likely to experiencing SIT than men. If the participants were identified or not towards the researcher domain is however beyond the scope of this thesis, as domain-identification was not measured.

Research has shown that SIT can be triggered by experiencing oneself as a member of a minority or stigmatized group (Murphy et al., 2007). It is also proposed that SIT can result in avoidance behavior that follows from having experienced, experiencing, or is expecting to experience, unfair judgments and treatments because of one's gender (J. Steele et al., 2002). The expectancy-dimension is of particularly interest as it was measured in this study. Research has shown that women in male-dominated fields can, among other aspects of SIT, be deterred from pursuing a career because of expected sex-discrimination (J. Steele, et al., 2002). In line with this, the current finding shows how the researcher profession and its community was perceived as a place where women might risk to encounter SIT. From the expectation of SIT women can come to disengage or disidentify themselves from situations and domains that are perceived as a risk of embodying this fear in order to protect their social identity and self-concept (Steele, 1997; C. M. Steele et al., 2002; J. Steele, et al., 2002). J. Steele et al. (2002) found that this avoidance does not have to result in women leaving the Academia, rather it can make them seeking out for opportunities and fields elsewhere where their interest can be stimulated and cared for. This reasoning is applicable to the current structure within the Academia as women are not a minority within the Academia as a whole, but they are a minority at the top positions (HSV, 2012). Further, research on female professors perceptions shows how the experience of being a minority, whether it correspond

with the actual sex-ratio within the academic-field is or not, affects their perception of the environment being women-friendly or not. Women-friendly environments positively affected the female professors' perception of their own, and becoming female professors', chances of reaching this higher academic position (Sanders, et al., 2009). Thus, the current findings provide information about women's expectations of being negatively treated and judged if they were to become researchers, which can result in them being discouraged and changing their career path towards a less frightening - which consequently would maintain the gender imbalance within the Academia.

Cheryan et al. (2009) found that social identity threats could be triggered by objects in the environment, whereas Murphy et al. (2007) found that it could be awaken by the experience of being a minority member. From this, and in relation to the current work, there is a possibility that even though participants were undergraduate students they may already have encountered a perception of post graduate school and the researcher profession as being a threatening setting and masculine where they also are a minority. The present study along with previous research with a similar population shows how students had encountered a male-researcher association more than a female-researcher association (Tellhed, 2013; Sinclair et al., 2013). Even though the manipulation did not have effect, other hints and cues may have, situationally or chronically, influenced the women's perceptions of being threatened in a future academic career. Hence, women within the Academia may have picked up clues elsewhere that have informed them about a possible risk of threats to their identity in this context. For example, the strong emphasis on gender equality it Sweden and the governmental attention towards gender equality may create and foster gender equality parallel with providing a pre-knowledge of who could expect being discriminated within certain areas. However, this speculation is made with caution and must be further studied.

Research of J. Steele et al. (2002) showed that women suffered from social identity threats especially in male-dominated fields, such as within STEM-fields. It was also shown that women from STEM-fields were more open towards changing their major to another less threatening one within a female-dominated field, such as the social science. Women in female-dominated disciplines reported less social identity threats, however it did not mean that women did not report *any* SIT from the female-dominated disciplines. Unlike the study of J. Steele et al. (2002) this study did not compare students from different disciplines. However, the present study's population was almost exclusively students who reported a social science major, and demonstrates that women can expect (great) social identity threats also within the

social sciences. Thus, even though it may be considered as a female-dominated discipline, it is not synonymous with an identity safe environment for women.

Eventhough the women across all conditions in this study expected to experience SIT much more than the men, this result can also be viewed upon from a positive angle. In Tellhed's (2013) study, the women who had learned about the male dominance within the Academia were the ones who expected to perceive the most SIT, followed by the women in the control condition. Although the women who had learned about the Academia making progress towards gender equality did not differ in their expectation of SIT from the men, they did however also report that they expected to perceive SIT. One explanation for the current study not demonstrating these manipulation effects could be interpreted in terms of me and my colleague were perceived as female role models. To clarify, the increased expectation of being stereotyped discriminated or judged as a researcher was *not* higher among the women who were informed about the gender imbalance within the Academia compared to the gender equality condition and the control condition, which could have been a result of my colleague and I being perceived as role models that the female students could identify themselves with. This might have boosted against some SIT which led to the "balanced" result. The effect of role models is discussed further on in this thesis. Still, results showed how the female students did expect to perceive SIT as a researcher because of their gender. From this it is possible that SIT can make women stay at the lower levels within the Academia, by functioning as frightening barriers if women tries or considers climbing the academic ladder. Thus, it is of importance to reflect upon what consequences this could have on researcher aspirations, such as working as a researcher in the future.

Role Model Effects Instead of Manipulation Effect

Previous research has shown how male students' interest towards a research career increased when they learn about the male dominance within the Academia (Tellhed, 2013). This positive effect among the men was not demonstrated in the present study, eventhough the same manipulation as in Tellhed's (2013) study was used. One possible explanation for this is the impact of the surveyor's gender. In Tellhed's (2013) study the surveyor was a man, whereas the surveyors it in the current study were two women. It is plausible that the male surveyor were perceived as a role model by the male students. Roles models are argued to have a positive and boosting effect on members of the same social group (C. M. Steele et al., 2002). Further, research has demonstrated how this effect can occur in distribution- and performance settings (Marx & Roman, 2008). Thus, by perceiving a role model could have resulted in a boosting effect for the men and made them become more interested in applying

for post graduate school in Tellhed's (2013) study. In the present study the general interest towards a researcher career was relatively low, including the measure where a gender difference was found. This comparison of interest in a researcher career and the gender of the surveyor can provide an insight in what mechanisms that boost or hinder men's future academic interest. From comparing these two studies, a possible explanation is that the interest among low interested men was awakened when asked about interest in a male-dominated profession, such as the researcher profession, parallel with observing a male distributer and being provided with favorable and advantageous information. When not provided with a male role model the interest was perhaps not as easily awakened among low interested men.

The same-sex role-model reasoning can also be applied on the female participants in the current study. In Tellhed's (2013) study there was a gender difference in interest between men and women, where it was larger in the manipulation groups compared to the control group where no gender difference was found. From comparing the results of this study with Tellhed's (2013) it is possible that the women experienced the boosting effect of role models from me and my colleague, as there were no large gender difference in interest towards working as a researcher, and no gender difference towards the researcher career in a general sense. Even though women did not become *more* interested than men, the current effect may be more plausible due to the surrounding negative mechanisms such as expectations of SIT that were shown to be higher for women than for men in both of these studies. Thus, the non effect of the manipulation along with no, or only a small gender difference, can be interpreted in terms of me and my colleague functioning as identifiable and competent role models, that did not create an threatening upward social comparison that is argued to have the reverse effect (Parks-Stamm et al., 2008; Rudman & Phelan, 2010). The women could have been primed by me and my colleague and associated us with researchers after being informed about the study's general aim. From this we may have been perceived as women who despite the current barriers and obstacles made an entrance within the Academia. This consequently could have raised their interest and evened out the gender differences compared to Tellhed's (2013) study. Besides the possible effect of the surveyors gender and the non-effect of the manipulation, and although the populations of Tellhed's (2013) and the current study is similar, the current study's finding may also have been a product of the present sample, perhaps due to general low interest and/or vague insight in a future researcher career.

Limitations

This study had several limitations. Primarily it was limited by not conducting a pilot study. Due to the current works hardship in explaining the causes of the current gender difference in interest in a future researcher career that empirically has been demonstrated by Tellhed (2013), a pilot study may have enabled the possibility of detecting possible flaws which could have provided an opportunity for making improvements. These improvements could have been poor formulations or translations, or misunderstandings such as if my intention and perception of the questions in the questionnaire corresponded with the participants understanding of the questions. My study would have benefited from the possible opportunities that might have followed from this, for example concerning the non-effect of the manipulation.

An effect of the question order by reporting ones gender on the first page of the questionnaire, and hence enabled the possibly of activating gender stereotypes, might also have been noticed. A pilot study could have highlighted this by testing its potential effect by having one group report their gender on the first page and have another group report their gender on the last page of the questionnaire. Also, findings of this study highlight the possible effect of the surveyors' gender. If this effect was detected before conducting the study it could have been used and measured in a more controlled manner.

Even though the questionnaire was used to measure future researcher career interest and was based on validated scales, from a pilot study it would have been possible to evaluate the potential risk of the use of a future perspective among the students. Specifically, if a future researcher career perspective was perceived as too hard to grasp for the students. This could have been obtained by either included it as a question in the questionnaire or through interviews with pilot study participants.

Another improvement of the study could have been to include an identity safety condition in the manipulation. Both of the two conditions of the experimental manipulation can have been perceived as emphasizing the current imbalanced state within the Academia. From previous research it has been demonstrated that by reporting ones social identity (e.g. ethnicity) on the first page of a questionnaire (Steele & Aronson, 1995), or having ones social identity highlighted in relation to negative experiences (Mallet et al., 2011) SIT can be activated. So, from the possibility of not actually having a gender neutral or equal manipulation condition, an identity safety condition should be considered to be included in future research. This may have captured the participants, especially the women's, interest and intentions in a researcher career without potential bias of having activated gender stereotypes

and in turn also SIT. The current study's manipulation was based on statistical facts, however, an identity safety condition would have to either find statistics where men and women are currently being equals, or create utopian statements that do not rest on statistical facts. This however would have to be thoroughly considered as it creates ethical concerns by providing students with false information.

Future Directions

This study showed how sense of belonging under some circumstances can be decreased among students who doubt their opportunity of becoming a member of the specific academic community. More specific, the findings showed that concerns about expected membership among female undergraduate students in the control group could erode feelings of belongingness towards future career working as a researcher. I have proposed that the membership can be viewed as a social connectedness focused dimension, and from this it is plausible that different kinds of belongings are more or less important in different stages along the education. That is, some dimension(s) of academic or general sense of belonging may be perceived as more (or less) important for women and men, but also for first-year students than to master students or post graduate students and vice versa. Future research should address this by continue to explore what dimensions of sense of belonging that crucial for students to develop, and what mechanisms that can erode, a sense of belonging within an academic domain. This could in turn provide with practical means of how to create an environment that facilitates future academic career interest.

What effect chronic internalization of SIT and personal experiences of SIT (such as sex discrimination) have on future expectations of experiencing SIT should be addressed by future research. The current study only measured perceived risk of being a future target of SIT and thus could not examine these possible relations. More specific, the possibility of chronic internalization of sexism to spill over to an academic domain and on an individual's career aspirations should be examined. Also, personal experiences of SIT, or the effect of being provided with information about one's "threat-status" from media, politics or friends are of interest to study. Perhaps both chronic sexism and close or personal experiences of SIT together or separate work to erode the possibility of gender equality work within the Academia to have effect, and thus not reach and protect all students the same or equally. From a SRT perspective, the current gender equality work that is done may not be enough as the students are still observing the gender imbalance within the Academia due to its present social structure. The information generated from the proposed research could provide with new angles of how to effectively reach all students and how they might be reached differently.

Research has empirically demonstrated how women within the Academia to a greater extent than men expect to perceive SIT based on their gender (Tellhed, 2013). From this another question that remains unexplored is whether knowledge and information about gender discrimination, rather than information about progress towards gender equality, can buffer against or deter stigmatized individuals from entering certain fields. That is, if (and when) it can reduce the risk of perceiving ability as inherent and instead as an external barrier and thus convey a sense among stigmatized social group members of being as able as those of majority-status, or if it reinforces the negative effect of perceived obstacles and lower ability.

Future research can gain from studying females who actually have made a career as a researcher. As of the research of Sanders et al. (2009), different aspects of barriers, negativities, but also positive and boosting aspects could from this lead to new perspectives and approaches of how to handle the gender imbalance within the Academia. They found how women-friendly environments were perceived as facilitating environments for aspiring female professors. Hence, it would both be fruitful to study minority group members, women in this case, that have made a career within the higher positions within the Academia, but also master students who are approaching the choice and possibility of continuing to their academic path to post graduate school. They could both provide with practical knowledge about the perception and expectation, and also the actual experience, of how to manage and handle hinders and barriers such as sexism and stereotypes. In line with the role-model reasoning, they could also function as practical examples of it not being impossible to fulfill and strive for higher academic career aspirations. This should also be applied to men that have made, or aspire to make careers within female-dominated fields. From a SRT perspective, this could in turn function as a step towards social change. By highlighting men's and women's presence within gender a-stereotypical positions; the formation of gender roles can possibly be affected and thus also affect the gendered division of labor.

One question that arises from this study's findings is also under what circumstances the possible boosting effect or role-models occur. Further, when comparing Tellhed's (2013) and this study's results, it is possible that men and women (in a male-dominated context) experience the boost of role models differently. This study's findings show how men do not necessarily become more interested or motivated by being (or imagine to be) in a majority-context, they may under some circumstances need an extra boost such as the boost from a same-sex role model. Perhaps this is extra important when students may not yet have given the target of interest much consideration, such as a researcher career among undergraduate students. Further, the boosting effect can be suggested to have occurred among women in the

presence of female surveyors, and buffered against the manipulation that highlighted the gender imbalance within the Academia as they were situated (or imagined to be) in a male-dominated context. Future research should continue to address the question of the effect of role-models in relation to context and under what circumstances they are facilitated or oppressed.

Research has shown that communal goal endorsement can be in conflict with male-stereotypic careers (Evans & Diekman, 2009; Diekman et al., 2010; Diekman et al., 2011). As the studies of Diekman et al. (2010) and Diekman et al. (2011) the current study also used general conceptualizations of agency and communion. Other research have demonstrated gender differences in career-aspirations due to communal goal endorsement when measuring a more specific communion-dimension of family- and domestic responsibility (Evans & Diekman, 2009). Even though women endorsed more communal goals than men also in this study; this was not linked to (dis)-interest in a researcher career. A suggestion for future research is to compare and study different dimensions of communion and how they interact with male-stereotypic careers, such as a researcher career, and examine what aspects may be crucial to interest in a future career as a researcher. Perhaps it is family concerns that are conflicting with interest in a researcher career, not one's general communal goals.

Implications and Conclusion

The gender segregation on the labor market is a fact as a majority of men and women are concentrated within gender stereotypical professions (Löfström, 2005). The gender segregation is also a reality within the Academia, where men are occupying the majority of the higher positions (HSV, 2012). Sooner or later students will become aware of this gender imbalance and be more or less affected by it. Previous research by Tellhed (2013) along with the current study's findings shows how women express a great concern of being discriminated, judged and stereotyped based on their gender if they were to become researchers within the Academia. This fear also reflects a reality where women do meet barriers such as discrimination under under-recognition based on their gender (see Knobloch-Westerwick & Glynn, 2013). It is possible that role models can make female students feel less concerned; especially those who become aware about the researcher profession being male-dominated. Providing female-role models may hinder some women of opting out or changing their career path, and instead persist within the field. From a SRT perspective, by observing more women on higher academic positions the occupational stereotype concerning researchers may be re-shaped to a less male stereotypic. Thus, a change both in the researcher stereotype could result in encouragement of *both* women and men who currently are shut out

and do not perceive themselves belonging to the researcher domain to consider a researcher career. It can also have re-shaping effect on the injunctive norms that are ascribed to men and women, by observing more agentic women and communal men. However, the mere observation of more females is not sufficient enough to evoke the boosting effect of role models; individuals have to be able to identify with the role-models, so the upward social comparison is not perceived as to threatening or it will have reverse effect (Parks-Stamm et al., 2008; Rudman & Phelan, 2010). Therefore, it is important to broaden the inclusiveness within the researcher field and the researcher stereotype, and continue the gender equality work - the work of creating an environment that signals inclusion and acceptance both for women and men.

The present study shows how gender segregation in the Academia can be upheld due to barriers such as the fear of being negatively treated and judged because of one's gender. It also shows how some students' career interest can be impaired because of expectations of not becoming a part of the academic community. The expectancy of social identity threat, exclusion and rejection can consequently maintain the current gender imbalanced state of the Academia - a state that hinders women of climbing the academic ladder. Therefore, it is crucial to continue equality work that stresses every human beings equal value, importance and ability regardless of gender or other social identity.

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