Work Generativity from a Life Cycle, Career Stage Model, and Gender-Role Perspective:
An Examination of Individual Differences and Moderating Factors that Influence Work
Generativity in Managers.

by

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ABSTRACT

Work Generativity from a Life Cycle, Career Stage Model, and Gender-Role Perspective: An Examination of Individual Differences and Moderating Factors that Influence Work Generativity in Managers.

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Changing labor demographics present researchers with a need to explore factors that influence generativity in the workplace by considering stage models of adult development and gender-role frameworks. This study examined the effects of individual differences (age, managerial role tenure, gender, and agency and communal traits) and moderating factors (managerial level) on direct report, boss, and peer ratings of work generativity. Participants (N = 709) were managers that participated in an assessment center and multi-rater job performance feedback process. Managerial role tenure better predicted work generativity than age across all of the rater sources, especially for male managers. Agency predicted work generativity across all of the rater sources. Communion predicted work generativity for the direct report and peer rater sources, but not for the boss rater source. Communion also accounted for incremental variance after agency only for the direct report rater source. Gender accounted for incremental variance after agency and communion in work generativity for the peer and boss rater sources, but not for the direct report rater source. A two-way gender by managerial level interaction was found for the boss rater source. The pattern of these results indicated the effects of
individual differences and moderating factors on work generativity vary across rater sources, and rater sources differ in perceptions of work generativity.
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INTRODUCTION

Organizations across industries are facing imminent losses in human capital with the exodus of many baby boomers (the large generation of persons born between 1946 and 1964; U.S. Bureau of Labor Statistics, 2005) from the labor population. To overcome these critical talent losses, organizations must discover means to accelerate the development of remaining and new workers. After the departure of many baby boomers, the population of mid-life workers will be the primary keepers of organizational learning. Can organizations look to mid-life workers to take on the challenge of developing the next generation of less experienced workers? Stage models of adult development may hold a key to determining if mid-life workers will assume this responsibility.

Life cycle (Erikson, 1950/1963; Levinson, Darrow, Klein, Levinson, & McKee, 1978) and career (Super, 1957) stage models of adult development theorize that over the human lifespan an adult passes through a sequence of stages. Each stage is characterized by a specific developmental (Erikson, 1950/1963), life (Levinson et al., 1978), and career (Super, 1957) task (or challenge). The prominent developmental task during the mid-life (ages 40 to 60 years) phase is generativity (Erikson, 1950/1963; Levinson et al., 1978). Generativity is defined as “primarily the concern in establishing and guiding the next generation” (Erikson, 1963, p. 267) and can be expressed through behaviors such as nurturing, teaching, and mentoring the next generation (Erikson, 1950/1963). Generativity includes other-involvement (sharing one’s skills with others) and inclusivity (including many others in one’s generative efforts; Bradley & Marcia, 1998). Adults report they expect to be most generative during mid-life (McAdams, de St. Aubin, &
Logan, 1993; Ryff & Heincke, 1983). However, the question remains if adults in mid-life actually engage in more generativity, particularly in the workplace. A primary goal of the current study was to examine generativity among mid-life workers in a work context.

Workers in mid-career, not just in mid-life per se, may also play a key role in aiding in the development of the next generation of workers. Researchers have not yet determined if generativity exhibited in mid-life also occurs in tandem with mid-career. The question of whether workers progress through life and career stages concurrently is important to consider when conducting adult development research because age and career stages may not necessarily correspond with each other (Finkelstein, Allen, & Rhoton, 2003). Career stages may not follow the same sequential pattern as life stages because workers may begin their careers at different ages or may experience interruptions along the way (Sullivan, 1999). Researchers have noted that future research needs to “operationalize career stage and disentangle possible effects of chronological age and career stage” (Finkelstein et al., 2003, p. 278) to determine the relative contribution of each in explaining generativity in the workplace. Thus, another goal of the current study was to determine if career stage is a better predictor of generativity in a work context than age.

Generativity is also theorized (Erikson, 1982) and empirically found (Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams, Ruetzel, & Foley, 1986) to be related to two contrasting motives, “the communal need to be nurturant and the agentic desire to do something” (McAdams et al., 1993, p. 222). However, the question remains if such traits influence generative behaviors in the workplace. Kanfer and Ackerman (2004) propose that “further research is needed to evaluate the salience of these
[generativity] motives among mid-life workers in the workplace and the relationship of
generativity motives to the direction of workplace behavior” (p. 445). Thus, another goal
of the current study was to examine the role of agency and communal traits in work
generativity.

Researchers have also noted the need for future research to consider the suitability
and validity of existing life cycle and career stage frameworks for women (Finkelstein et
al., 2003), especially in management. The percentage of women in managerial roles has
Although women occupy as many managerial roles as men, the career trajectories for
women may be dissimilar to men’s (Sullivan, 1999). For example, women may begin
their careers later in life than men or exit the workforce temporarily due to family
demands (Finkelstein et al., 2003). Work generativity may also be particularly relevant
for women during mid-life and mid-career stages. For example, recent meta-analytic
evidence has revealed there are no sex differences in agency, and women are higher on
communion than men (Twenge, 2001). Thus, another goal of the current study was to
examine gender differences in work generativity and generative-related traits.

Despite these gender differences in generative-related traits, moderating factors
may affect the degree to which women express generativity in the workplace. For
example, research has found “that more negatively biased evaluations of women
managers will occur when there is a greater perceived lack-of-fit between [male] job
requirements and attributes of women” (Lyness & Heilman, 2006, p. 783). Subsequently,
women at higher managerial levels may be high on agency and communal traits yet
exhibit less work generativity as a strategy to lessen perceived lack-of-fit. Thus, another
goal of the current study was to determine if managerial level affects the expression of work generativity among female managers.

In sum, as organizations face losses in human capital as a result of changing labor force demographics, work generativity among remaining and new workers may alleviate these changes. From a practical, as well as a theoretical perspective, researchers can extend current understanding of generativity to work settings by identifying potential antecedents and barriers to undertaking the challenging task of developing the next generation of workers. The current study attempted to identify several such factors that influence generativity in the workplace. Building upon adult development and gender-role theoretical frameworks, the current study had five overarching research goals: (a) identify if age or managerial role tenure is a better predictor of work generativity, (b) examine the unique main and interactive effects of agency and communal traits on work generativity, (c) examine the role of stage and agency and communal traits in work generativity, (d) examine the role of gender and agency and communal traits in work generativity, and (e) examine if moderating factors such as agency and communal traits, gender, and managerial level affect work generativity.

The existing literature that guides the rationale for the current study is described below. First, life cycle and career stage theories and research are presented, followed by a review of studies that have examined gender in the context of life cycle and career stages. The adult development concept of generativity as a theoretical basis from which to explore generativity in a work context is discussed, followed by a review of studies that have examined work generativity. Present knowledge on agency and communal traits in
the context of social role theory is presented, followed by a discussion of how managerial level and gender can affect work generativity in the context of the lack-of-fit theory.
THEORETICAL REVIEW

Life Cycle and Career Stage Models

Erikson (1950/1963) extended earlier models of child development with a life cycle theory of adult stages of development. Two theoretical frameworks that succeeded Erikson’s life cycle theory that have served as the foundation for most empirical life and career stage studies are the life cycle model proposed by Levinson et al. (1978) and career stage model proposed by Super (1957). According to both models, adults progress through different stages that are characterized by separate developmental tasks and psychological concerns. Levinson et al. proposed a total of nine stages including transition periods which closely correspond with age. Levinson et al.’s theory expects adults to develop sequentially through these life stages.

Although workers typically develop through career stages in a chronological trajectory, Super (1957) did not necessarily expect workers to progress in a strict fashion linked to specific ages. Super (1980) emphasized that workers could be at any of his four career stages at any age because “a career is defined as the combination and sequence of roles played by a person during the course of a lifetime” (Super, 1980, p. 282), and the “worker role changes when the individual changes jobs and occupations, as may be done more than once in the course of a lifetime” (Super, 1980, p. 285). Accordingly, career stage was posited by Super (1980) to be best measured by a worker’s tenure in a specific job role. Table 1 compares Levinson et al.’s (1978) and Super’s (1957) models and maps role tenure (as estimated by the author of the current study) onto Super’s (1957) career stages.
Table 1
Comparison of Levinson et al.’s (1978) life cycle and Super’s (1957) career stage model theories with role tenure

<table>
<thead>
<tr>
<th>Levinson et al.’s life stages and key developmental tasks</th>
<th>Super’s career stages and key developmental tasks</th>
<th>Role tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early adult transition (ages 17 to 22 years): Determine where one fits in world.</td>
<td>Exploration: Discover interests and capabilities and create self concept that fits with work.</td>
<td>Less than 1 year</td>
</tr>
<tr>
<td>Entering adult world (ages 23 to 28 years): Find work consistent with self concept.</td>
<td>Establishment: Develop competence, achieve promotions, and advance in an organization.</td>
<td>1 to 3 years</td>
</tr>
<tr>
<td>Thirties transition (ages 29 to 33 years): Assess professional accomplishments and make desired changes.</td>
<td>* Maintenance: Maintain previous accomplishments, become less competitive, and improve an organization.</td>
<td>*6 to 10 years</td>
</tr>
<tr>
<td>Settling down (ages 34 to 39 years): Strengthen work commitment, establish security and stability, and gain advancement and professional goals.</td>
<td>*Maintenance: Maintain previous accomplishments, become less competitive, and improve an organization.</td>
<td>*More than 10 years</td>
</tr>
<tr>
<td>*Mid-life transition (ages 40 to 45 years): Question importance of work, realize limitations, and gain sense of responsibility for developing next generation.</td>
<td>Decline: Create self-concept separate from work while departing career.</td>
<td></td>
</tr>
<tr>
<td>*Entering middle adulthood (ages 46 to 50 years): Come to terms with questions and realizations raised in previous stage and make desired changes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Fifties transition (ages 51 to 55 years): Question decisions and actions made in previous stage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Culmination of middle adulthood (ages 56 to 60 years): Accept prior work choices and situation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late adult transition (ages 61 to 65 years): Come to terms with impending retirement.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. * Generativity was expected to peak at ages 40 to 60 years, the maintenance stage, and more than 6 years of role tenure.
Many researchers have examined age and tenure categories as quasi-independent variables, but few have operationalized life and career stages to correspond with Levinson et al.'s (1978) and Super's (1957) models. Rhodes (1983) reviewed more than 185 studies that included age and tenure as correlates of different job attitudes and performance. Rhodes concluded that researchers need to consider life cycle and career stages when conducting age-related research because stage models could offer significant utility in explaining work motives and behavioral differences related to age and tenure. However, Rhodes expressed some concern "as to the extent to which career stages are age-linked" (Rhodes, 1983, p. 361). Most studies have used age as a proxy for career stage which "may not be appropriate for it suggests a genetic or maturational etiology" (Rush, Peacock, & Milovich, 1980, p. 357). Instead, "it may be more appropriate to think in terms of a time-linked relationship for this would allow the 'career clock' to begin at different points for different individuals based on their background and experience" (Rush et al., 1980, p. 357).

Since Rhodes' (1983) review, only two studies (Ornstein, Cron, & Slocum, 1989; Ornstein & Isabella, 1990) have directly tested and compared both Levinson et al.'s (1978) and Super's (1957) models. Ornstein et al. (1989) observed that reported work attitudes "external to the work itself" (Ornstein et al., 1989, p. 130; e.g., willingness to relocate, desire for promotion, and pay and promotion satisfaction) reported by salespeople were better accounted for by Levinson et al.'s model than Super's model. Ornstein et al. (1989) found the pattern of work attitudes reported by salespeople (96% male; ages 21 to 69 years; tenure range was not reported) at different life stages were partially in line with Levinson et al.'s model such that salespeople in the entering the
adult world stage (ages 23 to 28 years) were higher on intentions to leave, willingness to relocate, performance, and desire for promotion than salespeople in other stages. Salespeople in the age 30 transition stage (ages 29 to 33 years) were lower on job involvement than salespeople in other stages. Salespeople in the mid-life transition stages (ages 40 to 45 years) were lower on intentions to leave and willingness to relocate than salespeople in other stages. Salespeople in the middle adulthood stage (ages 56 to 60 years) were lower on satisfaction for promotional opportunities than salespeople in other stages.

Alternatively, Ornstein et al. (1989) observed that reported work attitudes “relative to the work itself” (Ornstein et al., 1989, p. 131; e.g., job involvement, organizational commitment and satisfaction, turnover intentions, and performance) were better accounted for by Super’s (1957) model. Ornstein et al. used the Career Concerns Inventory (Super, Zelkowitz, & Thomspn, 1981) to measure career stages. The Career Concerns Inventory sorts individuals into one of Super’s four career stages based on an individual’s reported awareness and concern of career development tasks. For example, the item “Becoming especially skillful at my work” reflects the increasing commitment of individuals in the establishment stage to their growth and advancement (Super et al., 1981). Ornstein et al. found that salespeople in the trial (exploration) stage were lower on commitment, performance, turnover intentions, satisfaction, challenge, and sense of success than salespeople in other stages. In the establishment stage, salespeople were higher on desire for promotion and willingness to relocate than salespeople in other stages. Ornstein et al. also found salespeople were higher in commitment and performance in the establishment and maintenance stages than salespeople in other
stages. In the maintenance stage, salespeople were higher in job involvement, and salespeople. Salespeople in the decline stage were lower on desire for promotion and willingness to relocate than salespeople in other stages. Ornstein et al. expected this pattern of results based upon the developmental tasks associated with each of Super’s (1957) career stages (see Table 1).

**Gender and Life Cycle and Career Stage Models**

In addition to Ornstein et al. (1989), Ornstein and Isabella (1990) compared both Levinson et al.’s (1978) and Super’s (1957) models. Ornstein and Isabella (1990) partially replicated Ornstein et al.’s (1989) study with a sample of only female managers in response to Ornstein et al.’s (1989) assertion that the applicability of both Levinson et al.’s life cycle and Super’s career stage models to women had been neglected by life and career stage researchers. Ornstein and Isabella (1990) found the pattern of work attitudes reported by female managers (ages 24 to 64 years; tenure range was not reported) at different life stages was partially in line with Levinson et al.’s model such that managers in the early adulthood stage (ages 22 to 28 years) and age 30 transition stage (ages 29 to 32 years) were higher in intention to leave than managers in other stages. Managers in the age 30 transition stage (ages 29 to 32 years) were lower on organizational commitment than managers at other stages. Managers in the mid-life transition stage (ages 40 to 44 years) were lower on intentions to leave than managers in other stages. Managers in the remaining middle adulthood stages (ages 45 to 60 years) were lower on desire for promotion than managers in other stages. The pattern of these results was similar to Ornstein et al.’s (1989) findings that individuals in the early adulthood stage are higher on turnover intentions, but lower on turnover intentions in the mid-life transition stage.
Ornstein and Isabella (1990) also used the Career Concerns Inventory (Super et al., 1981) to measure career stages and found no differences in work attitudes (e.g., willingness to relocate, desire for promotion, satisfaction, commitment, and turnover intentions) for female managers across career stages. In other words, the work attitudes reported by female managers were not accounted for by Super's (1957) model. The lack of findings in relation to Super's (1957) career stages reported by Ornstein and Isabella (1990) may have been a result of the characteristics of their sample being entirely comprised of females.

Lynn, Cao, and Horn (1996) also examined gender differences in life and career stages. Lynn et al. measured career stages with professional tenure and found the pattern of work attitudes reported by accountants (ages 22 to 63 years; tenure range was not reported) were partially accounted for by Super's (1957) career stages for men. Male accountants in the establishment stage (less than two years) were lower on extrinsic rewards satisfaction than accountants in other stages as predicted. Male accountants in the maintenance stage (more than 10 years) were higher on involvement, organizational commitment, and intrinsic rewards satisfaction, but lower in organizational turnover intentions than accountants in other stages as predicted. The pattern of these results was similar to Ornstein et al.'s (1989) findings that individuals in the maintenance stage are higher on involvement and commitment. However, Lynn et al., like Ornstein and Isabella (1990), also found no pattern of work attitudes reported by female accountants was accounted for by Super's career stages.

A potential reason for Lynn et al.'s (1996) and Ornstein and Isabella's (1990) results is the measures used in both studies may have been insufficient for measuring
career stages for women. The Career Concerns Inventory (Super et al., 1981) may have been an invalid measure of career stages for women because all of the validation studies on the instrument were completed with male samples only (Ornstein & Isabella, 1990). Validating the Career Concerns Inventory (Super et al., 1981) exclusively with male samples may have prevented researchers from determining if women share similar career concerns and attitudes as men with each career stage. For example, women may have similar career concerns as men, but their concerns may be associated with different career stages than men. Thus, the career attitudes that were included in Lynn et al.’s and Ornstein and Isabella’s studies may not have been associated at the same career stages for both men and women.

Professional tenure may have also been an inadequate measure of career stages. Based upon Super’s (1980) emphasis that a career is defined and comprised by roles (i.e., job positions), Lynn et al.’s (1996) operationalization of career stage with professional tenure is not “in a manner faithful to the author’s original intent” (Ornstein et al., 1989, p. 132). Super asserted that “it is incorrect to use the terms occupation [profession] and career as synonyms. A career is a sequence of positions [roles] held during the course of a lifetime” (p. 286). Therefore, role tenure operationalized as years in a specific job role (e.g., years in a managerial role) may be a more fine grained measure of career stages than professional tenure because a worker can remain in one profession, but fulfill different roles over the course of their career. For example, a worker in an accounting profession may fill a bookkeeper role very early in their career, but later advance to a managerial role. Although both roles (i.e., bookkeeper and manager) require a foundation of accounting training, the nature of a managerial role can depart from that of a
bookkeeper role by requiring a unique set of management knowledge, skills, and abilities. In addition, role tenure may be a more appropriate measure than organizational tenure (another popular measure of career stages) because a contemporary worker's career rarely unfolds within one organization, but typically spans multiple organizations (Arthur & Rousseau, 1996).

More importantly, Super's (1980) notion that a career is best measured by a worker's sequence of roles reflects his observation that workers do not always remain in one profession over the course of their life span. This is particularly true of women because women typically have more variable career patterns than men that are interrupted by family demands (e.g., caring for children or ailing parents; Ornstein & Isabella, 1990). These interruptions can result in women leaving organizations and exiting professions more often than men over the course of their careers (Ornstein & Isabella, 1990). Alternatively, men traditionally have more continuous career patterns than women that are rarely characterized by interruptions (Ornstein & Isabella, 1990). Role tenure may be a more sensitive measure of career stages for women because it can take into account the career interruptions women often experience over the course of their careers. In Lynn et al.'s (1996) study, professional tenure may have been an inadequate measure of career stages for women. For example, women's career stages may not have been sufficiently assessed because their careers were more discontinuous, and professional tenure may have subsequently been less aligned with their career stages. Alternatively, men's career stages may have sufficiently been assessed because their careers were more continuous (e.g., Lynn et al. reported males had significantly more years in the accounting profession and organization), and professional tenure may have subsequently been more aligned
with their career stages. If professional tenure was insufficient at measuring career stages for women, then any differences in work attitudes that existed across career stages for women may not have been detected. Furthermore, Ornstein and Isabella concluded additional criteria other than work attitudes may differ across career stages for women. One construct that is likely to differ across career stages by being highest during mid-career (see Super's 1957 “Maintenance Stage” in Table 1) for both sexes is generativity, which will be described in the following section.

Generativity

Generativity is a psychosocial construct first conceived by Erikson (1950). Mid-life is the life stage during which an individual is theorized to face issues of ‘generativity versus stagnation’ (Erikson, 1950/1963). Erikson’s model places generativity in the seventh of eight consecutive stages in the lifespan which is generally considered mid-life (ages 40 to 60 years; Erikson, 1950/1963). Some researchers have marked mid-life as young as age 30, but age 40 is considered by most researchers to be the most representative age (McAdams et al., 1993). Erikson’s (1963) writings suggest generativity is likely to be low in young adulthood, increase in mid-life, and decrease in late adulthood. Thus, generativity is theorized to increase with age, at least up to late mid-life.

Erikson (1963, p. 267) wrote that generativity is “primarily the concern in guiding and establishing the next generation.” Erikson (1980) later added that generativity includes a focus on leaving a positive legacy of the self by caring for the needs of the next generation. Generative acts include “nurturing, teaching, leading, and promoting the
Increasing one’s focus on fostering the growth of others is vital for evolving to Erikson’s final stage (‘integrity versus despair’; Erikson, 1950/1963). Otherwise, stagnation can occur in an individual’s adult development with a continued focus on the self alone (Erikson, 1950/1963). For example, stagnated individuals are persistently self-absorbed and experience diminished interpersonal relations (Bradley & Marcia, 1998).

Recently, researchers have emphasized two dimensions of generative behaviors, other-involvement and inclusivity (Bradley, 1997; Bradley & Marcia, 1998). Other-involvement represents the level of concern and sense of responsibility an individual has for the growth of others (Bradley & Marcia, 1998). These concerns are demonstrated through behaviors such as sharing one’s skills and knowledge with others. Inclusivity represents the scope of an individual’s involvement in the development of others (Bradley & Marcia, 1998). The concept of inclusivity reflects Erikson’s (1963) writings on the importance for generative individuals during midlife to widen their “radius of care” to many others. In sum, generative individuals are able to expand their concern and commitment to the growth and developmental needs of not just a few individuals, but many.

At the core of generativity is Erikson’s (1982) underlying belief of an “expression of a vital sympathetic trend with a high instinctual energy” (p. 68). Developmental theorists and researchers have interpreted a ‘high instinctual energy’ as agency motives and a ‘sympathetic trend’ as communal motives (Kotre, 1984; McAdams, 1985; McAdams, Hoffman, Mansfield, & Day, 1996). Agency and communal traits are defined as broad trait constructs (Grossbaum & Bates, 2002). Agentic individuals are described as
independent, domineering, and motivated to achieve for the self. Communal individuals are described as motivated to connect with others and achieve for the group (Grossbaum & Bates, 2002). During mid-life, the goal is merge these two divergent, but equally important trait motives (Erikson, 1982; Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams et al., 1986). There is also some research that suggests agency and communal traits may increase through the lifespan (Roberts, Walton, & Viechtbauer, 2006). A recent meta-analysis found the pattern of mean levels of social dominance (a facet associated with agency) is highest during mid-life and agreeableness (a facet associated with communion) increases during mid-life.

Researchers theorize a balance of high levels on both traits is necessary for the full expression of generativity (Bradley & Marcia, 1998). Bradley and Marcia propose a balance of moderate levels on both traits will result in the moderate expression of generativity, but low levels on both traits will result in the minimal expression of generativity. Furthermore, an imbalance of both traits such as an excess of agency and deficiency of communion during mid-life can lead an individual to be self-absorbed to the exclusion of having concern for others (Bradley & Marcia, 1998). Alternatively, an excess of communion and lack of agency during mid-life can lead an individual to be overly helpful and subsequently create dependent relationships with others to the exclusion of achieving for oneself (Bradley & Marcia, 1998).

Past research has found that agency and communal traits are linked to high levels of generativity (Mansfield & McAdams, 1996; McAdams et al., 1986). Grossbaum and Bates (2002) measured agency and communal traits (as other generativity researchers have also done; de St. Aubin & McAdams, 1995; Mansfield & McAdams, 1996;
McAdams et al., 1996) with achievement and dominance personality subscales of 
extroversion, and affiliation and nurturance personality subscales of agreeableness, 
respectively. Agency and communal traits were both found to be positively related with 
self-reported generativity (generative concern and behavior) in a sample of mid-life 
individuals (ages 31 to 57 years). Generative concern (preoccupation with the welfare of 
the younger generation; Grossbaum & Bates, 2002) was measured with the Loyola 
Generativity Scale (McAdams & de St. Aubin, 1992). Generative behaviors (acts such as 
teaching someone a new skill) were measured with the Generative Behavior Checklist 
(McAdams & de St. Aubin, 1992). Generative concern and agency ($r = .65, p < .01$) and 
generative concern and communion ($r = .67, p < .01$) were strongly related. Generative 
behaviors and agency ($r = .48, p < .01$) and generative behaviors and communion ($r = 
.37, p < .01$) were also related. Agency and communal traits ($r = .77, p < .01$) were highly 
related.

The few studies that have tested Erikson’s (1963) developmental hypotheses have 
relied on self-report measures. Ryff and Heincke (1983) found that adults report they 
believe they will be most generative in mid-life. However, Ryff and Heincke concluded 
that expecting oneself to be higher in generativity is not the same as exhibiting more 
generative behaviors. Another self-report study by McAdams et al. (1993) found mixed 
evidence for Erikson’s developmental hypothesis. McAdams et al. created a composite 
variable of generativity (generative concern, generative action, generative commitment, 
and generative narration) and found it showed a statistically significant quadratic trend 
for age-cohort with higher scores for mid-life (ages 37 to 42 years) than young (ages 22 
to 27 years) and old (ages 67 to 72 years) adults combined. This quadratic trend provided
support for Erikson’s theory that generativity is highest during mid-life. Generative concern was measured with the Loyola Generativity Scale (McAdams & de St. Aubin, 1992). Generative action (e.g., teaching someone a new skill) was measured with the Generative Behavior Checklist (McAdams & de St. Aubin, 1992). Generative commitment was measured by the authors’ evaluations of generativity in participants’ descriptions of daily goals. Generative narration was assessed by the authors’ evaluations of generativity in participants’ descriptions of autobiographical experiences. McAdams et al. also separately examined each composite variable (generative concern, generative action, generative commitment, and generative narration) and found a developmental increase in generative commitments and generative narration from young adulthood to mid-life, but no decrease in self-reported generative concern and generative action from mid-life to late adulthood. McAdams et al. concluded these results demonstrated a developmental increase from young adulthood to mid-life, but no clear support for a decrease in late adulthood. Based upon these findings, McAdams et al. proposed that generativity may be becoming more prominent for contemporary adults as they age due to growing cultural demands. For example, culturally shared expectations exist for adults to assume generative roles such as a parent or mentor as they reach mid-life (Erikson, 1963), but perhaps these expectations are extending to later ages because adults are living longer. McAdams and de St. Aubin also asserted that “The feature of cultural demands includes the many and varied occupational, ideological, and life-style opportunities and resources, as well as the constraints, that a particular society offers the adult to shape and motivate his or her generative inclinations” (p. 1006). Accordingly, generativity may become a psychosocial issue in mid-life (and possibly late adulthood) due to the
interaction between an individual and their surrounding situation or environment and is not a construct that is wholly dependent on the characteristics of the individual alone (McAdams et al., 1993). This contention is in line with the notion that an individual's career rather than biological age may exert a greater influence on generativity, particularly in a work context. For example, an individual’s work experiences encompass a broad range of opportunities, resources, and constraints that may influence the salience of generativity. Such influences may encourage or obstruct generative concerns and behaviors in the workplace.

**Mentoring**

The only literature to date that has examined a facet of generativity in a work context is mentoring research. The early conceptual basis for mentoring was derived from life cycle and career stage theories (Kram, 1985). Mentoring is believed to be a manifestation of generativity and is theorized to occur during mid-life when workers re-evaluate their career achievements (Kram, 1985; Levinson et al., 1978). During mid-life, workers can arrive at career plateaus which are accompanied by an absence of challenging activities (Levinson et al., 1978). As a result, workers can question the relevance of their careers (Levinson et al., 1978). Mentoring can assist workers in mastering the mid-life phase by rejuvenating their sense of purpose (Wanberg, Kammeyer-Mueller, & Marchese, 2006). For example, Kanfer and Ackerman (2004) propose that “work motivation among mid-life workers may be enhanced via strategies aimed at tailored reconfiguration of work roles and associated performance criteria (p. 445).” Examples of these work roles and associated performance criteria include “goals that explicitly incorporate mentoring activities [and] responsibility to others” (Kanfer &
Ackerman, 2004, p. 452). Thus, mentoring may aid workers in overcoming motivational setbacks in mid-career by fulfilling generative needs and imparting to an individual a sense of contribution to the next generation.

Mentors are generally workers who possess greater knowledge and experience and provide support and guidance to their protégés (recipients of mentoring; Kram, 1985) to help them advance in an organization (Noe, 1988). Mentors are typically expected to fulfill two mentoring functions to their protégés. The first is a career mentoring function which includes coaching, challenging assignments, sponsorship, and protection (Kram, 1985). The second is a psychosocial mentoring function which includes friendship, acceptance, and counseling (Kram, 1985). Mentoring arrangements can also be informal and arise naturally or be formal and develop from an organization’s assignment of mentors with protégés participating in employee development programs (Ragins & Cotton, 1999; Wanberg et al., 2006). Informal mentoring is not regulated by an outside third party, whereas formal mentoring is regulated by an organization with rules and guidelines (Ragins & Cotton, 1999; Wanberg et al., 2006). Informal mentoring can last as long as the mentor and protégé wish (e.g., in some cases for several years; Ragins & Cotton, 1999). Alternatively, formal mentoring is predetermined by an organization to last for a short period of time (e.g., six months to a year; Ragins & Cotton, 1999).

Mentors may also possess individual characteristics that readily contribute to a greater propensity to mentor. The majority of research on mentoring has neglected to focus on the mentor’s characteristics, but instead focuses mainly on the protégé’s (Allen & Eby, 2004). In fact, the mentor has been referred to as a “missing person” in mentoring research (Feldman, 1999). When considering the role of a mentor’s age and career
experience, predictions based on stage models of adult development would indicate the propensity to mentor would be greatest during mid-life (or mid-career) and lowest in young and late adulthood (or early- and late-career). However, the few studies that have examined mentoring with age (Allen, Poteet, Russell, & Dobbins, 1997; Finkelstein et al., 2003; Ragins & Cotton, 1993) and organizational tenure (Ragins & Cotton, 1993) as proxies for life and career stages have not found that mentoring peaks in mid-life and mid-career as theorized (Erikson, 1963; Kram, 1985; Levinson et al., 1978). For example, in a study of non-faculty university employees (ages 23 to 64 years, \( M = 43.50, SD = 10.60 \)), Finkelstein et al. found a negative relation \( (r = -.36, p < .01) \) between age and intentions to mentor. A study by Ragins and Cotton found no support for a curvilinear relation as theorized by Erikson (i.e., generativity is low in young adulthood, increases in mid-life, and decreases in late adulthood), or any relation for that matter, between mentoring and age among managers. Ragins and Cotton also examined career stage as measured by organizational tenure and found managers with greater organizational tenure reported less willingness to mentor \( (r = -.18, p < .01) \) than new organizational managers. Furthermore, Ragins and Cotton found that participants at higher organizational levels reported slightly greater intentions to mentor \( (r = .09, p < .10) \) than participants at lower organizational levels. To the degree that organizational level is related to career stage, this result may match up with career stage theories (Super, 1957). Ragins and Cotton found that age \( (r = .19, p < .01) \) and organizational tenure \( (r = .23, p < .01) \) were positively related with organizational level, but neither resulted in greater intentions to mentor.
These findings from existing literature (Finkelstein et al., 2003; Ragins & Cotton, 1993) provide evidence that life stages (measured by age) and career stages (measured by organizational tenure) were inadequate predictors of generativity through mentoring behaviors. Career stage (measured by role tenure) may be a better predictor of generativity because it is not limited to age or tenure in a single organization. Role tenure can span multiple organizations and capture the breadth of a manager's experience by measuring the years an individual fills a specific job role (e.g., years in a managerial role). Although role tenure is likely to be highly correlated with age and organizational tenure for traditional workers, this may not be the case for contemporary workers. For example, the career span of contemporary workers includes multiple roles across multiple organizations (and professions), and for women, temporary leaves of absence to care for family.

Findings from existing literature that mentoring does not peak in mid-life and mid-career may be due to inadequate predictors (life stage or age) and measures of career stage (organizational tenure), or mentoring may just not be an ideal work generativity construct. Mentoring is aligned with generativity, but the primary goal of mentoring is to help protégés advance in an organization (Noe, 1988). Mentoring outcomes can also potentially be affected by whether mentoring is informal or part of an organizational sponsored formal mentoring program. For example, the organizational regulations and shorter time period of formal mentoring programs might constrain a mid-life or mid-career worker's full expression of generativity through mentoring. Mentoring outcomes can also potentially be affected by the career and psychosocial mentoring functions. For example, workers in mid-life and mid-career may be inclined for generative-related
reasons to fulfill the career mentoring function, but not the psychosocial mentoring function of building a friendship (e.g., non-generative acts such as going to lunch with a protégé). A measure that is perhaps immune to these potential restrictions and would be sensitive to high work generativity during mid-life and mid-career is the degree of generativity a manager exhibits to their direct reports (subordinates). A manager is typically not bound to the rules and structure of a formal mentoring program or to fulfilling psychosocial mentoring functions when interacting with direct reports. Direct reports (unlike other members of an organization such as bosses and peers) are also typically in the generation of workers succeeding their managers which makes them ideal recipients of work generativity. A manager can fulfill their generative concern in guiding and establishing the next generation of workers in an organization and leaving a positive legacy of the self by fostering the professional growth of their direct reports.

Gender and Mentoring

In addition to life and career stage, gender is another individual differences variable that has been understudied to date in the mentoring literature (Allen, 2003; Allen & Eby, 2004; Allen et al., 1997; Ragins & Cotton, 1993; Ragins & Scandura, 1994). Women have been found to be higher on generative-related traits than men (i.e., there are no sex differences in agency, and women are higher on communion than men; Twenge, 2001). Accordingly, women could be higher on generativity and mentoring than men. However, studies that have investigated the role of gender in mentoring have not found women report greater intentions to mentor than men (Allen, 2003; Allen & Eby, 2004; Allen et al., 1997; Ragins & Cotton, 1993; Ragins & Scandura, 1994).
Ragins and Cotton (1993) found female managers reported equivalent intentions to mentor (the type of mentoring, as in formal versus informal, was not examined) as male managers. One potential explanation for Ragins and Cotton’s results is the characteristics of their sample. Female managers in their sample were significantly younger ($t = 2.77, p < .01, df = 487$), had less organizational tenure ($t = 5.73, p < .01, df = 508$), and had less rank (i.e., level; $t = 2.97, p < .01, df = 506$) than male managers. Assuming that generativity is high during mid-life (or mid-career), perhaps Ragins and Cotton’s sample of female managers were not higher on self-reported intentions to mentor than men because they were in an early career stage and had not peaked in generativity. Perhaps Ragins and Cotton’s sample of female managers did not report greater intentions to mentor than men because they perceived greater drawbacks to mentoring (e.g., disadvantages such as mentoring would take time away from their primary job tasks or risks such as a protégé’s poor performance would reflect badly upon them) than male managers. Furthermore, although Ragins and Cotton’s sample of female managers did not report greater intentions to mentor than men, perhaps they would have exhibited more mentoring behaviors in spite of their greater perceived drawbacks.

Allen (2003) also examined gender and found female accountants and engineers reported less willingness to mentor (the type of mentoring, as in formal versus informal, was not examined) than men ($r = -.23, p < .01$). One potential explanation for Allen’s results is also the characteristics of the sample. The average job tenure ($M = 5.70, SD = 5.64$) indicates the majority of the female sample occupied an early career stage. Given that generativity is high during mid-life (or mid-career), perhaps Allen’s sample of
female accountants and engineers were low on self-reported willingness to mentor because they were also in an early career stage and had not peaked in generativity.

**Personality and Mentoring**

In addition to gender, Allen (2003) examined potential individual differences antecedents to mentoring. Specifically, prosocial personality (other-oriented empathy and helpfulness) was examined and found to be positively related to willingness to mentor. Other-oriented empathy was positively related to willingness to mentor ($r = .26, p < .01$) and helpfulness ($r = .28, p < .01$) was also positively related to willingness to mentor. Female accountants and engineers had a positive relation with other-oriented empathy ($r = .16, p < .01$), but no relation with helpfulness ($r = -.08$, non-significant). The prosocial personality construct is similar to communion in that it is characterized by agreeableness subscale traits such as concern for others and altruism. Thus, Allen's findings are in line with theoretical (Erikson, 1982) and empirical evidence that generativity is linked to communion (Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams et al., 1986).

Wanberg et al. (2006) also examined a potential individual differences antecedent to mentoring. Specifically, proactive personality (the predisposition to shape and influence one's environment; Bateman & Crant, 1993) was examined and found to be positively related to protégé reported mentoring ($r = .25, p < .05$). The proactive personality construct is similar to agency in that it is characterized by extroversion subscale traits such as taking action and initiative, seizing opportunities, and a lack of passivity. Thus, Wanberg et al.'s findings are in line with theoretical (Erikson, 1982) and empirical evidence that generativity is linked to agency (Grossbaum & Bates, 2002;
Mansfield & McAdams, 1996; McAdams et al., 1986). However, given the dual role of agency and communal traits in generativity (Erikson, 1982; Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams et al., 1986), both traits deserve closer examination as potential antecedents to mentoring and will be further described in the next section of the theoretical review.

Social Role Theory and Agency and Communal Traits

Social-role theory asserts agency and communal ascriptions have transpired largely in part due to norms and stereotypes associated with gender-specific divisions of labor (Eagly, 1987). The division of men and women into societal roles has contributed to gender differences in skills and behaviors, but also gender role expectations and ultimately gender stereotypes. Men and women have traditionally occupied provider and caregiver roles, respectively (Eagly, 1987). Social-role theory states that as a result of differentially occupying these roles, men and women have been socialized to acquire and enact a differing set of skills, beliefs, and behaviors. Differential social role occupancy has not only produced these theorized gender differences, but theorized discrepant expectations or norms for men and women. Descriptive norms are expectations of how men and women actually behave, and injunctive norms are expectations of how men and women ideally should behave. In other words, descriptive norms refer to real behavioral differences between men and women, whereas injunctive norms refer to behavioral differences deemed appropriate by society for men and women. Both of these norms comprise gender roles and ultimately contribute to gender stereotypes. Gender stereotypes arise from inferences that men and women's traits must be consistent with the
nature of the activities associated with their social roles. For example, men have historically occupied provider roles and been more involved in the work domain. Consequently, men have acquired more agency attributes and are stereotypically ascribed these traits. In contrast, women have traditionally occupied caregiver roles and been more involved in the family domain. Consequently, women have cultivated more communal attributes and are stereotypically ascribed these traits (Diekman & Eagly, 2000).

In sum, the social psychological approach contends gender differences and stereotypic beliefs are the result of social and historical influences that affect the roles and activities of men and women (Eagly, 1987). Social role theory proposes, “To the extent that women and men are not proportionately represented in specific social roles [they] are subjected to somewhat different expectations, to which they conform to some degree, and they develop somewhat different skills as well as attitudes and beliefs” (Eagly, 1987, p. 31).

However, research demonstrates gender differences are rapidly evolving. A growing body of research suggests that the attributes and behaviors of women have changed as more women access work roles that were historically male-dominated (Eagly & Carli, 2003). For example, Jenkins (1989) found that women in business and academic professions reported greater agency than women in teaching professions. Furthermore, a meta-analysis by Twenge (2001) provided evidence that assertiveness and dominance, facets of agency, measured in female college students were significantly correlated with the demographic and social statistics of women (i.e., educational attainment, labor-force participation, and median age of first marriage) when the female college students were children. Later cohorts of women were found to be higher on self-reported assertiveness
and dominance (Twenge, 2001). Longitudinal studies have also documented similar changes. Helson, Steward, and Ostrove (1995) found that women from the baby boomer generation did not subscribe to agency themes as much as a later cohort of women. An earlier meta-analysis by Twenge (1997) also provided evidence that the gap between men and women on reported agency traits is also growing narrower. Agency traits in women have increased during the last century with more recent samples showing no gender differences (Twenge, 1997). Interestingly, communal traits have remained higher in women than in men (Twenge, 1997). Thus, current perceptions are that women are becoming more agentic, but are not decreasing in communal traits (Diekman & Eagly, 2000).

Individuals possessing high levels of both agency and communal traits and behaviors have been described as psychologically androgynous (Spence & Helmreich, 1978). As evidence accumulates that women are becoming more psychologically androgynous (Twenge, 1997), especially later cohorts of women (Helson et al., 1995; Twenge, 2001) and women in traditionally male roles (Jenkins, 1989), these changes have implications upon generativity in a work context. Generativity theory (Erikson, 1982) and empirical findings report generativity is related to both agency and communal traits (Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams et al., 1986). Accordingly, psychologically androgynous women may be more optimally suited for enacting generative behaviors in a work context because they are high on both the traits that are related to generativity. Women in historically male-dominated or male-type roles (e.g., managerial roles) may also be more psychologically androgynous and generative. However, managerial level may potentially moderate the interaction between gender,
agency and communal traits, and work generativity. The potential moderating effect of managerial level can be understood within the lack-of-fit model theory (Heilman, 1983) which will be discussed next in the final section of the theoretical review.

Lack-of-Fit Model

A theoretical predecessor to Eagly’s and Karau’s (2002) role congruity theory and Eagly’s (1987) social role theory is Heilman’s (1983) lack-of-fit model theory. The lack-of-fit model theory provides a framework for understanding the circumstances that elicit and maintain the occurrence of gender bias against women occupying male-type roles in organizational settings. This framework identifies antecedents that can influence perceptions of lack-of-fit between the female gender role and the male-type job role, as well as ensuing outcomes of bias against females in such roles. The theory states that the perceived fit between an individual’s attributes and the role requirements can establish performance expectations. If the perceived fit between an individual’s attributes and the role requirements is good, then positive performance is expected; however, if the perceived fit is poor, then negative performance is expected. For example, negative performance expectations can occur when the role requirements of a traditionally feminine role such as a nurse are paired with the stereotypic traits of a man because the perceived fit is poor (i.e., lack-of-fit). Another example that is more relevant to gender bias against women and to the current study is that of negative performance expectations that can occur when the role requirements of a traditionally masculine role such as a manager are paired with the stereotypic traits of a woman. The more male-typed (i.e., agentic role requirements and male dominated) a role such as that of a manager, and the
more stereotypic the traits (i.e., communal) attributed to women, the poorer the perceived fit and ensuing performance expectations. Negative performance expectations can give rise to beliefs and judgments that women are not only inadequate and unfit to successfully perform a male-type role, but more negative performance evaluations as well.

The gender-typing of an occupational role is central to understanding the function of lack-of-fit perceptions to performance expectations and evaluations. Lyness and Heilman (2006) proposed the gender-type of a job role is based on the nature of the role requirements and activities in terms of gender characteristics (i.e., agentic and communal), as well as the historical and/or current predominant gender of the typical worker. In other words, the gender-type of a job role is determined by the gender attributes typically associated with the role and the past and/or present demographic composition of the workers. For example, the role of a manager was predominantly comprised of men, described with masculine attributes (i.e., agentic), and male-typed over 30 years ago (Schein, 1973). Unfortunately, the male-type perception of a manager role still endures (Schein, 2001). Schein (2001) reviewed recent replication studies of her earlier work (Schein, 1973) and found that male managers and male college students continue to believe men possess more successful managerial characteristics than women. The perception of the manager role as male-type is particularly evident for higher managerial level roles due to the agentic attributes associated with the greater proportions of men still occupying organizational echelons (Lyness & Heilman, 2006). Although women have increasingly advanced into managerial roles, most reside in lower and middle managerial level roles, whereas men still occupy the majority of higher
managerial level roles (Lyness & Heilman, 2006). For example, Lyness and Judiesch (1999) examined the archival organizational data of a large sample of managers (N = 30,996) and found female managers at high managerial levels were less likely to be promoted than male managers to the highest managerial ranks.

As mentioned, Lyness and Heilman (2006) assert that not all managerial roles or the manager's gender alone results in bias, but that the degree of perceived lack-of-fit must also be considered. To investigate if the level of a managerial role (i.e., position) could also result in a perceived lack-of-fit and gender bias, Lyness and Heilman used archival organizational data to examine the relations of gender and managerial position (i.e., line or staff) to job performance evaluations. Line positions are higher managerial level roles, whereas staff positions are lower managerial level roles. Lyness and Heilman hypothesized line positions would be perceived as more male-typed than staff positions due to the greater agentic role requirements and numbers of men that dominate higher managerial levels. Consequently, Lyness and Heilman hypothesized female managers in line positions would receive more negative evaluations than their counterparts in staff positions due to the greater perceived lack-of-fit between agentic role requirements and the attributes of women. Consistent with their predictions, Lyness and Heilman found that female managers in line positions received lower evaluations than female managers in staff positions and male managers in line or staff positions. Lyness and Heilman concluded these findings provided support for their perceived lack-of-fit model theory (objective performance was not measured or controlled in the study).

Lyness and Heilman (2006) also concluded that researchers need to focus beyond gender bias in job performance evaluations and identify behavioral strategies women in
male-type roles use to remediate perceived lack-of-fit. One strategy women at higher managerial levels may employ to lessen perceived lack-of-fit is to exhibit less caring and nurturing behaviors (i.e., generativity) in the workplace. Unlike women at lower and middle managerial levels, women at higher managerial levels may exhibit less work generativity because such behaviors could be perceived as communal. Despite being psychologically androgynous (high on agency and communal traits), women at higher managerial levels may exhibit less work generative behaviors to overcome this potential perceived lack-of-fit. Thus, managerial level and gender may moderate the relation between agency and communal traits and work generativity.
CURRENT STUDY

Despite the accumulation of studies that have investigated stage models of adult development and gender-role theories, gaps of knowledge still exist where these approaches intersect. The literature on life cycle and career stage models have contributed a fair amount of research to our understanding of developmental theories (Erikson, 1950/1963; Levinson et al., 1978; Super, 1957), as gender-role theories (Eagly, 1987; Heilman, 1983) have contributed to our understanding of gender differences in work-related traits and behaviors. However, no research has attempted to examine these theoretical approaches in relation to work generativity. Generativity in a work context may be influenced by adult development and gender-role related factors. Workers in mid-life and mid-career may be most work generative according to adult development theories. There may also be gender differences in work generativity, but women may be less work generative than men at higher managerial levels according to gender-role theories. Thus, the primary purpose of the current study was to increase our understanding of work generativity variables associated with stage models of adult development and gender-role theories. As such, person characteristics (stages, traits, and gender) and moderating factors (managerial level) with work generativity were examined. The current study addressed the following research goals. First, potential antecedents of work generativity such as life and career stages were examined because generativity has been theorized (Erikson, 1963) and found (McAdams et al, 1993; Ryff & Heincke, 1983) to increase as one ages and reaches mid-life, and career experiences may also shape and motivate generative inclinations (McAdams et al., 1993) in a work
context. More specifically, the present study attempted to determine which stage model of adult development, life (age) versus career (managerial role tenure) stages, better predicted work generativity. Unlike most studies on stage models of adult development, attitudes and behaviors associated with different life and career stages were not examined in the current study. Second, potential unique and interactive effects of agency and communal traits on work generativity were examined because such generative-related traits may have differential and combined effects upon work generativity. Third, potential mediating variables such as agency and communal traits between career stage and work generativity were examined because both traits have been theorized (Erikson, 1982) and found to be related to generativity (Grossbaum & Bates, 2002; Mansfield & McAdams, 1996; McAdams et al., 1986) and to potentially increase through the lifespan (Roberts et al., 2006). Fourth, potential mediating variables such as agency and communal traits were also examined because there is a growing body of evidence that there are no sex differences in agency, and women are higher on communion than men (Twenge, 1997; 2001). Fifth, potential moderating factors such as agency and communal traits, gender, and managerial level were examined because female managers at higher managerial levels experience a greater perceived lack-of-fit between their feminine attributes and the male-type managerial role (Lyness & Heilman, 2006; Schein, 2001). As a result of this lack-of-fit, female managers at higher managerial levels may avoid caring and nurturing behaviors such as work generativity despite being higher on generative-related traits (i.e., communal) than men.

In the following section, construct operationalizations are provided and specific hypotheses that address each of these research goals are outlined.
Hypotheses

Life and career stages were operationalized by the participant’s age and managerial role tenure (i.e., years in a manager role), respectively. Work generativity was operationalized as the extent to which managers foster the growth of the next generation of workers (i.e., direct reports). More specifically, work generativity was measured by direct report, boss, and peer ratings of the participant’s generative behaviors in a work context. Although the focus of the current study was on work generativity received by direct reports from managers, ratings from multiple rater sources were included because they could provide a broader measure of observed behaviors. For example, multiple rater sources have different opportunities to observe managers behaviors. It is accepted practice to compare ratings from multiple rater sources because multi-rater job performance feedback instruments have been found to be invariant across different rater groups (direct report, boss, peer, and self; Facteau & Craig, 2001). In other words, research has found multi-rater job performance feedback instruments measure the same latent performance constructs within each rater group (Facteau & Craig, 2001).

Life and Career Stages and Work Generativity

Generativity occurs during mid-life and mid-career. Age and managerial role tenure are likely to be correlated, but career experience may influence and shape work generativity more so than life experience. As such, career stage (managerial role tenure) was expected to be a better predictor of work generativity and to account for more variance than life stage (age).

H1a: Age was expected to be positively related to work generativity.
H1b: Managerial role tenure was expected to be positively related to work generativity and to account for incremental variance after age.

Agency and Communal Traits and Work Generativity

Generativity is conceptualized by caring and nurturing acts (i.e., communal). However, a degree of drive and energy (i.e., agentic) must also be present for the full expression of generativity. As such, agency and communal traits were both expected to be positively related to work generativity, but communion was expected to account for more variance. An agency by communion interaction was also expected to account for more variance. That is, managers higher on agency were expected to be higher on work generativity if they were also higher on communion, and managers higher on communion were expected to be higher on work generativity if they were also higher on agency.

H2a: Agency was expected to be positively related to work generativity.

H2b: Communion was expected to be positively related to work generativity and to account for incremental variance after agency.

H2c: The interaction between agency and communal traits on work generativity was expected to account for incremental variance after the main effects of agency and communal traits.

Career Stage, Agency and Communal Traits, and Work Generativity

Agency and communal traits were operationalized by the participant’s scores from a personality trait instrument. Generativity is theorized and found to be related to agency and communal traits, and there is some evidence that agency and communal traits may increase through the lifespan. As such, the relation between career stage (managerial
role tenure) and work generativity was expected to be mediated through agency and communal traits, which were tested separately.

H3a: The positive relation between managerial role tenure and work generativity was expected to be mediated through agency.

H3b: The positive relation between managerial role tenure and work generativity was expected to be mediated through communion.

Gender, Agency and Communal Traits, and Work Generativity

Generativity is related to agency and communal traits. There are also no sex differences in agency, and women are higher on communion than men. As such, female managers were expected to be perceived to exhibit greater work generativity than male managers, and this positive relation was expected to be mediated through agency and communal traits, which were tested separately.

H4a: The positive relation between gender and work generativity was expected to be mediated through agency.

H4b: The positive relation between gender and work generativity was expected to be mediated through communion.

Agency and Communal Traits, Gender, Managerial Level, and Work Generativity

A greater perceived lack-of-fit exists between the male manager role and female gender attributes for female managers at higher managerial levels than at lower managerial levels. As such, female managers higher on agency and communal traits at higher managerial levels were expected to be lower on work generativity than female managers at lower managerial levels as a strategy to lessen perceived lack-of-fit. No perceived lack-of-fit exists between the male manager role and male attributes for male
managers. As such, male managers higher on agency and communal traits, regardless of managerial level, were expected to be higher on work generativity than female managers. The effects of agency and communal traits were tested separately.

H5a: Female managers higher on agency at higher managerial levels were expected to be lower on work generativity than female managers higher on agency at lower managerial levels.

H5b: Male managers higher on agency, regardless of managerial level, were expected to be higher on work generativity than female managers.

H5c: Female managers higher on communion at higher managerial levels were expected to be lower on work generativity than female managers higher on communion at lower managerial levels.

H5d: Male managers higher on communion, regardless of managerial level, were expected to be higher on work generativity than female managers.
METHOD

Participants

To test the proposed hypotheses, a dataset was obtained from Personnel Decisions International, an international industrial/organizational psychology consulting firm. Data were available for 709 participants. Gender was available on 705 participants with the sample comprised of 514 male participants and 191 female participants. Age was available on 635 participants ($M = 41$, $SD = 6$) with a range of 26 to 62 years of age. Managerial role tenure was available on 608 participants (442 males and 166 females; see Table 2) with a range of less than 1 year of managerial role tenure (coded 1), 1 to 3 years of managerial role tenure (coded 2), 4 to 5 years of managerial role tenure (coded 3), 6 to 10 years of managerial role tenure (coded 4), to more than 10 years of managerial role tenure (coded 5).

Table 2
Number of overall, male, and female participants within each managerial role tenure category

<table>
<thead>
<tr>
<th>Managerial role tenure category code and years</th>
<th>Overall</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coded 1: &lt; 1 year</td>
<td>9</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Coded 2: 1 to 3 years</td>
<td>43</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Coded 3: 4 to 5 years</td>
<td>42</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>Coded 4: 6 to 10 years</td>
<td>146</td>
<td>99</td>
<td>47</td>
</tr>
<tr>
<td>Coded 5: &gt;10 years</td>
<td>368</td>
<td>282</td>
<td>86</td>
</tr>
<tr>
<td>Total</td>
<td>608</td>
<td>422</td>
<td>166</td>
</tr>
</tbody>
</table>

Managerial level was available on 613 participants (446 males and 167 females; see Table 3) with the sample comprised of supervisory (coded 1), first-line (coded 2), middle (coded 3), and executive managers (coded 4). Industry type was available on 635
participants with the sample comprised of 343 in wholesale and retail trades, 99 in manufacturing, 42 in professional services, 38 in insurance and real estate, 31 in banking and finance, 17 in healthcare, 14 in transportation, 13 in construction, 12 in natural resources, 10 in utilities, 4 in technology and software, and the remaining 12 in miscellaneous industries.

Table 3

*Number of overall, male, and female participants within each managerial level category*

<table>
<thead>
<tr>
<th>Managerial level category code and level</th>
<th>Overall</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coded 1: Supervisory</td>
<td>10</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Coded 2: First-line</td>
<td>82</td>
<td>58</td>
<td>24</td>
</tr>
<tr>
<td>Coded 3: Middle</td>
<td>345</td>
<td>242</td>
<td>103</td>
</tr>
<tr>
<td>Coded 4: Executive</td>
<td>176</td>
<td>144</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>613</td>
<td>446</td>
<td>167</td>
</tr>
</tbody>
</table>

Procedure

Managers participated in assessment centers that took place at the international industrial/organizational psychology consulting firm’s offices during which time they completed demographic information and self-report agency and communal traits measures. Managers also participated in multi-rater job performance feedback processes for which their direct reports, bosses, and peers provided ratings of the participants’ work generativity. The multi-rater job performance feedback processes occurred several weeks to months before the assessment center. The assessment centers and multi-rater job performance feedback processes took place between the years of 1997 and 2004.
Measures

Agency and Communal Traits Measure

Agency and communal traits were measured using a subset of items in the 300-item Global Personality Inventory (GPI). The GPI is an omnibus measure of personality based on the Big-Five factor structure and is intended for work contexts. Extensive reliability studies have been conducted on the GPI (Ryan, Robie, Schmit, & Uhlmann, 2000). Forty-five items were determined to measure agency, and 26 items were determined to measure communion. The procedures involved in determining which items from the GPI measured agency and communal traits and their psychometric properties are described in the results section. All agency and communal traits ratings were made on a Likert-type, 5-point scale coded from 1 (Strongly Disagree) to 5 (Strongly Agree).

Work Generativity Measure

Work generativity was measured using selected items from a 135-item multi-rater job performance feedback instrument. Participants’ bosses, peers, and direct reports completed independent, yet parallel, evaluations of the participant’s job performance. Ratings were averaged for each rater source. Direct report ratings of work generativity are referred to as WGDR; boss ratings of work generativity are referred to as WGBS; and peer ratings of work generativity are referred to as WGPR. Twelve items were identified to measure work generativity. The procedure for determining which items from the multi-rater job performance feedback instrument measured work generativity and their psychometric properties are described in the results section. All performance ratings were made on a Likert-type, 5-point scale coded from 1 (Strongly Disagree) to 5 (Strongly Agree).
Agree). The dependent variable work generativity measures were standardized so their scales would be comparably interpretable.
RESULTS

The results are presented in alignment with the order of the hypotheses. After preliminary analyses for deriving the predictor and criteria are presented along with correlations and descriptive statistics, t-tests and multiple regression analyses for the effects of age and managerial role tenure are presented. Then, multiple regression analyses for the effects of age, managerial role tenure, and gender are presented, followed by the main and interactive effects of agency and communal traits. Next, mediation analyses for the effects of agency and communal traits with managerial role tenure, and agency and communal traits with gender are presented. Finally, multiple regression analyses for the interactive effects of agency and communal traits, gender, and managerial level, and the unique effect of gender are presented.

Preliminary Analyses

Data Preparation

The managerial role tenure variable had a disproportionately smaller number of participants within the first category compared to its other categories (e.g., 9 versus 43 to 368). With a sample size of only 9 participants, there were not enough participants in the first category to be meaningful. The managerial level variable also had a disproportionately smaller number of participants within the first category compared to its other categories (e.g., 10 versus 82 to 176). Subsequently, the first two managerial level categories and managerial role tenure categories were combined.
Missing Data and Outliers

The portions of missing data for each study variable (age, managerial role tenure, gender, and managerial level) and potential items for measures (agency, communion, WGDR, WGBS, and WGPR) were first identified. None of the portions of missing data for each study variable and potential items for measures reached 15%. Roth (1994) concluded when a portion of missing data is below 15% there is a negligible bias in parameter estimates whether the missing data patterns are missing randomly or systematically. As such, the causes of the missing data and their impact were not further investigated. Out of the sample of 709, seven unique outlier cases were identified for specific variables (i.e., an outlier was considered problematic when scores on the variable were between +/- 3.0 SDs and +/- 4.0 SDs off the mean and/or identified as a multivariate outlier with the Mahalanobis distance method). These seven outlier cases were removed from further analyses for that variable only (one multivariate case for age and managerial role tenure, one case for agency and communion, two cases for WGDR, and three cases for WGPR). That is, no participants were completely excluded from further analyses.

Agency and Communal Traits Psychometrics

To evaluate the psychometric properties of the agency and communal traits measures, initial agency and communion subscales from the GPI instrument were first identified based on their content similarity. Examples of agency trait subscales with similar content included: “Desire for Achievement,” “Desire for Advancement”, “Taking Charge”, “Competitiveness”, and “Initiative”. Examples of communal trait subscales with similar content included: “Consideration”, “Empathy”, and “Interdependence”. A total of 101 items from these agency and communal traits subscales were evaluated using an
exploratory factor analysis (EFA) and were subjected to a two-factor extraction method. The two-factor solution was also subjected to an oblique promax rotation. To identify items that loaded most substantially on these factors, items with loadings (correlations between factors and items) above .40 that did not show substantial cross-loadings with other factors were retained. These procedures reduced the initial set of 101 items to 55 agency items and 29 communal items for a total of 84 items. Internal consistency reliability estimates were calculated for agency and communal scales. From these analyses, items with low and negative item-total correlations were excluded. These procedures reduced the number of items on each scale further to 45 agency items and 26 communal items for a total of 71 items.

The two-factor structure of the agency and communal traits was evaluated in a confirmatory factor analysis (CFA; Amos 5.0, Arbuckle, 2001). The items for each scale were already identified with the EFA. Therefore, the purpose of the CFA was not to identify individual items, but rather to evaluate the overall factor structure. As such, five parcels containing nine agency items each and two parcels containing twelve communal items each were created. The model also included a correlated path between the agency and communal factors. The resulting two-factor model CFA fit was $x^2 (13, N = 708) = 23.60, p < .05$, goodness of fit index (GFI) = .99, normed fit index (NFI) = .99, and root-mean-square error of approximation (RMSEA) = .03. The factor loadings from the factors to the parcels ranged from .77 to .91, and the correlation between the agency and communal factors was $r = .47$.

The final internal consistency reliability estimates of the agency and communal scales without outliers were $\alpha = .92$ for agency and $\alpha = .89$ for communion. The content
of the final set of agency items included themes such as: desiring achievement and advancement, taking charge in situations, and having initiative. The content of the final set of communal items included themes such as: having empathy and consideration for others.

**Work Generativity Psychometrics**

To determine which items from the multi-rater job performance feedback instrument measured work generativity, the author and another graduate student first independently assigned each item from the 135-item instrument into one of the two following categories: 1) a work generative behavior or 2) not a work generative behavior. The two independent raters assigned each item without knowledge of each other’s ratings. Prior to rating the items, the author developed a definition of work generativity based on the theory of generativity (Erikson, 1950/1963, McAdams & de St. Aubin, 1992) and other-involvement (Bradley, 1997; Bradley & Marcia, 1998). Work generativity was defined as the demonstrated concern managers had for their direct reports’ growth and development by imparting their skills and knowledge to them. The author also developed specific behavioral examples of work generativity. These behavioral examples included themes such as: coaching direct reports, challenging direct reports with work assignments, demonstrating interest for direct reports’ careers, providing feedback to direct reports, setting performance standards for direct reports, evaluating direct reports’ performance, and motivating direct reports. These definitions and examples were used by both raters to guide their assignment of each item. An estimate of the interrater reliability was calculated with a correlation coefficient of the consistency in rank order between the two sets of ratings, which was .85. An estimate of
the interrater agreement was also calculated with an average deviation (AD) index (Burke, Finkelstein, & Dusig, 1999), which was .01. The AD index calculates the distribution of ratings around the mean rating, and a smaller AD index score indicates greater interrater agreement. In the cases rating discrepancies occurred, the two raters discussed and reassigned the items. A total of 16 items were identified as work generativity from these procedures.

The main criterion of interest was ratings provided by the direct report rater source because direct reports were recipients of work generativity. As such, the factor structure for this criterion variable was developed first. Then, the validity of this factor structure was examined with the remaining rater sources (i.e., boss and peer). All 135 items in the job performance instrument rated by direct reports were examined with an EFA to determine if a clear work generativity factor emerged separate from the rest of the job performance items, but there was not one. The correlations among all 135 items were then examined to identify items that were highly correlated with the items identified a priori as work generativity. A total of 18 items were identified as potential work generativity items after two additional items were identified from these procedures. An internal consistency reliability analysis indicated these 18 items had relatively high item-total correlations (i.e., none approaching zero or were negative).

A one-factor solution of the 18 items was then examined in a CFA. Inspection of the modification indices revealed a pattern of correlated error terms among six items that indicated these items did not cleanly load on the one-factor work generativity factor solution. After inspecting each of the problematic items, it was determined these items differed from the rest of the items in that they did not specifically refer to direct reports.
Consequently, the model was reduced by the problematic six items to gain a better fitting work generativity model. The final CFA included twelve items that were identified as indicators of work generativity. The resulting one-factor model CFA fit was $x^2 (54, N = 627) = 500.04, p < .01, \text{GFI} = .86, \text{NFI} = .91, \text{RMSEA} = .12$. The factor loadings ranged from .50 to .89. The one-factor model was evaluated with a CFA for each of the remaining rater sources to determine if the model also transferred to boss and peer rater sources. The fit statistics of the resulting final one-factor model was also acceptable for WGBS and WGPR as shown in Table 4.

Table 4
*Fit statistics for each rater source*

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>$x^2$</th>
<th>GFI</th>
<th>NFI</th>
<th>RMSEA</th>
<th>Factor loadings range</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGDR</td>
<td>54</td>
<td>500.04**</td>
<td>.86</td>
<td>.91</td>
<td>.12</td>
<td>.50 to .89</td>
</tr>
<tr>
<td>WGBS</td>
<td>54</td>
<td>401.02**</td>
<td>.90</td>
<td>.89</td>
<td>.10</td>
<td>.48 to .76</td>
</tr>
<tr>
<td>WGPR</td>
<td>54</td>
<td>443.38**</td>
<td>.87</td>
<td>.90</td>
<td>.11</td>
<td>.55 to .86</td>
</tr>
</tbody>
</table>

*Note.* WGDR = work generativity direct report, WGBS = work generativity boss, WGPR = work generativity peer. GFI = goodness of fit index; NFI = normed fit index; RMSEA = root-mean-square error of approximation. Minimum $N = 606$. **$p < .01$. 

The final internal consistency reliability estimates of the work generativity scale without outliers were $\alpha = .94$ for WGDR, $\alpha = .90$ for WGBS, and $\alpha = .93$ for WGPR. The inter-rater reliability (or agreement) between the different rater sources (i.e., direct report, boss, and peer ratings) on these twelve items was measured with an intraclass correlation coefficient (ICC) = .94. The content of the final set of work generativity items included themes such as: coaching direct reports, challenging direct reports with assignments, demonstrating interest for
direct reports' careers, providing feedback to direct reports, setting performance standards for direct reports, and evaluating direct reports' performance.

**Correlations and Descriptive Statistics**

The correlations between all of the study variables are displayed in Table 5. Several interesting patterns emerge from the correlations. First, as expected, age and managerial role tenure were positively related. However, age was positively related to none of the work generativity variables, whereas managerial role tenure was positively related to all of the work generativity variables (although managerial role tenure was marginally significantly related to WGBS). The current sample was comprised of adults in young to mid-life yet work generativity was not found to increase with age as Erikson's (1963) and Levinson et al.'s (1978) theories suggests. Furthermore, age was negatively related to agency and communion, whereas managerial role tenure was positively related to agency. Thus, age was not only unrelated to work generativity, but it was also not related to work generative-related traits. Gender was positively related to communion, which was in line with past research (Twenge, 2001) that has found women are higher on communion than men. Unexpectedly, rater sources showed differential relations to work generative-related traits. For example, WGDR and WGPR were positively related to communion, whereas WGBS was not.
Table 5
Correlations between study variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Managerial Role</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>.38**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gender</td>
<td>-.07†</td>
<td>-.11**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Managerial Level</td>
<td>.21**</td>
<td>.39**</td>
<td>-.13**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Industry</td>
<td>.08*</td>
<td>.00</td>
<td>-.04</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Agency</td>
<td>-.18**</td>
<td>.07†</td>
<td>.00</td>
<td>.12**</td>
<td>-.09*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Communion</td>
<td>-.10*</td>
<td>.02</td>
<td>.14**</td>
<td>.03</td>
<td>-.08*</td>
<td>.43**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. WGDR</td>
<td>.02</td>
<td>.11**</td>
<td>.02</td>
<td>.06</td>
<td>.02</td>
<td>.07†</td>
<td>.12**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. WGBS</td>
<td>-.03</td>
<td>.08†</td>
<td>.05</td>
<td>.03</td>
<td>.05</td>
<td>.13**</td>
<td>-.00</td>
<td>.39**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. WGPR</td>
<td>-.03</td>
<td>.19**</td>
<td>.07</td>
<td>.10*</td>
<td>-.02</td>
<td>.15**</td>
<td>.12**</td>
<td>.42**</td>
<td>.42**</td>
<td></td>
</tr>
</tbody>
</table>

Note. WGDR = work generativity direct report, WGBS = work generativity boss, WGPR = work generativity peer. Gender coded 1 = male, 2 = female. Minimum N = 526. †p < .10, *p < .05, **p < .01.
Descriptive statistics (N, means, and standard deviations) for the study variables are shown in Table 6. The unstandardized study variables are reported in Table 6; however, all of the variables were standardized for further analyses. The mean age (a continuous variable) was 41 years. Furthermore, there was a slight increase in the mean age at each managerial role tenure category. For example, the mean age was 36 years (SD = 7) for the < 1 year of managerial role tenure category, 37 years (SD = 6) for the 1 to 3 years of managerial role tenure category, 37 years (SD = 6) for the 4 to 5 years of managerial role tenure category, 38 years (SD = 6) for the 6 to 10 years of managerial role tenure category, and 43 years (SD = 6) for the > 10 years of managerial role tenure category.

Table 6

<table>
<thead>
<tr>
<th>Overall</th>
<th>N</th>
<th>Number of items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>635</td>
<td></td>
<td>41.1</td>
<td>6.4</td>
</tr>
<tr>
<td>Managerial Role Tenure</td>
<td>608</td>
<td>5</td>
<td>4.4</td>
<td>.9</td>
</tr>
<tr>
<td>Gender</td>
<td>705</td>
<td></td>
<td></td>
<td>.4</td>
</tr>
<tr>
<td>Managerial Level</td>
<td>613</td>
<td>4</td>
<td>3.1</td>
<td>.6</td>
</tr>
<tr>
<td>Industry</td>
<td>635</td>
<td></td>
<td></td>
<td>17.9</td>
</tr>
<tr>
<td>Agency</td>
<td>708</td>
<td>45</td>
<td>161.0</td>
<td>20.5</td>
</tr>
<tr>
<td>Communion</td>
<td>708</td>
<td>26</td>
<td>92.0</td>
<td>12.5</td>
</tr>
<tr>
<td>WGDR</td>
<td>627</td>
<td>12</td>
<td>45.6</td>
<td>5.3</td>
</tr>
<tr>
<td>WGBS</td>
<td>652</td>
<td>12</td>
<td>44.5</td>
<td>5.9</td>
</tr>
<tr>
<td>WGPR</td>
<td>606</td>
<td>12</td>
<td>44.9</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Note. WGDR = work generativity direct report, WGBS = work generativity boss, WGPR = work generativity peer. Managerial role tenure: 1 = < 1 year, 2 = 1 to 3 years, 3 = 4 to 5 years, 6 to 10 years, > 10 years. Managerial level category and level: 1 = Supervisory, 2 = First-line, 3 = Middle, and 4 = Executive. Minimum N = 606.
Control Variables

Prior to proceeding with the primary analyses, a MANOVA was performed to establish if there were any significant differences in means and standard deviations on the criterion variables (WGDR, WGBS, and WGPR) between industry types. There was reason to expect industry type could affect work generativity in that within specific industries (e.g., retail) work generativity may be more frequent and widespread than in other industries (e.g., manufacturing). Indeed, significant differences were found between industry types and inspection of the means revealed retail and insurance industry types had higher means than other industry types. Subsequently, industry type was controlled in all of the analyses.

Curvilinear Analyses

Prior to proceeding with the primary analyses, a series of regression analyses were performed to establish if there were curvilinear effects of age and managerial role tenure. These analyses were conducted to rule out work generativity did not decline for managers in late mid-life and mid-career. No curvilinear effects of age and managerial role tenure were found and subsequently controlled in all of the analyses.

T-tests and Multiple Regression Analyses for Age and Managerial Role Tenure

To determine if managerial role tenure (career stage) was a better predictor of work generativity than age (life stage) and if it accounted for significant unique variance after age (Hypothesis 1), t-tests for the difference between dependent correlations and a series of multiple regression analyses were conducted separately for each rater source (Steiger, 1980). For each regression analysis, work generativity was the criterion, age was
entered first, and managerial role tenure was entered second. Earlier analyses indicated work generativity means significantly differed between industry types. Thus, to account for its unique effects, industry was controlled in all of the analyses.

**Direct Report Rater Source**

For the direct report rater source, managerial role tenure was positively related to WGDR, but age was not as evident in Table 5. *T*-tests for the difference between dependent correlations provided support that managerial role tenure was a better predictor than age for WGDR (*t[553] = 1.91, p < .10*). Furthermore, managerial role tenure also accounted for a small, but significant amount of variance after age in WGDR (*β = .10, p < .05; R² = .00, p > .10; change in R² = .01, p < .05*).

**Boss Rater Source**

For the boss rater source, managerial role tenure was marginally positively related to WGBS, but age was not related to WGBS (see Table 5). Managerial role tenure was a better predictor than age for WGBS (*t[571] = 2.36, p < .05*) as indicated by *t*-tests for the difference between dependent correlations. Managerial role tenure also accounted for a small, but significant amount of variance after age in WGBS (*β = .10, p < .05; R² = .00, p > .10; change in R² = .01, p < .05*).

**Peer Rater Source**

For the peer rater source, age was not related to WGPR, but managerial role tenure was positively related to WGPR as shown in Table 5. *T*-tests for the difference between dependent correlations indicated managerial role tenure was a better predictor than age for WGPR (*t[526] = 4.62, p < .01*). Managerial role tenure also accounted for a
A significant amount of variance after age in WGPR (β = .24, p < .01; R² = .00, p > .10; change in R² = .05, p < .01).

**Summary**

In sum, partial support for Hypothesis 1 was found. Age was not positively related to work generativity. However, the correlation analyses and t-tests provided evidence that managerial role tenure was a better predictor of work generativity than age, and the multiple regression analyses revealed managerial role tenure accounted for a significant amount of variance after age across all of the work generativity criteria. Furthermore, by controlling for age while determining the incremental variance of managerial role tenure it was determined if age was a suppressor variable (i.e., a predictor that is correlated with another predictor, but unlike the second predictor, is unrelated to the criterion and increases the size of the relation between the second predictor and criterion in a multiple regression model). The importance of career stage (Super, 1957) over life stage (Levinson et al., 1978) to work generativity was clearly demonstrated in the current study.

**Multiple Regression Analyses for Age, Managerial Role Tenure, and Gender**

In addition to addressing the hypotheses, a series of exploratory analyses were conducted to determine if managerial role tenure (career stage) accounted for significant incremental variance after age (life stage) in work generativity differentially for males and females. Separate multiple regression analyses were conducted for each gender and rater source. In each regression analysis, work generativity was the criterion, age was
entered first, and managerial role tenure was entered second. Industry was controlled in all of the analyses to account for its unique effects.

*Direct Report Rater Source*

For the direct report rater source, managerial role tenure accounted for a small, but significant amount of variance after age in WGDR for male managers ($\beta = .12, p < .05; R^2 = .00, p > .10$; change in $R^2 = .02, p < .01$) yet not for female managers ($\beta = .09, p > .10; R^2 = .02, p > .10$; change in $R^2 = .01, p > .10$).

*Boss Rater Source*

For the boss rater source, managerial role tenure also accounted for a small, but significant amount of variance after age in WGBS for male managers ($\beta = .12, p < .05; R^2 = .00, p > .10$; change in $R^2 = .01, p < .05$) yet not for female managers ($\beta = .07, p > .10; R^2 = .03, p < .10$; change in $R^2 = .00, p > .10$).

*Peer Rater Source*

For the peer rater source, managerial role tenure accounted for a significant amount of variance after age in WGPR for both male managers ($\beta = .22, p < .01; R^2 = .00, p > .10$; change in $R^2 = .04, p < .01$) and female managers ($\beta = .34, p < .01; R^2 = .04, p < .10$; change in $R^2 = .10, p < .01$).

*Summary*

In sum, this set of exploratory analyses revealed managerial role tenure accounted for a significant amount of variance after age for male managers by the direct report and boss rater sources and for both male and female managers with the peer rater source. Managerial role tenure was expected to be a better predictor of work generativity than age for both sexes; however, these results demonstrate the importance of career stage
(Super, 1957) over life stage (Levinson et al., 1978) to work generativity is more relevant for male managers than female managers.

**Multiple Regression Analyses for Agency and Communal Traits**

To determine if agency and communal traits were positively related to work generativity, but communion accounted for significant incremental variance, and an agency and communion interaction accounted for additional significant incremental variance (Hypothesis 2), a series of moderated multiple regression analyses were conducted. To test the main effects of agency and communal traits, work generativity was the criterion, and the main effects (agency and communion) were entered in separate analyses. To test the amount of variance communion accounted for after agency, work generativity was the criterion, agency was entered first, and communion was entered second in all the analyses. To test the potential interaction between agency and communal traits, work generativity was the criterion, the main effects (agency and communion) were entered first, and the agency x communion interaction was entered second in all the analyses. All variables were centered first before the interaction terms were computed. To account for its unique effect, industry was controlled in all of the analyses. Earlier analyses also indicated work generativity was predicted by managerial role tenure. Thus, to account for its unique effect, managerial role tenure was also controlled in all of the analyses.

**Direct Report Rater Source**

For the direct report rater source, a significant positive main effect of agency on WGDR ($\beta = .09, p < .05$) was found. A significant positive main effect of communion on
WGDR ($\beta = .15, p < .01$) was also found. Communion accounted for a small, but significant amount of variance after agency in WGDR ($\beta = .14, p < .01; R^2 = .02, p < .01$; change in $R^2 = .02, p < .01$) as shown in Table 7. However, no significant interaction effect of agency and communion on WGDR ($\beta = .07, p > .10; R^2 = .04, p < .01$; change in $R^2 = .00, p > .10$) was found.

Table 7
Summary of moderated multiple regression analysis of incremental variance of communion after agency on WGDR

<table>
<thead>
<tr>
<th>Step and Variable</th>
<th>$B$</th>
<th>$SE B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main effects of agency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV = WGDR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Industry (control)</td>
<td>.03</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.10</td>
<td>.04</td>
<td>.10*</td>
</tr>
<tr>
<td>Agency</td>
<td>.09</td>
<td>.04</td>
<td>.09*</td>
</tr>
<tr>
<td><strong>Incremental effect of communion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2: Industry (control)</td>
<td>.03</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.11</td>
<td>.04</td>
<td>.11**</td>
</tr>
<tr>
<td>Agency</td>
<td>.03</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td>Communion</td>
<td>.14</td>
<td>.05</td>
<td>.14**</td>
</tr>
</tbody>
</table>

Note. $R^2 = .02, p < .01$ for Step 1; $\Delta R^2 = .02, p < .01$ for Step 2. $N = 546$. $\dagger p < .10$, $*p < .05$, $**p < .01$.

Boss Rater Source

For the boss rater source, a significant positive main effect of agency on WGBS ($\beta = .15, p < .01$) was found, but no significant main effect of communion on WGBS ($\beta = - .01, p > .10$) was found. However, communion accounted for a small, but marginally significant amount of variance after agency in WGBS ($\beta = -.08, p < .10; R^2 = .03, p < .01$; change in $R^2 = .01, p < .10$) yet the direction of the coefficient was negative as
shown in Table 8. No significant interaction effect of agency and communion on WGBS 
(β = .01, p > .10; R² = .04, p < .01; change in R² = .00, p > .10) was also found.

Table 8
Summary of moderated multiple regression analysis of incremental variance of 
communion after agency on WGBS

<table>
<thead>
<tr>
<th>Step and Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main effects of agency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV = WGBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Industry (control)</td>
<td>.07</td>
<td>.04</td>
<td>.07</td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.07</td>
<td>.04</td>
<td>.07</td>
</tr>
<tr>
<td>Agency</td>
<td>.16</td>
<td>.04</td>
<td>.15**</td>
</tr>
<tr>
<td><strong>Incremental effect of communion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2: Industry (control)</td>
<td>.07</td>
<td>.04</td>
<td>.06</td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.07</td>
<td>.04</td>
<td>.07</td>
</tr>
<tr>
<td>Agency</td>
<td>.20</td>
<td>.05</td>
<td>.19**</td>
</tr>
<tr>
<td>Communion</td>
<td>-.09</td>
<td>.05</td>
<td>-.08†</td>
</tr>
</tbody>
</table>

Note. R² = .03, p < .01 for Step 1; ΔR² = .01, p < .10 for Step 2. N = 564. †p < .10, *p < .05, **p < .01.

**Peer Rater Source**

For the peer rater source, a significant main effect of agency on WGPR (β = .12, p < .01) and a significant main effect of communion on WGPR (β = .11, p < .01) were found. However, unlike the direct report rater source, communion did not account for a significant amount of variance after agency in WGPR (β = .08, p > .10; R² = .05, p < .01; change in R² = .01, p > .10). Similar to the direct report and boss rater sources, no significant interaction effect of agency and communion on WGPR (β = .05, p > .10; R² = .06, p < .01; change in R² = .00, p > .10) was found.
Rater Source comparisons

Tests of the difference between betas for different dependent variables from a single sample were conducted (Aiken, West, Cohen, & Cohen, 2002) to determine if the results with one rater source significantly differed from another rater source. Only the boss rater source significantly differed for the main effect of communion ($\beta = -.16, p < .01; R^2 = .03, p < .01$) and the incremental variance of communion ($\beta = -.23, p < .01; R^2 = .01, p > .10$; change in $R^2 = .04, p < .01$) from the direct report rater source. The directions of the boss rater source coefficients were also in the opposite direction as the direct report rater source coefficients.

Both the direct report ($\beta = .23, p < .01; R^2 = .01, p > .10$; change in $R^2 = .04, p < .01$) and peer ($\beta = .16, p < .01; R^2 = .02, p < .05$; change in $R^2 = .02, p < .01$) rater sources significantly differed from the boss rater source for the incremental variance of communion results. The directions of these coefficients for the direct report and peer rater sources were also in the opposite direction as the coefficients for the boss rater source.

Summary

In sum, partial support for Hypothesis 2 was found. Agency was expected to be positively related to work generativity. Communion was expected to be positively related to work generativity, but to also account for significant unique variance. An interaction between agency and communal traits on work generativity was also expected to account for additional significant incremental variance. Significant positive main effects of agency were found across all of the rater sources, and significant positive main effects of communion were found with the direct report and peer rater sources. Communion
accounted for incremental positive variance over and above agency for the direct report and boss rater sources, but the coefficient was negative for the boss rater source. Finally, no interactive effects of agency x communion were found across all of the rater sources. These results illustrate different rater sources attributed different traits to work generativity. However, none of the rater sources attributed an interaction between both traits to work generativity.

Mediation Analyses for Agency and Communal Traits

To determine if agency and communal traits mediated the relation between managerial role tenure and work generativity (Hypothesis 3) and mediated the relation between gender and work generativity (Hypothesis 4), the Baron and Kenny (1986) method for establishing mediation was conducted. Baron and Kenny proposed that the following conditions must be achieved to establish mediation: 1) the predictor must be related to the criterion, 2) the predictor must be related to the mediator, 3) the mediator must predict the criterion after the predictor is controlled, and 4) the predictor must not predict the criterion after the mediator is controlled. Full mediation is established if conditions 1 through 4 are achieved. Partial mediation is established if conditions 1 through 3 are achieved. The relations between managerial role tenure and work generativity are presented first, followed by the relations between gender and work generativity. Agency and communal traits were tested for mediation effects separately within each of these models.
Mediation Analyses for Agency and Communal Traits with Managerial Role Tenure

Direct Report, Boss, and Peer Rater Sources

For the direct report, boss, and peer rater sources, managerial role tenure was significantly related to WGDR and WGPR and marginally significantly related to WGBS (see Table 5). Thus, the first condition that the predictor must be related to the criterion was met for WGDR and WGPR, but not for WGBS. Furthermore, managerial role tenure was only marginally significantly related to agency and not significantly related to communion for WGDR and WGPR. Thus, the second conditions that the predictor must be related to the mediators were not met for WGDR and WGPR. Consequently, the rest of the Baron and Kenny (1986) conditions were not evaluated for agency, communion, WGDR, WGBS, and WGPR.

Summary

In sum, no support for Hypothesis 3 was found. Agency and communal traits were expected to mediate the relation between managerial role tenure and work generativity. However, agency and communal traits were not found to mediate the relation between managerial role tenure and all of the work generativity variables. These results indicate there was no interplay between the generative-related traits, managerial role tenure, and work generativity variables.

Mediation Analyses for Agency and Communal Traits with Gender

To determine if agency and communal traits mediated the positive relation between gender and work generativity (Hypothesis 4), the Baron and Kenny (1986) method was used.
Direct Report, Boss, and Peer Rater Sources

For the direct report, boss, and peer rater sources, gender was not significantly related to WGDR, WGBS, and WGPR (see Table 5). Thus, the first condition that the predictor must be related to the criterion was not met for WGDR, WGBS, and WGPR. Consequently, the rest of the Baron and Kenny (1986) conditions were not evaluated for agency, communion, WGDR, WGBS, and WGPR.

Summary

In sum, no support for Hypothesis 4 was found. Agency and communal traits were expected to mediate the relation between gender and work generativity. However, female managers were not found to be higher on work generativity than male managers across all of the rater sources, and agency and communal traits were not found to mediate the relation between gender and all of the work generativity variables. These results indicate there was no interplay between the generative-related traits, gender, and work generativity variables.

Multiple Regression Analyses for Agency and Communal Traits, Gender, and Managerial Level

To determine if female managers higher on agency and communal traits at higher managerial levels were lower on work generativity than female managers at lower managerial levels, and to determine if male managers higher on agency and communal traits, regardless of managerial level, were higher on work generativity than female managers (Hypothesis 5), a series of moderated multiple regression analyses were
performed. Work generativity was the criterion, main effects (agency, gender, and managerial level; communion, gender, and managerial level) were entered first, two-way interactions (agency x gender, agency x managerial level, and gender x managerial level; communion x gender, communion x managerial level, and gender x managerial level) were entered second, and three-way interactions (agency x gender x managerial level; communion x gender x managerial level) were entered third in all of the analyses. All variables were centered first before the interaction terms were computed. To account for their unique effects, industry and managerial role tenure were controlled in all of the analyses. Agency and communal traits were also tested separately within each of these analyses because no two-way interactions for agency x communal were found earlier. To gain a better understanding of the interaction effects, all significant interactions were plotted according to the method outlined by Aiken and West (1991).

Direct Report Rater Source

For the direct report rater source, no support for Hypothesis 5 was found. Only a marginally significant three-way interaction effect between communion x gender x managerial level on WGDR ($\beta = -.07, p < .10$) was found (see Table 9).
Table 9
Summary of moderated multiple regression analysis of communion, gender, and managerial level on WGDR

| Step and Variable |  |  |
|-------------------|---|---|---|
| **Main effects of communion** | **B** | **SE B** | **β** |
| DV = WGDR | | | |
| Step 1: Industry (control) | | | |
| Managerial role tenure (control) | .10 | .05 | .10* |
| Communion | .15 | .04 | .15** |
| Gender | .02 | .04 | .02 |
| Managerial level | .02 | .05 | .02 |
| **2-way interaction effects** | | | |
| Step 2: Industry (control) | | | |
| Managerial role tenure (control) | .11 | .05 | .11* |
| Communion | .15 | .04 | .15** |
| Gender | .01 | .04 | .01 |
| Managerial level | .02 | .05 | .02 |
| Communion x Gender | .09 | .04 | .09* |
| Communion x Managerial level | .03 | .04 | .03 |
| Gender x Managerial level | -.03 | .04 | -.03 |
| **3-way interaction effects** | | | |
| Step 3: Industry (control) | | | |
| Managerial role tenure (control) | .11 | .05 | .11* |
| Communion | .15 | .04 | .14** |
| Gender | .01 | .04 | .01 |
| Managerial level | .03 | .05 | .03 |
| Communion x Gender | .09 | .04 | .09* |
| Communion x Managerial level | .02 | .04 | .02 |
| Gender x Managerial level | -.02 | .04 | -.02 |
| Communion x Gender x Managerial level | -.08 | .05 | -.07† |

*Note. R^2 = .04, p < .01 for Step 1; ΔR^2 = .01, p > .10 for Step 2; ΔR^2 = .01, p < .10 for Step 3. N = 539. †p < .10, *p < .05, **p < .01.

In Figure 1, the first plot displays the relation between communion and work generativity as perceived by the direct report rater source became stronger as female managers decreased in managerial level. In Figure 1, the second plot displays the relation between communion and work generativity as perceived by the direct report rater source
became stronger as male managers increased in managerial level. The marginally significant interaction displayed in the first plot for females was in line with predictions, but the interaction effect displayed in the second plot for male managers was not entirely expected.

Figure 1. Plots for communion x gender x managerial level interaction on WGDR.
For the boss rater source, no support for Hypothesis 5 was found. However, a
significant two-way interaction effect between gender x managerial level on WGBS ($\beta = -0.10, p < .05$) was also found (see Table 10).

**Table 10**

*Summary of moderated multiple regression analysis of agency, gender, and managerial level on WGBS*

<table>
<thead>
<tr>
<th>Step and Variable</th>
<th>$B$</th>
<th>SE $B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main effects of agency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV = WGBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Industry (control)</td>
<td>0.07</td>
<td>0.04</td>
<td>0.07†</td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>0.07</td>
<td>0.05</td>
<td>0.07</td>
</tr>
<tr>
<td>Agency</td>
<td>0.16</td>
<td>0.04</td>
<td>0.15**</td>
</tr>
<tr>
<td>Gender</td>
<td>0.06</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Managerial level</td>
<td>0.01</td>
<td>0.05</td>
<td>0.01</td>
</tr>
</tbody>
</table>

| **2-way interaction effects** |       |        |         |
| Step 2: Industry (control) | 0.07  | 0.04   | 0.07†   |
| Managerial role tenure (control) | 0.06  | 0.05   | 0.06    |
| Agency             | 0.17  | 0.05   | 0.16**  |
| Gender             | 0.05  | 0.04   | 0.05    |
| Managerial level   | 0.01  | 0.05   | 0.01    |
| Agency x Gender    | 0.08  | 0.04   | 0.08†   |
| Agency x Managerial level | 0.01  | 0.04   | 0.01    |
| Gender x Managerial level | -0.10 | 0.04   | -0.10*  |

| **3-way interaction effects** |       |        |         |
| Step 3: Industry (control) | 0.07  | 0.04   | 0.07†   |
| Managerial role tenure (control) | 0.06  | 0.05   | 0.06    |
| Agency             | 0.17  | 0.05   | 0.16**  |
| Gender             | 0.05  | 0.04   | 0.05    |
| Managerial level   | 0.01  | 0.05   | 0.01    |
| Agency x Gender    | 0.08  | 0.04   | 0.08†   |
| Agency x Managerial level | 0.01  | 0.05   | 0.01    |
| Gender x Managerial level | -0.10 | 0.04   | -0.10*  |
| Agency x Gender x Managerial level | 0.01  | 0.04   | 0.01    |

*Note.* $R^2 = .04, p < .01$ for Step 1; $\Delta R^2 = .01, p < .10$ for Step 2; $\Delta R^2 = .00, p > .10$ for Step 3. $N = 557$. †$p < .10$, *$p < .05$, **$p < .01$. 
In Figure 2, the plot displays the relation between managerial level and work generativity as perceived by the boss rater source became weaker as female managers increased in managerial level, but became stronger as male managers increased in managerial level.

![Figure 2. Plot for gender x managerial level interaction on WGBS.](image)

**Peer Rater Source**

For the peer rater source, no support for Hypothesis 5 was found. Only a marginally significant three-way interaction effect between agency x gender x managerial level on WGPR ($\beta = -0.08$, $p < .10$) was found (see Table 11).
Table 11
Summary of moderated multiple regression analysis of agency, gender, and managerial level on WGPR

<table>
<thead>
<tr>
<th>Step and Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main effects of agency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV = WGPR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Industry (control)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.18</td>
<td>.05</td>
<td>.19**</td>
</tr>
<tr>
<td>Agency</td>
<td>.12</td>
<td>.04</td>
<td>.11**</td>
</tr>
<tr>
<td>Gender</td>
<td>.10</td>
<td>.04</td>
<td>.10*</td>
</tr>
<tr>
<td>Managerial level</td>
<td>.03</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td><strong>2-way interaction effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2: Industry (control)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.19</td>
<td>.05</td>
<td>.19**</td>
</tr>
<tr>
<td>Agency</td>
<td>.12</td>
<td>.05</td>
<td>.12**</td>
</tr>
<tr>
<td>Gender</td>
<td>.09</td>
<td>.04</td>
<td>.10*</td>
</tr>
<tr>
<td>Managerial level</td>
<td>.03</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td>Agency x Gender</td>
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<td>.04</td>
<td>.00</td>
</tr>
<tr>
<td>Agency x Managerial level</td>
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<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Gender x Managerial level</td>
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<td>.05</td>
<td>-.02</td>
</tr>
<tr>
<td><strong>3-way interaction effects</strong></td>
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<td></td>
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</tr>
<tr>
<td>Step 3: Industry (control)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Managerial role tenure (control)</td>
<td>.18</td>
<td>.05</td>
<td>.18**</td>
</tr>
<tr>
<td>Agency</td>
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<td>.12**</td>
</tr>
<tr>
<td>Gender</td>
<td>.11</td>
<td>.04</td>
<td>.11*</td>
</tr>
<tr>
<td>Managerial level</td>
<td>.03</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td>Agency x Gender</td>
<td>-.02</td>
<td>.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Agency x Managerial level</td>
<td>.04</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Gender x Managerial level</td>
<td>-.01</td>
<td>.05</td>
<td>-.01</td>
</tr>
<tr>
<td>Agency x Gender x Managerial level</td>
<td>-.07</td>
<td>.04</td>
<td>-.08†</td>
</tr>
</tbody>
</table>

Note. \( R^2 = .06, p < .01 \) for Step 1; \( ΔR^2 = .00, p > .10 \) for Step 2; \( ΔR^2 = .01, p < .10 \) for Step 3. \( N = 511 \). †p < .10, *p < .05, **p < .01.

In Figure 3, the first plot displays the relation between agency and work generativity as perceived by the peer rater source became stronger as female managers decreased in managerial level. Similar to the direct report rater source, the marginally significant interaction effect displayed in the first plot was in line with predictions. In
Figure 3, the second plot displays the relation between agency and work generativity as perceived by the peer rater source became stronger as male managers increased in managerial level. Again, similar to the direct report rater source, the marginally significant interaction effect displayed in the second plot was not wholly expected.

**Females**

![Females Plot](image)

**Males**

![Males Plot](image)

*Figure 3. Plots for agency x gender x managerial level interaction on WGPR*
Rater Source comparisons

To determine if the results with one rater source significantly differed from another rater source, tests of the difference between betas for different dependent variables from a single sample were conducted (Aiken et al., 2002). The boss rater source significantly differed (β = .09, p < .05; R² = .03, p < .01; change in R² = .01, p < .05) from the direct report rater source for the communion x gender x managerial level interaction results. The direction of the boss rater source coefficient was also in the opposite direction as the coefficient for the direct report rater source. Similarly, the boss rater source marginally significantly differed (β = .08, p < .10; R² = .02, p < .05; change in R² = .01, p < .10) from the peer rater source for the agency x gender x managerial level interaction results. The direction of the coefficient for the boss rater source was also in the opposite direction as the coefficient for the peer rater source.

For the agency x gender interaction results, only the peer rater source marginally significantly differed (β = -.08, p < .10; R² = .02, p < .05; change in R² = .01, p < .10) from the boss rater source. The direction of the coefficient for the peer rater source was also in the opposite direction as the coefficient for the boss rater source. Although the direct report rater source did not significantly differ from the boss rater source for the agency x gender interaction effect, the direction of the coefficient for the direct report rater source was in the opposite direction as the boss rater source coefficient.

Similarly, only the peer rater source marginally significantly differed (β = .09, p < .10; R² = .02, p < .05; change in R² = .01, p < .10) from the boss rater source for the gender x managerial level interaction results, and the direction of the coefficient for the peer rater source was also in the opposite direction as the coefficient for the boss rater
source. Again, although the direct report rater source did not significantly differ from the boss rater source for the gender x managerial level interaction effect, the direction of the coefficient for the direct report rater source was in the opposite direction as the coefficient for the boss rater source.

**Summary**

In sum, no support for Hypothesis 5 was found because all of the effects were marginally significant. Female managers higher on agency and communal traits at higher managerial levels were expected to be lower on work generativity than female managers at lower managerial levels, whereas male managers higher on agency and communal traits, regardless of managerial level, were expected to be higher on work generativity than female managers. However, the weak results from the current study provide inconclusive evidence that gender-role factors affect work generativity among managers.

An interesting significant interaction result was found between gender and managerial level with the boss rater source. Inspection of the interaction plot showed as female managers increased in managerial level, bosses perceived female managers as less work generative. Alternatively, as male managers increased in managerial level, bosses perceived male managers as more work generative. These results suggest managerial level is a moderating factor for female managers in regards to boss ratings of work generativity.
Multiple Regression Analyses for Gender

In addition to addressing the hypotheses, a series of exploratory analyses were conducted to determine if an aspect related to being a female manager such as gender stereotypes led to a unique effect of gender. To determine if gender accounted for significant incremental variance in work generativity after agency and communal traits were controlled, a series of multiple regression analyses were conducted. Work generativity was the criterion, agency and communal traits were entered first, and gender was entered second in all of the analyses. Industry and managerial role tenure were controlled in all of the analyses to account for their unique effects.

**Direct Report, Boss, and Peer Rater Sources**

Gender did not account for a significant amount of variance after agency and communal traits in WGDR ($\beta = .02, p > .10; R^2 = .04, p < .01; \text{change in } R^2 = .00, p > .10$). However, gender accounted for a small, but marginally significant amount of variance after agency and communal traits in WGBS ($\beta = .07, p < .10; R^2 = .04, p < .01; \text{change in } R^2 = .01, p < .10$). Gender also accounted for a small, but significant amount of variance after agency and communal traits in WGPR ($\beta = .09, p < .05; R^2 = .06, p < .01; \text{change in } R^2 = .01, p < .05$).

**Rater Source comparisons**

To test if the results for the incremental variance of gender with the boss and peer rater sources significantly differed from the direct report rater source, tests of the difference between betas for different dependent variables from a single sample were conducted (Aiken et al., 2002). The direct report rater source did not significantly differ from the boss and peer rater sources for the incremental variance of gender. However, the
direction of the coefficient for the direct report rater source was in the opposite direction as the coefficients for the boss and peer rater sources. As recipients of work generativity, direct reports may have had more accurate observations of work generative behaviors and their ratings did not reflect gender-role stereotypes.

Summary

In sum, gender accounted for a small, but significant amount of variance after agency and communal traits with the boss and peer rater sources. Evidently, some aspect related to being a female manager such as gender stereotypes led to a unique effect of gender (after agency and communal traits were controlled) with the boss and peer rater sources, but not for the direct report rater source. Direct reports may have been immune to gender stereotypes of perceptions that women are more caring and nurturing (i.e., generative) than men because they are recipients of work generativity.
DISCUSSION

The current study set out to examine work generativity in the context of stage models of adult development and gender-role frameworks. More specifically, the effects of individual differences (age, managerial role tenure, gender, and agency and communal traits) and moderating factors (managerial level) on work generativity variables were examined using a managerial sample from multiple organizations and industries.

In the following sections, findings from each hypothesis are detailed. The key findings are also briefly summarized and their implications presented. The limitations of the current study and suggestions for future research are presented, along with a final conclusion.

Age and Managerial Role Tenure Effects

Generativity is theorized to be the prominent developmental task for adults during mid-life (Erikson, 1963; Levinson et al., 1978). Although individuals report they expect to be most generative during mid-life (McAdams et al., 1993; Ryff & Heincke, 1983), questions remain if individuals in mid-life actually exhibit more generative behaviors, especially in a work context. Furthermore, researchers have not established if work generativity is exhibited during both mid-life and mid-career. Career experience may affect generativity in the workplace more so than life experience. As such, it was expected managerial role tenure (career stage) would be a better predictor of work generativity than age (life stage). More specifically, it was expected that both managerial role tenure and age would be positively related to work generativity, but that managerial
role tenure would account for significant unique variance in work generativity after controlling for agency.

In line with predictions, managerial role was found to be a better predictor of work generativity than age. Managerial role tenure was found to be positively related to all of the work generativity variables, and the differences between the dependent correlations for age and managerial role tenure with work generativity were all found to be significant. Managerial role tenure also accounted for incremental variance (1% to 5%) over and above age across all of the work generativity variables. However, contrary to expectations, there was no positive relation between age and the work generativity variables. Exploratory analyses also discovered that managerial role tenure predicted work generativity for male managers by the direct report and boss rater sources and for both male and female managers by the peer rater source. These results are puzzling because managerial role tenure was expected to be a better predictor of work generativity than age for both male and female managers alike, but there was no theoretical reason to presume managerial role tenure would be a better predictor of work generativity for male managers than female managers. Either managerial role tenure was an insufficient measure of career stage for female managers, or life and career stages are inapplicable to female workers in predicting work generativity.

By determining the relative contribution of age and managerial role tenure in explaining work generativity, these results indicate that managerial role tenure (career stage) was a better predictor of work generativity than age (life stage). These results inform theory by suggesting Super's (1957) career stage model is a better framework for understanding work generativity than Levinson et al.'s (1978) life cycle model,
particularly for male managers. The notion that a worker’s career affects work generativity more than their biological age was confirmed, especially among male managers.

Agency and Communal Traits Effects

Theorists have proposed a balance of high levels of both agency and communal traits are needed for the full expression of generativity (Bradley & Marcia, 1998). Given the important roles of both agency and communal traits with generativity, their main and interactive effects were examined on work generativity (separately from managerial role tenure and gender). It was expected that agency and communal traits would be positively related to work generativity, but communion would account for more variance in work generativity. Furthermore, it was expected that an interaction between agency and communion would account for significant incremental variance over and above the main effects of agency and communal traits.

Main effects of agency across all of the rater sources on work generativity were found. Main effects of communion across direct report and peer rater sources on work generativity were found. Communion accounted for unique variance (2%) in work generativity after agency was controlled only for the direct report rater source. Interestingly, communion also accounted for unique variance (1%) in work generativity after agency was controlled for the boss rater source, but the coefficient was negative.

These results highlight the differential importance of agency and communal traits to work generativity depending upon the rater source. That is, work generativity was predicted only by agency for the boss rater source, whereas work generativity was
predicted by both agency and communal traits for the direct report and peer rater sources. Communion was particularly important to direct report ratings of work generativity. Although the direct report and boss rater sources both perceived work generativity as indicated by their correlation ($r = .39$), the boss rater source did not associate communion with work generativity. This is perhaps due to the greater opportunities direct reports have to observe work generativity as recipients of work generativity and the fewer opportunities bosses may have to directly observe work generative behaviors in managers. Consequently, bosses may have automatically attributed more work generativity to managers higher on agency because they perceived these managers higher on all dimensions of job performance (i.e., a halo effect). Direct reports may have perceived work generativity more accurately, as well as the contribution of communion as a work generative-related trait.

Contrary to expectations, no interactions between agency and communal traits were found across all of the work generativity variables. The lack of findings between agency and communal traits was puzzling because theory and research suggests the dual roles of both traits in influencing generativity. One potential explanation for these results is there is no interplay between agency, communion, and work generativity variables. Another potential explanation for these results is the measures in the current study were not created specifically to assess these constructs.
Mediating Effects of Agency and Communal Traits

Developmental theorists and researchers have noted the dual roles of agency and communal traits in generativity (Erikson, 1982; Kotre, 1984; McAdams, 1985; McAdams et al., 1996). Past research has found evidence suggesting agency and communal traits may increase with age (Roberts et al., 2006). In view of the potential positive relations of agency and communal traits to managerial role tenure and work generativity, it was hypothesized that the relation between managerial role tenure and work generativity would be mediated by agency and communal traits.

Contrary to expectations, no support was found for the mediating role of agency and communal traits between managerial role tenure and work generativity. The absence of mediating effects indicates agency and communal traits play no role with managerial role tenure in work generativity. A potential explanation for these puzzling results is agency and communal traits may not increase with career experience or managerial role tenure as research has suggested facet level personality traits such as social dominance and agreeableness do with age (Roberts et al., 2006). In fact, agency and communal traits were negatively correlated with age in the current study.

Mediating Effects of Agency and Communal Traits between Gender and Work Generativity

Past research has found evidence that there are no sex differences in agency, and women are higher on communion than men (Twenge, 2001). Considering the relations
between agency and communal traits to generativity, it was expected that female managers would be higher on work generativity than male managers, and this positive relation would be mediated through agency and communal traits.

In line with past research (Twenge, 2001), no sex differences in agency were found, and female managers were found to be higher on communion than men. However, evidence of higher work generativity among female managers compared to male managers was not found. Thus, no support was found for the mediating role of agency and communal traits between gender and work generativity. One potential explanation for these puzzling results is social-role theory (Eagly, 1987; Diekman & Eagly, 2000) proposes women develop more caring and nurturing behaviors (i.e., communal) than men as a result of the roles they occupy in society. Perhaps female managers have not developed more generative behaviors because managerial roles are not traditional caregiver roles. As in the case of the previous mediation results, a second potential explanation for these results is the measures used in the current study were not designed explicitly for the agency, communal, and work generativity constructs.

Agency and Communal Traits, Gender, and Managerial Level Effects

A greater perceived lack-of-fit exists between the male manager role and female gender attributes for female managers at higher managerial levels than at lower managerial levels (Heilman & Okimoto, 2007; Lyness & Heilman, 2006). Alternatively, no perceived lack-of-fit exists between the male manager role and male attributes for male managers (Lyness & Heilman, 2006). A behavioral strategy women in male-type roles (e.g., female managers at high managerial levels) may use to remediate perceived
lack-of-fit is to exhibit less caring and nurturing behaviors such as work generativity. As such, it was expected female managers higher on agency and communal traits at higher managerial levels would be lower on work generativity than female managers at lower managerial levels. Alternatively, male managers higher on agency and communal traits, regardless of managerial level, were expected to be higher on work generativity than female managers.

However, the communion, gender, and managerial level interaction found with the direct report rater source; and agency, gender, and managerial level interaction found with the peer rater source were both only marginally significant. Thus, these results did not clearly demonstrate female managers at higher managerial levels (despite being high on agency and communal traits) used a strategy to lessen perceived lack-of-fit between their male manager roles and feminine attributes. Nor could the conclusion be drawn that unlike their female counterparts, male managers did not use a strategy to remediate lack-of-fit between their male manager role and male attributes.

Interestingly, the boss rater source reflected neither of the marginally significant three-way interactions between agency, gender, and managerial level; and communion, gender, and managerial level. However, a significant two-way interaction between gender and managerial level for the boss rater source was found. The plot of the interaction showed that as female managers increased in managerial level, the relation between managerial level and boss perceptions of work generativity became weaker. Alternatively, as male managers increased in managerial level, the relation between managerial level and boss perceptions of work generativity became stronger. A couple of potential explanations for these findings exist. On the one hand, boss ratings of work
generativity may have provided insight into some real gender differences in work
generativity as a result of the moderating effects of managerial level. For example, as
female managers increased in managerial level, they may have decreased in work
generativity because they associated greater drawbacks (e.g., disadvantages such as time
away from primary job tasks) with work generative behaviors. Alternatively, as male
managers increased in managerial level, they may not have associated such drawbacks
with work generativity. This explanation supports the notion that as female managers
increased in managerial level, they grew constrained in their expressions of work
generativity. On the other hand, boss ratings of work generativity may not have provided
insight into any real gender differences in work generativity as a result of the moderating
effects of managerial level. For example, boss ratings may have been a less valid measure
of work generativity than direct report ratings because unlike bosses, direct reports were
likely to have greater opportunities to observe work generativity among managers.
Consequently, bosses may have been more prone to rating errors such as a halo effect.
That is, bosses may have automatically attributed less work generativity to female
managers at higher managerial levels because they perceived them lower on all
dimensions of job performance.

Unique Effect of Gender

Social-role theory (Eagly, 1987; Diekman & Eagly, 2000) states female workers
are stereotypically attributed caring and nurturing behaviors more than male workers.
Work generativity can be viewed as a set of caring and nurturing behaviors, and work
generativity ratings may accordingly be influenced by the gender alone of a manager. A
set of exploratory analyses were conducted to examine the unique effect of gender on work generativity after agency and communal traits were controlled.

Gender did not account for incremental variance in work generativity after agency and communal traits for the direct report rater source. However, gender accounted for incremental variance (1%) in work generativity after agency and communal traits for each of the boss and peer rater sources. Bosses and peers do not work as closely as direct reports with managers and are consequently in poorer positions to observe work generativity than direct reports. That is, unlike direct reports, bosses and peers are unlikely to perceive the full range of work generative behaviors in managers. From a social-role perspective, bosses and peers may have been more vulnerable to stereotypically ascribing female managers caring and nurturing behaviors such as work generativity based on their gender alone.

Summary of Findings

In sum, findings from the current study provided partial support for the hypothesized relations. First, managerial role tenure was found to be a better predictor of work generativity than age (especially for male managers), indicating the importance of career stage over and above life stage in relation to work generativity. Second, main effects of agency on work generativity were found, indicating agency was an important predictor of work generativity across all of the rater sources. Main effects of communion on work generativity were found for the direct report and peer rater sources, indicating communion was an important predictor of work generativity across the direct report and peer rater sources, but not for the boss rater source. Communion also accounted for
incremental variance after agency in work generativity for the direct report rater source, indicating communion was more important than agency in predicting work generativity for the direct report rater source alone. Contrary to expectations, no expected interactions between agency and communal traits were found across all of the work generativity variables, indicating managers higher on both traits were not necessarily higher on work generativity. Third, agency and communal traits were not found to mediate the relation between managerial role tenure and work generativity, indicating managerial role tenure had only a direct effect on work generativity. Fourth, agency and communal traits were also not found to mediate the relation, indicating that despite being higher on generative-related traits (i.e., communal) than male managers, female managers were not higher on work generativity than male managers. Fifth, a three-way interaction effect for communion, gender, and managerial level on work generativity was found for the direct report rater source; and a three-way interaction effect for agency, gender, and managerial level on work generativity was found for the peer rater source. However, both of these three-way interactions were only marginally significant, and no definitive conclusions could be drawn. A two-way interaction effect for gender and managerial level was found for the boss rater source, indicating that as female managers increased in managerial level, they were perceived as less work generative by the boss rater source. Gender accounted for incremental variance after agency and communal traits on work generativity for the boss and peer rater sources, indicating both rater sources may have ascribed gender stereotypes of caring and nurturing behaviors such as work generativity to female managers.
Implications

The critical losses in knowledge and skills that organizations face with retiring baby boomers provide researchers with an opportunity to benefit both organizations and science. Researchers are in a position to address and potentially alleviate these losses in human intellectual capital by gaining a better understanding of the factors that predispose or prevent workers in assisting in the development of the knowledge and skills of less experienced and younger workers. Researchers had thus far neglected to explicitly examine generativity in a work context. The primary contribution of the current study was to gain an understanding of individual differences and moderating factors that affect generativity in the workplace.

Stage models of adult development state that under the theory of generativity, mid-life and mid-career workers are likely to take up the challenge of passing on organizational learning to the next generation of workers. However, researchers to date had not determined if life or career stage was a more valid predictor of work generativity. One contribution of the current study was to establish that mid-career workers were more likely to assume the responsibility of developing the next generation of workers than mid-life workers, particularly male managers. Workers in mid-career were found to play a key role in aiding in the development of the next generation of workers in the current study.

Agency and communal traits have been theorized and found to be related to generativity (Erikson, 1982; Kotre, 1984; McAdams, 1985; McAdams et al., 1996). However, researchers had not extended the study of these generative-related traits to the workplace. Thus, another contribution of the current study was to learn the roles agency
and communal traits play in work generativity. The importance of agency and communal traits in relation to work generativity differed across rater sources, particularly between the direct report and boss rater sources. Agency was found to play a role in work generativity across all of the rater sources. However, communion was found to play a role in work generativity with the direct report and peer rater sources. Furthermore, communion was found to play a greater role than agency in work generativity only with the direct report rater source. Communion may be a more valid predictor of work generativity because direct reports are recipients of work generativity from managers. That is, greater consideration should be given to communion as a predictor of work generativity because direct reports may be more accurate perceivers of work generativity than boss and peer rater sources.

The growing numbers of women in management is another emergent trend in the shifting workforce composition that poses additional research considerations in regards to work generativity. On the one hand, women may possess generative-related traits that predispose them to be more generative in a work context than men. On the other hand, women may face barriers to being generative in the workplace due to the perceived lack-of-fit between the male manager role and their feminine attributes. Researchers had also neglected these potential antecedents and moderators to work generativity in regards to female managers. Thus, another contribution of the current study was to examine the moderating effect of managerial level on work generativity. Only marginally significant interaction effects between communion, gender, and managerial level for the direct report; and agency, gender, and managerial level for the peer rater sources were found. However, a significant interaction effect between gender and managerial level for the
boss rater source was found, indicating some gender-role factors may have been at play with boss perceptions of work generativity.

From an applied practice outlook, results from the current study can potentially inform organizations on how to remediate losses in knowledge and skills resulting from changing workforce demographics by identifying which managers are more predisposed to work generativity. Managers with greater managerial role tenure (especially male managers), managers higher on generative related traits (particularly communal), female managers at lower managerial levels, and male managers at higher managerial levels are all more likely to be (or perceived as) work generative. These findings can be generalized not to just one type organization and industry, but across multiple organizations and industries due to the characteristics of the sample from the current study. From a theoretical outlook, the study of work generativity can potentially afford researchers the opportunity to revive a rich, unique psychological construct well established in the tradition of adult development theory and extend it to emerging research in the industrial/organizational sciences. The study of work generativity can also potentially expand the present knowledge of gender-role theories. Although the current study was unable to conclude female managers faced lack-of-fit and employed strategies to overcome gender-role perceptions, it was able to highlight some issues unique to female managers in regards to work generativity. For example, the results from the current study emphasize the need for researchers to learn why managerial role tenure did not clearly predict work generativity for female managers and why bosses perceived female managers as less work generative as they increased in managerial level, but male managers as more work generative as they increased in work generativity. The rater
source is also a critical consideration for researchers when measuring work generativity. The direct report source appeared to have different predictors and perceptions of work generativity than the boss rater source. Traditionally, bosses have been the sole source of job performance ratings; however, direct reports may need to be the primary provider of work generativity ratings. In sum, the current study made several unique contributions to theory and applied practice alike.

Limitations and Suggestions for Future Research

One limitation of the current study was the individual person characteristics of the work generativity raters were unavailable. Consequently, person characteristics such as age, gender, personality traits, or managerial level of the rater were unable to be controlled or investigated as potential moderators in analyses. Future studies may attempt to collect this additional data to gain a more inclusive understanding of factors that affect work generativity. For example, managers could vary in the amount of work generativity they express to their direct reports as a result of the direct report’s gender. Managers could also exhibit less work generativity to older direct reports.

Another limitation of the current study is only the effects of age, managerial role tenure, agency and communal traits, gender, and managerial level upon work generativity were examined. Although this set of variables was a theoretically sound and promising starting point for work generativity research, additional variables potentially related to work generativity could be included in future research. For example, a broader range of personality traits could be evaluated with successful results.
Additionally, the measures used in the current study to assess the agency, communion, and work generativity variables were not designed for the purpose of assessing these constructs of interest. Consequently, using these measures may have weakened the results from the current study. Future research may find stronger results by including instruments specifically constructed to measure agency and communal traits and by creating a measure of work generativity.

Perhaps the greatest limitation of the current study was that a disproportionate number of male and female managers were included in the overall study sample, particularly within each managerial role tenure and managerial level category. Despite these unbalanced ratios of male and female managers, hypothesized effects were found after managerial role tenure and managerial level categories were combined in an attempt to equally group the number of male and female participants within each category. Although such uneven distributions of males and females naturally occur in samples of workers, future research could potentially benefit with larger effects from examining a more uniformly distributed overall sample of participants and across categories.

Conclusion

The current study made several contributions to existing literature. First, by examining the relative contributions of age and managerial role in predicting work generativity, the current study found managerial role tenure (career stage) was a better predictor of work generativity than age (life stage), particularly among male managers. Results supported Super’s (1957) theory more than Levinson et al.’s (1978) theory because managers with greater managerial role tenure versus managers in mid-life were
found to be more predisposed to work generativity. The implication of these results is that organizations should look to male managers with greater role tenure versus those older in age to be generative in a work context. However, researchers need to uncover why managerial role tenure did not predict work generativity as well for female managers.

Second, by examining the dual roles of agency and communal traits in work generativity, the current study found the effects of agency and communal traits on work generativity differed across rater sources, particularly between the direct report and boss rater sources. For example, communion positively predicted work generativity for the direct report rater source, but negatively predicted work generativity for the boss rater source. The implication of these results is both organizations and researchers need to consider the direct report rater source when measuring work generativity. Direct reports are likely to provide more veritable ratings of work generativity because they receive generativity from their managers. Accordingly, organizations should consider seeking out managers higher on communion in order to increase generativity in the workplace.

Third, by examining the interplay between agency and communal traits, gender, and managerial level to work generativity, the current study found no evidence that female managers (despite being higher on communion than men) engaged in strategies to lessen perceived lack-of-fit. However, the current study found some evidence that managerial level affected perceptions of work generativity among male and female managers for the boss rater source. Researchers could benefit from gaining a deeper understanding why this interaction effect occurred between gender and managerial level because unlike their male colleagues at higher managerial levels and female colleagues at
lower managerial levels, female managers at higher managerial levels are either encountering challenges in expressing generativity in a work context, or they are not being perceived as work generative. Female managers at higher managerial levels have a great deal of experience to teach to the next generation of workers and are not doing so, or they not receiving credit for their generative efforts.

By viewing work generativity through a wide lens of psychological constructs, the current study provided the first comprehensive picture of generativity in a work context. The current study demonstrated variables associated with work generativity and perceptions of work generativity depend upon the rater source. In conclusion, the current study gained a unique understanding of individual differences and moderating factors associated with work generativity.
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