



Absent autonomy: Relational competence and gendered paths to faculty self-determination in the promotion and tenure process

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Absent Autonomy: Relational Competence and Gendered Paths to Faculty Self-Determination in
the Promotion and Tenure Process

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Abstract

This research examines ways in which men and women university faculty sought self-determination in the promotion and tenure (P&T) process. Self-Determination Theory (SDT; Deci & Ryan, 2012) research tends to view autonomy as the central factor in self-determination, taking priority over other psychological needs of relatedness and competence. The P&T process occurs within a context that inherently limits autonomy, providing a unique opportunity to examine experiences of relatedness and competence when autonomy is constrained. We used a qualitative research strategy with a matched case study design to explore how individuals experience the constructs of SDT (i.e., autonomy, competence, and relatedness) within the P&T process. Our project focuses on faculty in science, technology, engineering, and mathematics (STEM) departments undergoing P&T review at one university. Women faculty in STEM were compared with men faculty at the same rank and in similar departments concurrently going through P&T review. Findings showed that men reported experiencing self-determination via *informational competence* whereas women approached self-determination through *relational competence*. Creating a level playing field for faculty navigating the P&T process requires being attuned to different paths to self-determination, fostering relationships between faculty, and clarifying policies and procedures.

Keywords: Self-Determination Theory; gender; promotion & tenure; relational competence

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“I know that [standards for P&T] can vary and I know each discipline is a little different, but what should one be striving for?” (P07, W)¹

Perhaps no part of the academic career-path is more anxiety-producing than the promotion and tenure (P&T) review process. A candidate’s professional history is subjected to intense scrutiny by a jury of peers and the review process is one of the least autonomous experiences in a highly autonomous profession (Finkelstein & Altbach, 1997). Self-Determination Theory (SDT) asserts that self-determined experience is central to human motivation, goal pursuit, performance, persistence, and wellbeing (Deci & Ryan, 2000). Moreover, of the three psychological needs necessary for self-determination—autonomy, relatedness, and competence—autonomy is taken as paramount (Deci & Ryan, 2012). Because autonomy is significantly constrained in the P&T process, this context provides an opportunity to consider the role of relatedness and competence in a self-determined experience. We ask: how do women and men faculty members experience relatedness and competence in this professionally important, low-autonomy situation?

Self-Determination Theory

Self-Determination Theory (SDT; Deci & Ryan, 2000, 2012) posits that creativity, motivation, and performance thrive when three universal psychological needs are satisfied: autonomy, relatedness, and competence. When these needs are satisfied, individuals experience an event, job, or task as self-determined, and behavior becomes motivated by internal factors that emerge from personal goals and values as opposed to external reinforcements or demands (Deci,

¹ Indicates participant number and self-identified gender (W = woman, M = man). We acknowledge that this binary approach to gender is inadequate for all purposes, but all participants in this study identified as women or men.

1975). According to SDT, *autonomy* is defined as having flexibility and control over processes and outcomes, and is associated with enhanced persistence and performance through greater intrinsic motivation (Deci & Ryan, 2000). *Relatedness* is the need to connect with other people in meaningful ways, and reflects the universal need for social connection. Humans have an innate need to forge close bonds with other people (e.g., McClelland, Atkinson, Clark, & Lowell, 1953), to avoid ostracism (Williams et al., 2005), and to create a sense of belongingness with others (Baumeister & Leary, 1995). Finally, *competence* is the need to feel efficacious and to have opportunities for learning and mastery. Self-perceived competence is a central component of achievement, goal formation, and motivational processes toward approaching success and avoiding failure (Elliot & Church, 1997; Pintrich, 2000). Self-determination, according to SDT, occurs when these three needs are satisfied.

A self-determined experience in the workplace is important. Central to the present discussion, self-determination at work predicts positive outcomes such as employee loyalty, job satisfaction, intrinsic motivation, performance quality, persistence, work enjoyment, creative thinking, effective problem solving, employee well-being and mental health, and high-quality personal relations with others (Deci & Ryan, 2000; 2012). When employees are intrinsically motivated to perform, for example, they are more likely to persist in the face of difficult tasks and demonstrate effective performance, creativity, and problem-solving (Deci & Ryan, 2000). In the academic context, P&T processes that foster self-determination may promote faculty success and job satisfaction. Indeed, a greater sense of control over constructing the tenure dossier predicts faculty perceptions of fairness in the review process (Lawrence, Celis, & Ott, 2014). These considerations may be particularly important for increasing rates of underrepresented people in academia, such as women faculty in STEM fields.

Importantly, SDT does not consider the three needs to be equal in the experience of self-determination—the importance of autonomy has been given a primary role (Deci & Ryan, 2000). Relatedness and competence are conceptualized as part of the contextual background that gives rise to self-determination, whereas autonomy is viewed as the key ingredient. In their review article, Deci and Ryan (2000) state: “...autonomy occupies a unique position in the set of three needs: being able to satisfy the needs of competence and relatedness may be enough for controlled behavior, but being able to satisfy the need for autonomy is essential for the goal-directed behavior to be self-determined and for many of the optimal outcomes associated with self-determination to accrue,” (p. 242). Their research showed that competence without autonomy was inadequate for developing intrinsic motivation, and relatedness without autonomy did not result in positive influences on well-being that resulted when relatedness autonomy support were provided in tandem (Deci & Ryan, 2000). Autonomy is deemed necessary for intrinsic motivation, which is a robust predictor of positive outcomes in education, employment, and health care settings (Deci & Ryan, 2000).

In contrast to SDT, many feminist theorists have argued that relatedness plays a central role in achieving both autonomy and self-determination (Nedelsky, 1989; Christman, 2004; Buss, 1994; Friedman, 1997; MacKenzie & Stoljar, 2000; Narayan, 2002; Anderson & Christman, 2005; MacKenzie, 2008). Feminist theory asserts that self-determination can best be understood in terms of “relational autonomy,” insofar as the ability to influence outcomes can be significantly affected by our relationships with others and in relation to social, political, and economic institutions. Relatedness is crucial for understanding the kinds of challenges that different groups may face in achieving self-determination and addressing those challenges. When, for example, social institutions are shaped by racial and gender inequities, or when

gendered norms and expectations govern relationships, challenges to seeking and achieving self-determination might be different along race or gender lines.

The primacy given to autonomy in SDT raises the question we aim to address in the present examination: how are psychological needs met in contexts that are inherently low in autonomy, like P&T among university faculty? Moreover, to what extent do relatedness and competence contribute to self-determination in a low-autonomy context, and what gender differences, if any, exist in how self-determination is facilitated in this context? Women faculty, especially those working within male-dominated STEM fields, may face unique challenges in achieving self-determination during the P&T process, with potential implications for their satisfaction, persistence, and success in academia. This study examines psychological need satisfaction among women and men STEM faculty to better understand how they experience the SDT constructs of autonomy, relatedness, and competence as they undergo P&T review.

The Case Study Context: Self-Determination in P&T Among Women in STEM

Given the demonstrated impact of gender on faculty experiences and success in academia (Ropers-Huilman & Shackelford, 2003), and the potential for implicit gender biases to influence P&T outcomes (Jaschik, 2014), self-determination among women faculty is even more crucial and potentially more challenging than it is for men. There are many ways that implicit biases influence factors relevant to tenure evaluation, including bias in authorship decisions (McDowell, Singell, & Stater, 2005), peer review (Bornmann & Daniel, 2005), citation rates (Cherubini, 2008; Slyder et al., 2011), networking practices (Hanson, 2000), assessments of grant proposals (Kaatz et al., 2016), and patenting (Frietsch, Haller, Funken-Vrohlings, & Grupp, 2009). Though there are fewer studies on gender bias in P&T, research suggests that biases likely impact review outcomes as well (Jaschik, 2014).

Increasing self-determination among women faculty in STEM is a worthwhile goal for efforts aimed at improving gender equity in the academy. Despite recent efforts to increase participation of women in academic STEM departments (e.g., the National Science Foundation's ADVANCE initiative, Mervis, 2000) and associated improvements, we have not yet attained gender equity and inclusion (Mitchneck, Smith & Latimer, 2016). The most recent data available show that 44.9% of Assistant Professor tenure track STEM faculty at universities in the U.S. in 2013 were women, with considerable variation by STEM discipline—the vast majority of women in STEM are concentrated in the life sciences (National Science Foundation, 2016). Diversity initiatives supporting new faculty hires of women in STEM only go so far (Smith et al., 2015); further efforts are needed to create an inclusive environment in which women faculty in STEM can thrive and truly experience an equitable and welcoming climate as they rise through the academic ranks. For example, men are more likely than women to achieve the ranks of Associate and Full Professor (National Science Foundation, 2016) which may be partly because men are more likely than women to rate the P&T criteria as “very clear” (48.7% vs. 34.1%; Fox, 2015). Further, the idea that hiring more women Assistant Professors will result in more women Associate and Full Professors is not supported by data. For example, in 1989 there were 83,000 Full Professors, and in 2006 the number was 85,000 (NSF, 2016). In 2013, only 29.5% of senior faculty in STEM were women. Clearly, creating a more gender-inclusive academy for people working in STEM fields requires addressing P&T processes: “Status quo P&T policies might be the single greatest hurdle to change. Although the professoriate has changed dramatically over the past 20 years, many embedded values and expectations for what counts and the timeline for when things count toward advancement have remained fairly static” (Mitchneck, Smith, & Latimer, 2016, p. 149).

Present Study

This research attempts to understand self-determination via psychological need fulfillment among women and men university STEM faculty members undergoing the P&T process at one university. P&T is a high-stakes evaluation process in which tenure-track faculty prepare dossiers to defend their contributions to research, teaching, and service over a period of time determined by the university. These dossiers are subjected to seven levels of review over a one-year period, and at the end of the year faculty typically are either promoted or dismissed from their positions. Because the context of being evaluated is inherently low in autonomy (Deci & Ryan, 2000; Harackiewicz, Manderlink, & Sansone, 1984), providing support for competence and relatedness needs during the P&T process may be crucial for self-determination. Promoting a self-determined P&T process may be particularly important for increasing retention and advancement of women in academic STEM fields.

A low autonomy situation is one that is externally controlled and in which strategies and solutions are prescribed and rules must be followed in order to earn reward or avoid punishment (Baard, Deci, & Ryan, 2004). This description applies to the P&T process, in which autonomy is limited through deadlines, evaluation, threat of punishment, promise of reward, and extensive rules that must be followed without many options for personal control (see Deci & Ryan for a review of threats to autonomy). Certainly, there may be individual differences in *perceived* autonomy, and greater perceptions of autonomy relate to greater intrinsic motivation, satisfaction, and well-being (Deci & Ryan, 2000). However, P&T is an externally imposed evaluation, making it low in autonomy according to Deci and Ryan's definition.

In the case of P&T, the "rulebook" consists of official institutional documents written broadly to allow for disciplinary and departmental variation among dossiers, but consequently

faculty often find these guidelines to be vague. This perceived ambiguity leaves the interpretation and application of institutional standards to the various review committees at different levels of evaluation, generating anxiety about potential discrepancies in review standards. This context of anxiety, uncertainty, and limited autonomy provides an opportunity to examine the ways in which autonomy, competence, and relatedness emerge, are thwarted, and are prioritized, with special attention to gender differences in psychological need fulfillment. This research contributes to scholarship on gender in the workforce, to the gendered dimension of P&T processes in academia, and to the literature on SDT by showing how competence and relatedness operate in a low-autonomy situation.

Methodology

We used a qualitative research strategy with a matched case-study design (see *Participants* section for more information on matching) to understand how the constructs of SDT manifest among university faculty members undergoing P&T review and to explore gender differences in routes to self-determination. All women in STEM going through P&T review at any level during the year of the study ($n = 6$) were invited to participate, and all agreed. Men participants were invited only if they were matches for women participants; therefore some men in STEM going through the P&T process in that year were excluded. All men who were invited to participate agreed to do so, however. Participants were interviewed by an expert interviewer over the telephone about their experiences with the P&T process. To assuage participant concerns surrounding sensitive details being revealed by some faculty about their departments and their experiences, the research team hired an interviewer external to the university (see *Positionality* section below for information about the interviewer and research team). Interviews were audio recorded, transcribed verbatim, and de-identified for analysis. The research team

worked under the auspices of Montana State University's NSF-funded *ADVANCE Project TRACS* (Transformation through Relatedness, Autonomy and Competence Support) program, a 5-year institutional transformation award designed to support three initiatives to improve the recruitment, retention, and advancement of women faculty in STEM fields in ways that foster feelings of inclusion and job satisfaction among all faculty (Handley et al., 2016). This project was part of the aim to use theory-informed evaluation and assessment of women faculty's experiences in STEM. The social science research team was a diverse group in terms of rank, discipline, and epistemological orientation; all members are included as authors on this paper.

Positionality

Our research team consisted of the eight authors and an additional external interviewer. The interviewer was a European American woman with a Ph.D. in Educational Leadership who served as the Director of Ohio's Evaluation & Assessment Center for Mathematics and Science Education. She was hired specifically and only for the purpose of collecting data for this study. Of the eight authors, seven were tenure track faculty members in the Montana State University system (six from the Bozeman campus, one from the Billings campus) and represented the Departments of Psychology, Political Science, Social Sciences and Cultural Studies, History, and Philosophy. Training and expertise among the research team members included quantitative research methods and data analysis, qualitative methods and analysis, social psychology, health psychology, public policy and administration, political theory, ethics, feminist philosophy, community based participatory research, and medical humanities. There were two Professors, four Associate Professors, and one Assistant Professor. The remaining author was a master's level data analyst at the MSU Office of Planning and Analysis with a background in public administration and statistics. The team primarily consisted of women, but also included one man.

With regard to ethnicity, all team members identified as European American, which is consistent with the demographic characteristics of the university. Those on the team identified as theorists (political, feminist) and scientists (psychology, sociology, political science) trained in humanist, qualitative, and quantitative traditions of inquiry. All team members identified as feminists.

Organizational Context

At the time of data collection, Montana State University (MSU) in Bozeman, Montana was uniquely positioned both as a university with very high research activity (RU/VH) in the Carnegie classification and as a mid-sized land-grant public university serving a rural state. MSU offered 10 academic colleges and 60 majors, and was home to 9 colleges with 33 departments, 17 of which were classified by NSF as STEM. MSU was considered the premier university in the state university system for STEM fields. For example, MSU was ranked 8th nationally in the number of prestigious Goldwater Scholarships awarded to students for excellence in math and science. At the time of this study, there were 193 tenured or tenure-track STEM faculty, of whom 28% were women, with the majority of these women working at the Assistant Professor level. These data mirror national profiles of other institutions of higher learning, with low female representation in STEM in general and female gender negatively associated with rank. Men and women undergoing P&T at MSU since 2011 have been about equally successful in advancing through the ranks at every stage, with 90% and 92% overall success rates, respectively.

P&T Process at Montana State University

We operationalize P&T review as any of the major hurdles in the pathway to achieving the pinnacle of success in the academy: status as a tenured (Full) Professor. These include the pre-tenure review, review for tenure and promotion to Associate Professor, and review for promotion to Professor. The P&T process begins with the letter of hire, which specifies an

Assistant Professor's work distribution between research, teaching, and service obligations and the date by which the individual must stand for retention and tenure reviews. Faculty are reviewed annually by the department head/chair, and these annual reviews are used for merit raise decisions and to provide a record for the P&T dossier. Assistant Professors undergo a retention review during their third year of employment, and retention decisions are made at seven levels: department committee, department head/chair, college, university, Provost, President, and Board of Regents. Typically in the sixth year, professors submit a full P&T dossier which undergoes the same levels of review. Given a favorable tenure decision, faculty members are promoted to the rank of Associate Professor. Following additional years of service and documentation of having made notable contribution to one's field, faculty may then submit dossiers for promotion to Professor. Each review takes approximately one year and involves the same seven levels of scrutiny, with reward (e.g., salary increase, job security) or punishment (e.g., criticism, loss of employment) as possible outcomes.

Participants

Data were collected from the population of women faculty in STEM going through the P&T review process at MSU in the year of the study ($n = 6$). Data also were collected from a matched sample of men in STEM who were going through the same level of P&T review in the same departments as the women to allow for gender comparisons of SDT constructs. When an exact match was not available within the same department, matches were drawn from similar disciplinary fields defined by the NSF STEM Classification of Instructional Programs (see Table 1). For example, a woman in one subdiscipline of engineering might be matched with a man in another subdiscipline of engineering if one was not available for matching within her exact field, but women engineers were not matched with men in chemistry or life sciences. We used this

strategy to understand similarities and differences across gender, while holding the type of STEM department/field as constant as possible.

In one case where there was no exact match within the department and level of review, one woman was paired with two men—one in the same department up for a different level of review, and one in a different department in the same NSF STEM classification up for the same level of review. Also, in one instance, a man was paired with two women in a different department in the same NSF classification who were undergoing a different level of review. We made this decision to get the best match possible and to account for any differences in rigor or requirements between departments or between different levels of review. Thus, the final study sample included a total of 7 men matches for the 6 women faculty (total $N = 13$). In sum, we gathered equivalent data, to the extent possible, from similar men faculty that could reasonably be compared to data gathered from the population of women faculty in STEM (our population of interest) going through P&T in one academic year. As a whole, the faculty in this study averaged 42 years of age, with 10 reporting their race as White and one not reporting ethnicity data. See Table 1 for select characteristics of the sample.

[Table 1 about here]

Data Collection

Women faculty in STEM going up for P&T review in one academic year were identified by the university's Office of Planning and Analysis, which also identified possible men faculty matches based on department and level of review (see *Participants* section above). The principal investigator of the ADVANCE grant contacted each woman by email to invite her to participate in the study, and then emailed corresponding invitations to men matches. All (100%) of those invited to agreed to participate. Invitations specified that participation would involve interviews

about the P&T process to take place over the phone by an external interviewer, and emphasized the voluntary and confidential nature of the study. The next contact with participants was made by the external interviewer to schedule the phone calls.

The social science research team collaboratively developed a structured interview protocol containing open-ended questions about participants' experiences in the P&T process, with a focus on barriers and facilitators of the process itself. Participants also were asked to provide recommendations for how the university might improve P&T. Interviews took place following submission of the dossiers but prior to candidates learning the outcome. The interviews were conducted via telephone and were audio recorded. Participants received a \$25 gift card as an incentive for their contribution to the study. The interviews were transcribed verbatim by a third party unaffiliated with the project and university, and all identifying information (i.e., names, discipline, department affiliation, gender) was redacted from the transcripts by one team member who was not involved with analysis. Following the first round of data analysis, that member of the team revealed the gender of the participants to the coding team for the next round of data analysis to allow for comparisons between men and women.

Data Analysis

The goal of the analysis was to understand how the SDT constructs of autonomy, competence, and relatedness emerged during discussions about the P&T process, how faculty experienced self-determination in this low-autonomy context, and whether there were gender differences in the presence and description of these constructs. Informed by Miles, Huberman, and Saldana's (2014) approach to qualitative data coding, the research team used Deci and Ryan's psychological needs (autonomy, relatedness, and competence) as the 'bins' or categories of conceptual variables that we populated with descriptive codes representing instances of that

category (e.g., letter of hire, department head; see Table 2). In turn, themes were identified that grouped the codes (e.g., temporality in Autonomy, Rule Book in Competence; see Table 2).

Three members of the research team trained in qualitative research conducted the coding, and the data were managed using NVivo 10 (QSR International Pty Ltd., Version 10, 2012). With gender identification removed, the coders reviewed the transcripts and identified emergent descriptors of autonomy, relatedness, and competence. The team reconciled the coding decisions over multiple meetings and, in turn, consulted with the larger social science research team to ensure trustworthiness (Lincoln & Guba, 1985). Once consensus was reached regarding the codes, participant gender was revealed for cross-analysis between the matched pairs and within the parameter of gender. This iterative process took place over a number of months and involved the entire multidisciplinary research team.

Trustworthiness

We made efforts to establish trustworthiness of the findings. Credibility was established by checking with study participants to ask their feedback on the veracity of our initial findings, and by hosting a university-wide “Data Charrette” during the spring semester of the year in which the research took place. Member checking was conducted by emailing all of the participants and asking them to review and comment on a summary of the study’s findings as well as a list of recommendations for improving the P&T process that was ultimately forwarded to the Provost and the Faculty Senate. Participants responded by email and affirmed the conclusions we made with no modifications.

The campus-wide Data Charrette was a public poster session hosted by the ADVANCE grant investigators, social science research team, and university administrators. The team presented findings from this research as well as other studies supported by the grant to the

university community and sought feedback. Attendees included 100 men and women faculty and staff from multiple disciplines and departments, including some of the study participants. We attempted to confirm our findings by engaging in in-depth discussions with attendees and through anonymous comment boxes located next to each poster. We solicited online feedback through the project's website and via email as well. After receiving feedback from the MSU community, we met to discuss what we learned and refine our conclusions. Findings were supported by the feedback we received, enhancing our confidence in our interpretations.

We also aimed to establish reflexivity by maintaining an attitude of openness and acknowledgement of our biases as investigators throughout the project. This was facilitated by our interdisciplinary team of multiple investigators, who spent many hours together debating our disparate philosophical and methodological viewpoints. We constantly questioned the ways in which our academic, disciplinary, and sociocultural identities influenced this research—not only with regard to the conclusions we drew, but also the questions we asked and the methods we selected. Many debates ensued that challenged our thinking, and compromises were made that increased our confidence in our findings.

Findings

Participants reported engaging in various activities to prepare for P&T (see Table 2). Depending on their experiences in these activities, participants expressed strengthened or diminished perceptions of the psychological needs that lead to self-determination. While all participants reported seeking and receiving information as crucial to competence in the P&T process, and therefore to self-determination, the experience of doing so was fundamentally different for men and women. Understanding these divergent pathways to self-determination

may shed light on types of interventions and procedures that could effectively assist faculty to achieve self-determination and success in the academy.

In this context of reduced autonomy, experiences of self-determination were primarily expressed through an interconnection of relatedness and competence needs across gender. However, men and women described the satisfaction of these psychological needs differently, leading to two distinct paths to self-determination: *relational competence* for women and *informational competence* for men. While all participants identified information as a critical component of competence (see Table 2), the ways in which men and women obtained this needed information, particularly within the experience of relatedness, marked distinct experiences. A conceptual map (see Figure 3) portrays gender differences in how relatedness and competence were emphasized as means to achieve self-determination in the P&T process.

[Figure 3 about here]

In other words, if someone observed the behavior of these faculty members throughout the P&T process, the results likely looked very similar across the participants. However, the analysis revealed distinct phenomenological interpretations of participants' experiences in preparing for P&T. For example, although all individuals attended the institution's information session on how to prepare the P&T dossier, different people ascribed different meaning to this event. Some men reported that the value of the session was in the opportunity to receive practical instruction—for example, in how to assemble and submit electronic files—whereas some women found more value in the opportunity to connect with colleagues and receive social support. Thus, while both men and women faculty valued the information sessions, the specific aspects of the preparation strategy deemed useful differed by gender. Results are discussed by SDT categories of autonomy, competence, and relatedness, with findings supported by illustrative quotes from

the data. We conclude with recommendations for activities and strategies that may facilitate self-determination, satisfaction, and success for faculty members undergoing P&T.

Autonomy

Again, the P&T process presents a unique opportunity to study a context where autonomy is diminished, and thus where “self-determining” cannot be just another way of saying “autonomous.” The question, then, is whether self-determination is possible in the absence of autonomy.

The properties of autonomy (or lack thereof) were coded using Deci and Ryan’s definition: having flexibility and control over processes and outcomes (Deci & Ryan, 1985; 2000). Not surprisingly, few responses were coded for autonomy. However, those who did make some reference to this psychological need clearly indicated, either directly (by commenting on the process itself) or indirectly (by talking about control before or after the process) the lack of autonomy in the process: “The bad is, I guess, kind of the unknown nature of what’s going to happen and that kind of thing.” (P10, M) “So after I turned the dossier in, obviously I don’t have a lot of input (laugh).” (P05, W)

Although no participant described the P&T process as autonomy-promoting, there were participants who described autonomy at different moments in time while preparing for P&T. Some men described feeling autonomy through control, but temporally these descriptions were of autonomy experienced *before* the tenure process. For example:

“I could get in this place where I’d just be afraid to work less, because I wouldn’t know if it was enough. Okay, last year it was enough, but this year, is it enough? And I guess I’ve sort of come to terms with that where it’s like...if I’m writing successful research grants and writing papers and graduating students, and teaching my classes, then I’m doing

enough...I've always done enough in the past and it will probably be enough in the future. So just sit down and do your job.” (P04, M)

One woman expressed feeling autonomy through control as well, but temporally her description was of autonomy experienced in anticipation of *future* conditions, i.e., if she were to be denied tenure. While she viewed autonomy during the process as low, she maintained autonomy in her self-possessed talents beyond the P&T outcome:

“I will say too that part of my attitude, maybe my attitude about it is it not being as bad as some people have said...is that I'm not stuck in academia...If I didn't get tenure, I would be completely fine starting my own consulting business...I'm sure I would be disappointed, but it would not have been devastating for me...I would have been okay with a life change too (laugh), to be quite honest.” (P09, W)

In sum, although the interviews confirmed the expected low levels of autonomy, they also indicated a persistent desire for self-determination. Due to the few comments coded for autonomy, no conclusions can be drawn about gender similarities or differences in fulfillment of this psychological need. Yet confirmation of the low levels of autonomy in the P&T context leads to the question motivating the present research: How do men and women experience self-determination through competence and relatedness when the hypothesized central component of the self-determined experience is constrained?

Competence

Deci and Ryan (1985; 2000) define competence as having opportunities for learning and mastery. In the case of P&T, the learning and mastery is focused on meeting the procedural requirements: assembling the dossier, recruiting external reviewers, securing teaching evaluations, etc. Competence in the academic job itself – research and teaching – does not

necessarily translate into competence navigating the P&T process. For men and women, receiving information about P&T was identified as central to feelings of competence.

Participants indicated receiving or obtaining information in three ways: the *Rule Book* (official, written information), *informally shared information* (shared knowledge of others' experiences and dossiers), and *feedback* (direct comments to the faculty members about their dossiers).

The Rule Book

Coded as the *Rule Book*, this property of competence refers to institutional information provided in formal written documents or websites (e.g., Role and Scope, letter of hire, and Faculty Activity Database) as well as in annual university-sponsored P&T preparation sessions. If the interviewee thought that the rules were clear, she or he expressed a perception of competence; by contrast, if the participant thought that the rules were muddled, the result was frustration and a diminished perception of competence. Thus, the assessment of the Rule Book for competence had similar attributes across gender (see Table 3).

[Table 3 about here]

Although the assessment of the Rule Book was similar for men and women, its perceived effect was evaluated differently. The result was two important distinctions in how men and women described the role of the Rule Book in supporting a feeling of competence. First, men discussed these formal rules at twice the rate of women. That is, of the 112 references to the Rule Book, 85 (75%) were articulated by men. As Gilligan (1982) noted in her ethnographic study of differences in human development between men and women, men tend to look toward systems of rules for resolving dilemmas. As one male participant commented:

“I think there are regular workshops and information sessions about this P and T process held by the university so that all the junior faculty who will go through

this process will come to attend. I think I attended several of them before my own case started. So I had a pretty good idea of what they are asking for and how should I prepare it.” (P06, M)

For men, written rules emerged clearly as the place to start.

Second, although women also described the Rule Book as a key component of the psychological need for competence, the use of written rules was secondary to the dynamic interactions of relatedness.

“Maybe not everybody has all these questions and so maybe there doesn’t really need to be workshops for everybody, but knowing WHO would be appropriate people to talk to when you have these questions. Is it most appropriate to ask within your department? Is it most appropriate to go outside? Who would be good people to ask for advice? That might have been handy.” (P03, W)

This finding is congruent with other work showing that women tend to rely on relationships when addressing problems or dilemmas (Gilligan, 1982).

Informally Shared Information

The property coded *informally shared information* refers to the experience of having colleagues share knowledge, resources, and examples with the participants. This code was applied to situations ranging from sharing interpretations of the Rule Book to examples of successful dossiers to encouragement. As opposed to the written information and university forums coded as the Rule Book, informally shared information came primarily from people in close proximity to the participant—department heads and informal and formal mentors. All references of this property identified both the content of the information (e.g., interpretation of the rules, sharing old dossiers) and the source of the information (e.g., department head, mentor).

More women than men cited the importance of informally shared information as a source of competence. One important difference arose in how men and women described their experiences on this pathway to competence: the directionality of how informally shared information was obtained. For men, information was described categorically as being *offered* to them.

“[P]eople are reminding me that I should have someone else observe my teaching on a regular basis because if all my teaching evaluation came the semester before my promotion then it doesn’t look very good. So that’s what I did. So, as I said, along the way many people have reminded me how to prepare and what kind of materials I should start thinking about. Overall it’s very helpful.” (P06, M)

In contrast, for women, information was mostly described as being *sought* by them.

“So I had talked to people...I was just going off what other people had used, had put in their packets from my department, right. But then I talked to people in other departments, and they have DIFFERENT expectations about what you put in. ...And so that’s been like oh, well SHE’S putting that in there, maybe I should have it in there too. But yet the department doesn’t really SAY I have to, and it’s not clear from the university requirements what has to be there and what’s additional information.” (P07, W)

“I asked [another faculty member] if I could use his materials or his templates, just to make sure I was including everything -- like the Research section, a Teaching section -- and what was included in that. And he gave me his whole folder format. So I found that really helpful.” (P05, W)

Informally shared information was generally helpful to all participants, but the

importance of this property for women's experience stood out in contrast to that of men.

Feedback

The property *feedback* differs from information in that this refers to direct feedback from one person (department head, mentor) to the participant regarding a draft of the dossier. Interestingly, it was only the women participants who expressed feedback on their dossiers as being important to meeting the psychological need of competence. Positive feedback contributed to women's feelings of competence, whereas lack of specific feedback was related to women's concerns about competence:

“One of the things that I think would have been helpful for me would've been more feedback in terms of how I was doing. I kind of asked for feedback and it said, ‘It sounds like you're doing well. Keep doing what you're doing.’” (P07, W)

“I have an informal female faculty mentor in another department, who's in another college, but she was willing and really generous with her time, looking over my materials and giving me some feedback on earlier drafts of things. So, even though when I approached it I was like, ‘Oh gosh! I don't even know what goes where in the folders,’ and loads of instructions to wade through that aren't particularly clear, or at least I don't find them clear. It was nice to have somebody confirm like, ‘Oh, yes. This is all the stuff you need. It's all in there. That's what I was expecting to see.’ Things like that. So that was really nice for me to have that as part of my experience.” (P01, W)

For women, feedback was as central to competence as the Rule Book was for men.

Relatedness

Deci and Ryan (1985; 2000) define relatedness as the universal need to connect with

other people in relationships. In examining the interview data, relatedness emerged as a psychological need that was primarily expressed by women and mentioned in relationship to competence. While women reported that the Rule Book, informally shared information, and feedback were important for meeting competence needs, they tended to be nested in reflections of relatedness experiences. For some, this meant formal or informal mentoring; for others, it was simply a social network. But for women participants, the more positive the experience of relatedness, the greater the expression of self-determination. The centrality of relatedness for women faculty stands in contrast to its more peripheral nature in the experience of men faculty (see Table 4).

[Table 4 about here]

These data suggest that the experience of self-determination for women hinges on *relational competence*. The building blocks of competence that lead to self-determination, including information, are contextualized in relatedness. How information is obtained and feedback offered is more central to women faculty members' experience than the existence of objective rules about the process. For men, the experience of self-determination relies more heavily on *informational competence*. Feelings of competence begin with the rules and guidelines, and relatedness falls a distant second.

Discussion

These findings have important implications for retaining women faculty in the academy and for research on SDT. First, understanding how women and men experience self-determination during P&T is important for interventions aimed at promoting positive experiences among university faculty and increasing retention rates. Changing the institutional climate in ways that facilitate self-determination through fulfillment of psychological needs will

translate to improved health, happiness, and productivity of all employees. These positive outcomes also will benefit universities and the students they serve. Furthermore, these findings show that competence and relatedness needs are especially important in contexts of low autonomy. Moreover, results suggest that relatedness plays a central role in achieving competence and self-determination. This is consistent with the feminist insight that relationships with others and to social institutions significantly impact people's ability to influence outcomes and flourish. Patriarchal norms or expectations embedded in institutions can also determine the opportunities or obstacles one faces in fulfilling competence needs and achieving self-determination. Our findings demonstrate gendered paths to self-determination whereby women tend to strive to meet competence needs through relationships with others and men tend to seek competence through established rules and guidelines for success.

Providing employees with clear and reliable information about how their work performance will be judged and how success will be determined is necessary for the healthy functioning of any organization. Our findings showed that receiving information is central to developing a sense of competence and, therefore, self-determination. All participants described seeking or being provided with information while preparing for P&T as important to their well-being during the review year, or described the lack of information as a frustrating impediment to their satisfaction with the P&T process. The most frequently mentioned recommendation for improving the process was to specify the bar that one must reach to be successful in P&T. Although necessary, we argue that information is not sufficient for developing competence.

Although certain information must be obtained in order to successfully prepare P&T dossiers and navigate the process, our findings indicate that there are varying ways that information is effectively disseminated. Clear Rule Books are certainly important, but for

women, the relationships through which information is shared serve a primary role in fostering competence and self-determination. This aligns with findings from Fox (2015) showing that informal support predicts ratings of clarity regarding the P&T process more strongly for women than for men. For institutions working to recruit and retain women faculty, creating opportunities to develop relationships with other people is critically necessary to improve the work experience and better meet the psychological needs of faculty members. This is particularly important for women in STEM fields, who are underrepresented in many departments and therefore do not always have automatic or natural access to mentoring networks.

One example of a program designed to build relationships between women faculty that shows great promise is our “Snacks with TRACS,” a monthly gathering of junior faculty women in STEM. The group meets for lunch, hosts speakers who present information on resources, strategies for dealing with gender barriers, and more general strategies for success in academia. The forum also provides the opportunity for women faculty to network with each other and top university leaders. This program has facilitated many interdisciplinary connections and collaborations, and has provided an opportunity for people in departments that would not usually have many chances to interact (e.g., Psychology and Engineering) to come together and support one another. Perhaps the strongest benefit of Snacks with TRACS is the friendships that have developed as a result of these gatherings. When people know their colleagues better, they feel more comfortable asking for or offering support and resources, such as sample P&T dossiers. Although we have not formally evaluated the effects of Snacks with TRACS, we believe that it is a promising strategy for facilitating relatedness (and relational competence) needs among women in STEM. From the time of hire, universities should offer formal mentoring programs as well as initiatives like this one designed to increase opportunities to develop informal mentoring

networks and support systems. But merely assigning a mentor or hosting a gathering is not enough. Review committees also must value and reward this type of service.

Improving written guidelines and establishing consistent and transparent standards for being promoted and tenured should certainly be a goal of universities, but even the clearest standards must be deciphered in light of a particular scholar's discipline and workload. This research suggests that the policies and procedures themselves ultimately cannot do all the heavy lifting—the interpersonal network within which the Rule Book is disseminated, interpreted, and applied is important. In addition to information, women viewed receiving feedback as particularly important for meeting competence needs. This finding aligns with research showing that effective performance requires meaningful feedback (e.g., London, 2003), and that feedback promotes self-efficacy and mastery (e.g., Karl, O'Leary-Kelly, & Martocchio, 1993), which in turn predicts work performance (e.g., Stajkovic & Luthans, 1998). Given the well-researched and robust findings regarding feedback and performance, it is surprising that male respondents did not identify feedback as important for developing competence. This adds further support to the conclusion that men primarily rely on information provided to them for meeting competence needs, and justifies the label of *informational competence*.

For women, seeking information and feedback was nested within relatedness. Whereas men relied more on formal, unsolicited feedback and advice offered to them, women were more likely to seek out feedback and informal information and identified these strategies as more important than the Rule Book in preparing for P&T. This suggests that the current P&T process as it is typically constructed seems to force women to “act like men” (Williams, 2001) by consulting the Role and Scope (the official P&T informational document) and to resolve to seek out their own mentors and advisors when unsolicited help is not offered. This cycle forces

women's pathways to success underground. Treating women and men exactly the same is a well-critiqued approach to gender non-discrimination; this study suggests that a perhaps well-meaning desire not to single women out for "special treatment" may result in missed opportunities to provide mentoring and actively deliver and help interpret useful information. Administrators, senior faculty, professional organizations, and other change agents must consider the P&T process malleable and should prioritize proactive forms of support that enable independence and affirmatively facilitate faculty's abilities to have a self-determined experience. This necessarily means facilitating relational competence for women. Future research is needed to examine various support structures that support or hinder relational competence and to assess their impact on women's experiences of the process.

The present research is not without limitations. First, only interview data informed the present findings. Case study scholars recommend using multiple sources of data to enhance credibility; however, we did capture the population of women faculty in STEM and made other efforts to enhance the confidence in our findings (see *Trustworthiness* section). Also, the sample included only one woman going through review for promotion to Professor, which reflects the unfortunate underrepresentation of women at senior faculty ranks, especially within STEM (NSF, 2016). Thus, our data more effectively capture faculty in early career stages. Moreover, our research could not address whether psychological needs are met differently after candidates have more experience with the process and, presumably, more self-efficacy (for example, see Ambrose & Cropanzano, 2003). We gathered data from faculty at one institution, which provides control over some extraneous factors, but potentially limits the transferability of the findings to other universities. Furthermore, there was little ethnic diversity in the sample, which also limits transferability. It is plausible that other aspects of identity such as race/ethnicity and sexual

orientation affect psychological need fulfillment and pathways to self-determination. Additional research is needed to test relational competence in other areas of evaluation.

Our hope is that this concept of relational competence will prove fruitful for other scholars, especially those who study SDT. As Ryan and Deci (2006) note, “Prominent researchers have recently questioned either the reality or significance of the construct of autonomy and the closely related concepts of choice, volition, and will, declaring them illusory, burdensome, or bound by culture or gender” (p. 1558). We add our data to this discussion and suggest that when autonomy is low, the pathway to self-determination is bound by gender. Even when the context is not inherently low in autonomy, the placement of this psychological need as central to professional success and well-being may be overemphasized, or conflated with the concept of agency (see O’Meara, Terosky, LaPointe, & Neumann, 2008 for a review).

According to O’Meara et al. (2008), while autonomy refers to professional rights and control over one’s work environment, agency is a broader term that refers to the human capacity to act, plan, and respond to one’s environment. They suggest that institutions best serve faculty by fostering agency throughout their academic career. However, roles, climates, and contexts exert notable influence on faculty members’ sense of agency even when the primacy of autonomy is the predominant narrative (see Campbell & O’Meara, 2014). We suggest this may be a consequence of the gendered nature of organizations, including the academy, and the idealized (masculine) worker (Williams, 2001). Relational competence suggests an interdependent connection between relatedness and competence needs, and we show that there are multiple paths to navigating a low-autonomy situation that largely fall along gender lines.

The P&T process is only one form of professional review, but is considered the pinnacle of an academic career, making it a high-stakes, stressful experience for most faculty members.

Stress is compounded for women faculty by the explicit and implicit gender biases that impede success and satisfaction among women employees. Institutionalized sexism in the academy is one form of structural oppression that serves to establish and maintain a social hierarchy (e.g., Kauffman & Perry, 1989), with men claiming a position of privilege and power. The process of P&T has not kept pace with substantive changes in the professoriate (Latimer, Jackson, Dilks, Nolan, & Tower, 2014), and this rite of passage in the development of an academic career can maintain advantage and disadvantage based on identity and group membership. While our study points to the need for change in P&T policies and procedures, we acknowledge that gender equity would require a cultural shift within the entire academic system, and cannot be achieved just by changing the Rule Book.

This research provides a link between SDT and feminist theory that we believe contributes to both. Feminist scholars argue that autonomy is best understood as an ongoing process that is inextricably interdependent with supportive relations and networks, and not merely subsequent to or building on those conditions (e.g., Mackenzie & Stoljar, 2000). This contrasts with the dominant Western liberal notion of autonomy as a product of non-interference, or the freedom manifested by rational agents making unimpeded choices (Berlin, 1958). Relational autonomy scholars instead highlight the importance of affirmative material and affective support for meaningful choice (Benson, 1991; Christman, 2004; Friedman, 2003; Mackenzie & Stoljar, 2000; Meyers, 1989; Nedelsky, 1989; Young, 2000). How an agent interprets and understands the available options, the accessibility of those options, and the costs and benefits of exercising one option over another depends heavily on social identity and the social context of the current decision.

In contrast to relational autonomy scholars, SDT scholars view autonomy and relatedness as separate constructs, and give autonomy precedence in the experience of self-determination (Deci & Ryan, 2000; 2012). For our purposes, then, the question was: what role does relatedness play vis-à-vis competence in fostering self-determination in the relative absence of autonomy? We showed that autonomy is not as distinct from relatedness and competence as SDT suggests, and that these seemingly peripheral psychological needs play a more central role in situations lacking in autonomy. Moreover, given gender differences in the particular social context of the academy and the P&T process (Acker, 1990; Britton, 2000; Parsons & Priola, 2013; Fox, 2015), as well as gender differences in the way that self-determination is promoted or achieved (via informational competence for men and relational competence for women), P&T preparation strategies tailored to meet the needs and styles of women are warranted to address the important problem of gender disparities in STEM.

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Table 1. *Select Characteristics of Participants*

STEM Women ($n = 6$)			STEM Men Match ($n = 7$)		
	Disciplinary Area	Type of Review		Disciplinary Area	Type of Review
$n = 1$	Earth, Atmospheric, and Ocean Sciences	Tenure and Promotion to Associate	$n = 1$	Earth, Atmospheric, and Ocean Sciences	Tenure and Promotion to Associate
$n = 1$	Engineering	Tenure and Promotion to Associate	$n = 2$	Engineering	Retention
$n = 1$	Mathematical and Computer Sciences	Tenure and Promotion to Associate	$n = 1$	Engineering	Tenure and Promotion to Associate
$n = 2$	Biological/Agricultural Sciences	Retention	$n = 1$	Mathematical and Computer Sciences	Tenure and Promotion to Associate
	Biological/Agricultural Sciences	Retention	$n = 1$	Biological/Agricultural Sciences	Tenure and Promotion to Associate
$n = 1$	Biological/Agricultural Sciences	Promotion to Professor	$n = 2$	Biological/Agricultural Sciences	Tenure and Promotion to Associate
			$n = 2$	Earth, Atmospheric, and Ocean Sciences	Promotion to Professor

Table 2. *Emergent Properties of Self-Determination Categories*Autonomy*Temporality*

Pre-P&T vs Post-P&T

Competence*The Rule Book*: official, written information

University-sponsored meeting

Role and Scope document

Letter of hire

Faculty Activity Database

Annual Reviews

3rd year retention review*Informally shared information*: shared knowledge of others' experiences, dossiers, and interpretations of expectations from...

Department Head

Colleagues

Administrative staff

Exemplary dossiers

Mentors

Feedback: direct comments to the interviewee

Review of draft dossier

Relatedness

Department Head

Colleagues

Administrative staff

Mentors

Social Networks

Table 3. *Faculty Experiences with the Institutional Information “Rule Book”*

<i>A Clear Rule Book</i>	<i>An Unclear Rule Book</i>
<p>[T]he best feedback that I get in terms of what’s important is what’s in the Faculty Activity Database. It’s like well, if they’re asking me to enter information about these four categories of things, and then under those categories are these particular metrics, I feel like that’s the only solid feedback that I’ve gotten about what their expectations are. (P04, M)</p>	<p>Literally on the web page they have two pictures and they say just follow these methods. And then you go in to get more details and there’s another picture that is completely different from the one inside, for example. So I didn’t know. (P02, M)</p>
<p>I felt that I had done a good job of representing my work and it was all organized by criteria, by the Standards and Criteria. This is the standard, this is what I produced, here’s the next standard and the criteria and here’s what I produced. It was all organized like that. (P11, W)</p>	<p>I feel like most of my uncertainty about the process was mostly just due to kind of university wording of things. Like what do I, how am I actually supposed to show this, and to somebody at the university level. (P09, W)</p>

Table 4. *Experiences of Relatedness Among Women and Men Faculty*

Men	Women
<p>Yeah, I mean in honesty, I tend to be a person who just like wants to figure out stuff on his own. And I'm not sure that's necessarily a good thing. It just seems to be the way I roll. So utilizing the mentoring that was available...I guess I just utilized it in a much more informal way. I felt that when I needed help, I sought out the people in the department that I thought could help me, and worked on it more one-on-one rather than in a more formalized mentoring program, even though that's available in my department. (P04, M)</p>	<p>I didn't really have a mentor within my program. I hate to say this, but to be pretty honest, there's a pretty hostile environment that I found. It wasn't a very supportive ... within the program, I should say. It was a very isolating experience for me. But I did seek mentorship outside the program. (P07, W)</p>
<p>So I'm not somebody who is, feels like I have to hide it when I'm confused or afraid of what other people will think, that type of thing about me professionally. It's just more like well heck, I don't know what the hell I'm doing. So maybe xxx (name) will know. And then I call xxx (name). (P04, M)</p>	<p>I'm sure that I could have asked for help within the department. If I had asked my Department Head or something like that, it's not that I wouldn't have felt comfortable doing that necessarily, I guess it was just easier to ask [another faculty member]. I guess I do feel more comfortable feeling stupid around her than ... You know, 'Can you look at this and see if it's right?' (laughs) I don't know that I would've said, 'Oh, it would've been awesome if XXX could have done this for me,' or provided me ... I could've asked for his file or something like that. (P01, W)</p>
	<p>[I]t wasn't quite as intimidating to me because I felt like the process was presented to me as people wanted to accommodate and help you through the process. (P05, W)</p>

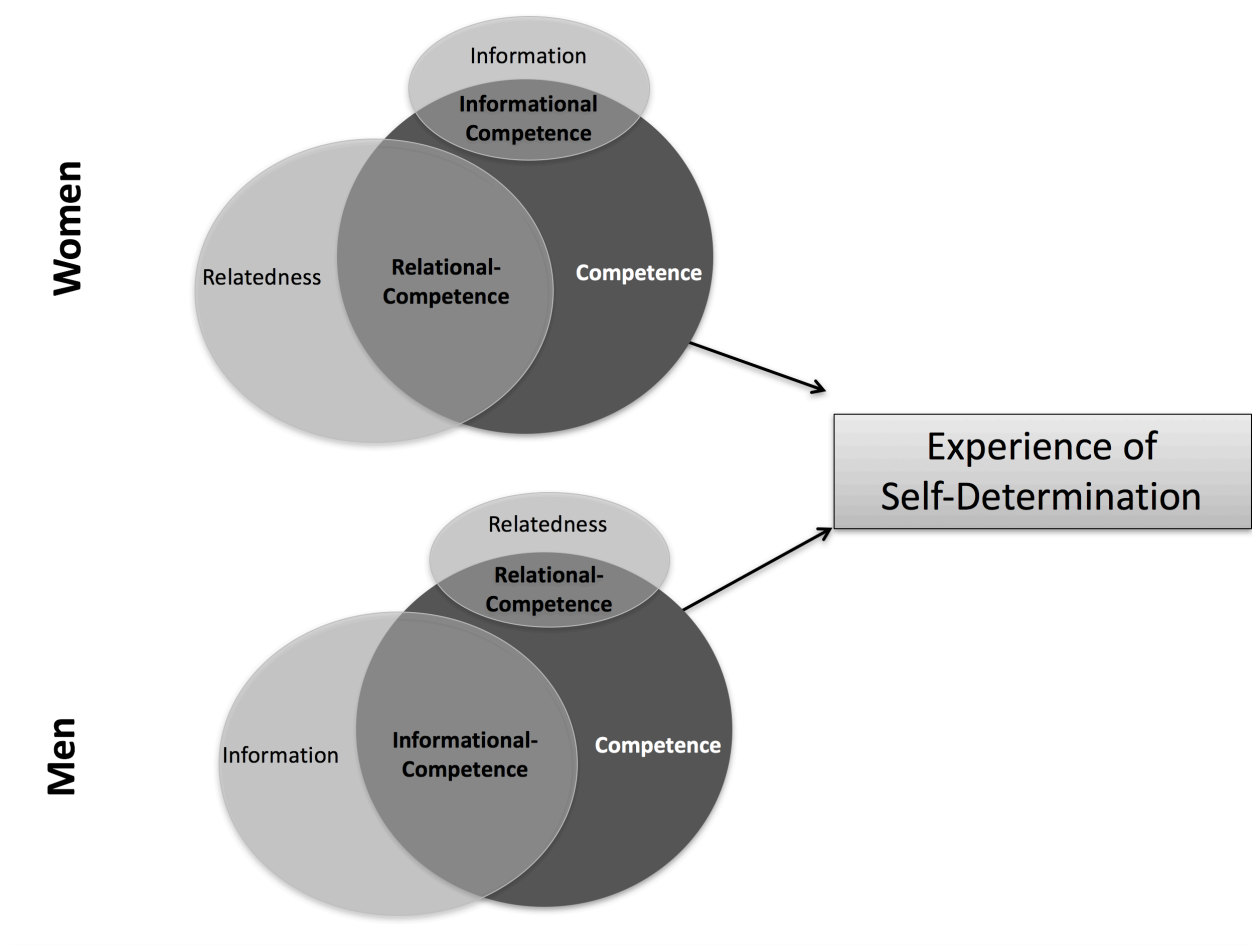
Figure 1. *Conceptual Map of the Route to Self-Determination in a Low Autonomy Situation*

Figure 3 Note: The psychological need constructs of relatedness and competence are presented for women ($n = 6$) and men ($n = 7$) faculty in STEM going through the retention, promotion and tenure process. The temporal location of the psychological need, the size of the psychological need, and the overlap between the needs represent qualitative findings of the self-determination process in our sample.