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Publication Date

2010

Peer reviewed|Thesis/dissertation

Women's Personality, Work, and Retirement in the Mills Longitudinal Study

by

Linda Katherine George

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Psychology

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Ravenna M. Helson, Chair

Professor Oliver P. John

Professor Rodolfo Mendoza-Denton

Professor Cameron Anderson

Fall 2010

Abstract

Women's Personality, Work, and Retirement in the Mills Longitudinal Study

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Linda Katherine George

Doctor of Philosophy in Psychology

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This dissertation examined links between Big Five personality measures and work lives in two studies of women in the Mills Longitudinal Study who worked substantially during mid-life ($N=91$). Study 1 investigated effects of *personality on work*: how did women who as college seniors scored high on Extraversion (E), Openness (O), and Conscientiousness (C) express these traits in their work lives throughout ascending, maintaining, and descending phases of work involvement from young adulthood to age 70? Personality did not predict either work or education variables in the early years after college (the early 1960s) when the culture was traditionally gender-typed and family-oriented. However, as women's roles changed, E, O, and C became generally and substantially related to work variables as expected from personality theory and research. Nonetheless, specific cultural influences (e.g., such as the link between C and the traditional women's role) affected the timing of involvement in work, and some of the women made personality-syntonic choices (e.g., in terms of nature of work and partners) that affected their financial security at age 70.

The second study investigated effects of *work on personality*: how can early work experiences be conducive to subsequent personality change? This study related work satisfaction and status level of work to decreasing levels of Neuroticism over a period of middle age in which many Mills women were highly engaged in work. Consistent with past research, higher work satisfaction at age 43 predicted decreases in Neuroticism from 43 to 61—that is, the women showed a significant improvement in a broad domain of psychological functioning. As predicted, this positive and lasting effect of work satisfaction was mediated by the positive impact that their work experience had on the women's self-confidence. In contrast, occupational attainment per se was not associated with decrease in Neuroticism.

Together, the two studies illustrate the mutually interactive relation between personality and work: early personality traits can importantly shape subsequent work lives (Study 1) but, in turn, early work experiences can shape subsequent personality development (Study 2).

DEDICATION

I dedicate this dissertation to my husband Dave for his support, encouragement, and willingness to share the challenges and sacrifices along the way.

To my parents, Jerome and Elizabeth Gary, who instilled in me a love of learning and inspired me to set and persevere towards high goals.

To my brother and sister-in-law Bruce and Pat Gary, to Dave's parents Robin and Linda George, and to Vivian Ho and Elisabeth Ten Brink, for their encouragement and support.

To Linda and Glenn Wegner, Rich and Toni Gooch, and Lisa Purchard for reminding me every so often to enjoy myself along the way.

Thank you.

ACKNOWLEDGEMENTS

First and foremost I wish to thank my dissertation chair, Professor Ravenna Helson, for her encouragement and unceasing efforts in guiding the research in this dissertation, and Professor Oliver John for his enthusiasm, and dedication to this work. Their expertise and depth of knowledge contributed immeasurably to this dissertation.

I thank my dissertation committee members Rodolfo Mendoza-Denton and Cameron Anderson for their helpful insights, comments and suggestions.

Many other faculty members of the U.C. Berkeley Department of Psychology assisted me during my course of studies. I am especially grateful to Professors Frank Sulloway, Sheldon Zedeck and Thomas Wickens for their commitment to the research process and their willingness to answer questions. Jessica Barnes, M.S.W., was invaluable helpful with her assistance with research assistants, and coding support.

I am grateful for many student-colleague relationships during this time. Special thanks to Rebecca Cate, Sara Gorchoff, Elizabeth Horberg, Elizabeth Page-Gould, Christopher Soto, Lindsay Shaw Taylor, and Melissa Williams.

I thank the Retirement Research Foundation and the U.C. Berkeley Department of Psychology for funding portions of this dissertation.

Women's Personality, Work, and Retirement in the Mills Longitudinal Study

As an important life domain, work experiences have been studied for many decades by researchers in psychology, sociology, and business. As of 1976 more than 3300 studies on job satisfaction had been published (Locke, 1976); a search in 2010 yielded more than 15,000 articles published in peer-reviewed journals since 1960. The importance of work is underscored by its associations with overall life satisfaction. For example, Tait, Padgett & Baldwin's (1989) meta-analysis found that work morale correlated .44 with life satisfaction.

During the late 20th century there were extensive debates about the strength and importance of the personality-work relationship (e.g. Davis-Blake & Pfeffer, 1989; Staw, Bell, & Clausen, 1986). The Big Five trait taxonomy (Costa & McCrae, 1985; Digman, 1990; John, 1990) has been beneficial for these inquiries. This taxonomy identifies five personality dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience.

Roberts, Caspi, and Moffit (2003) described an interactionist model in which work and personality interact and reciprocate over time. Early traits lead to a person's choice about whether to work and, if so, their type of work. These choices then influence the person via the social environment, shaping personality through mechanisms such as norms and feedback. This dissertation incorporates an interactive model by studying how personality relates to work involvement and outcomes, and how work outcomes relate to subsequent personality change.

Sample and Participants

This dissertation uses data from the Mills Longitudinal Study, whose participants graduated in 1958 or 1960 from Mills College in Oakland, California and have been studied over a 50-year time-span. The Mills Study offers several advantages. First, its long timeframe allows us to examine how personality and work outcomes relate over long periods of time. Secondly, the Mills women chose a wide range of occupations; some worked in organizations, others were self-employed. Thus we go beyond studies that focus on employees in large organizations, allowing us to study a wide range of work attributes and experiences. Thirdly, many in the Mills cohort expected marriage and family to be their primary path in life. Correspondingly, some chose traditional work such as teaching; others took short-term jobs until marriage or children. Others launched into a less-traditional career in their 20s and stayed with it. The women's movement began less than a decade after graduation and led to mid-life workforce entry for many women who hadn't planned to work. As such, this cohort is perfect for studying mid-life choices about work involvement amid change – not unlike today's world.

In studies of cohorts born earlier than the Mills women, such as the Terman study and IHD (Clausen & Gilens, 1990; Holahan & Sears, 1995; Jones & Meredith, 1996), women's work participation was relatively low. The Mills cohort was less thoroughly integrated into the work world than today's women in the U.S, but showed large individual differences in their timing of entry into the workforce, their pursuit of graduate degrees, and status level of their work. The fact that they were college-educated – with a generally advantaged economic position – may have given them a broader range of work options when they chose (or needed) to go to work.

Overview of Studies

Study 1 investigates personality as a predictor of important work experiences over time, in cohort context, including the amount and timing of work involvement, nature of work interests, and long-term financial outcomes. Specifically, it examines the relationship between three Big Five personality dimensions (Conscientiousness, Extraversion, and Openness to Experience) in young adulthood and the subsequent work lives of women in the Mills Longitudinal Study, using Big Five scales recently developed from the CPI by Soto and John (2009). In past research Conscientiousness has been consistently associated with general work performance (Barrick, Mount, & Judge, 2001); Extraversion with positive attitudes about work (Judge, Heller, & Mount, 2002); and Openness with creativity (McCrae, 1987), which is of particular interest in a sample of women who graduated from a liberal arts college with a distinguished arts faculty.

Study 2 shifts the causal arrow, examining how positive work experiences may in turn shape personality and its development. Normative life experiences such as work may be “responsible for a significant proportion of normative change in personality during the transition to adulthood” (Roberts et al, 2003; p. 592). Study 2 examines this question during mid-life in the Mills sample, using decreases in Big Five Neuroticism as an indication of increased well-being.

In summary, work is a lens through which we can study personality, choice processes, and outcomes over time. Work satisfaction across the lifespan has been understudied not because it is unimportant, but because of the substantial time, cost, and challenges of conducting long-term longitudinal research. Through this work I hope to gain a deeper understanding of the interplay between work and personality over time.

Study 1: The “CEO” of Work Lives: Relating Big Five Conscientiousness, Extraversion and Openness to Work Engagement, Achievement, and Financial Outcomes in a Cohort of Women¹

An emerging consensus that "personality matters" in the work world developed in the 1990s when researchers in industrial-organizational psychology (e.g., Barrick & Mount, 1991) began to study associations between the Big Five personality dimensions and work outcomes such as satisfaction and performance. Still, few articles have used longitudinal designs that afford predictions over time (e.g., Judge, Higgins, Thoresen, & Barrick, 1999). Such longitudinal studies are critical to testing the interactionist model of personality effects on work: personality traits are thought to shape how individuals select themselves, and are selected, into particular work environments, as well as their subsequent experiences and progress within those environments and into retirement (see Caspi & Roberts, 2001; Roberts et al., 2003). That is, there is a need for studies in which the hypothesized personality antecedents are measured prior to subsequent work outcomes within the same sample.

In addition, we know much less about the longitudinal links between personality and work for women than we know for men. In both the Terman (Terman & Oden, 1959) and Institute of Human Development (IHD) samples (Stroud, 1981), the primary role for most women was homemaker, and when women did work their work roles were stereotyped: they usually found jobs as clerical workers or school teachers. Only well into their middle age, after much cultural change, did they begin to participate more broadly in the world of work (Clausen & Gilens, 1990; Holahan & Sears, 1995). "The careers of women are often determined by extraneous circumstances rather than by training, talent, or vocational interest" wrote Terman (Terman & Oden, 1959, p. 144). Note that Terman did not even use the word "personality". These studies of work did not employ personality measures in common use by other investigators. Much later Judge et al. (1999) did construct a Big Five measure from Q-sort items, but they combined women with men.

The present research was designed to begin to address these limitations in the literature. Whereas research on work and careers has often recruited research participants from a common work place, we used a cohort sample of women that had in common their college experience in the late 1950s, namely the women participating in the Mills Longitudinal Study (e.g., Helson, 1967). Therefore we were able to conduct a true prospective study because the three Big Five personality predictors (Conscientiousness, Extraversion, and Openness to Experience) were all measured at age 21, well before the women even entered the work force. As the women in this sample were studied repeatedly throughout middle age and are now age 70, our study is unusual in predicting 50 years of women's work lives.

We investigate individual differences not only in performance and satisfaction in work, but also the timing of work lives, the nature of jobs, factors related to retirement, and eventually long-term financial outcomes by age 70. We have chosen to measure personality as a true antecedent at age 21, before it could have been affected by work and other experiences of adulthood, in order to show the full strength of its influence.

¹ Study 1 is being prepared for publication with Ravenna Helson and Oliver P. John as joint authors.

Note that the women of the Mills Study lived through a transitional cultural era when gender roles and pro-natal values changed dramatically, from the traditional gender-role conceptions of the 1950s to our current, more egalitarian values. We study a sample of college seniors who graduated in the late 1950s when traditional gender roles still held. Over the next 50 years, however, along with the changes in norms and expectations, they developed considerable heterogeneity in the nature, amount, and circumstances of their subsequent work, and in their patterning of work and family life. We are attentive to the influence of this cultural context in our findings, and to how it was linked to personality.

Previous research on personality and work in the Mills sample (e.g., Roberts, 1997; Roberts & Chapman, 2000; Roberts, Helson, & Klohnen, 2002) has focused primarily on personality change. That is, personality was treated as the dependent variable, influenced by the women's personal and work experience, not examined as an antecedent of work experience. We build on this work but our concerns are different: we focus not on personality change, but on the prediction of work variables over a newly available span of 50 years, using recently available Big Five measures (Soto & John, 2009). Overlap with earlier studies is inevitable in a longitudinal study; the meaning of what happens later depends to a considerable extent on what happened earlier in the life of the sample. Previously developed measures are important to our study, and are described in context.

Structure of Hypotheses

Our most basic hypothesis is that individuals who differ in their most salient personality traits will differ in the way they interact with their environments, that is, in the way they select, act upon (or modify), and react to particular situations. Because they bring these pre-existing personality traits with them to bear on potential work environments, these personality differences should affect their work lives as they unfold during adulthood and into retirement age. At the most general level, then, this research provides a strong longitudinal test of the predictive power of personality, as emphasized in recent years by Ozer and Benet-Martinez (2006) and Roberts, Kuncel, Shiner, Caspi, and Goldberg (2007).

We offer more specific predictions based on theoretical accounts and basic empirical findings regarding the Big Five domains (e.g., John, Naumann, & Soto, 2008) as well as the growing research literature on Extraversion, Openness, and Conscientiousness in the workplace (e.g., Barrick et al., 2001; Judge et al., 2002). We focus on three traits because five are too many to follow over what will be five periods of life. Extraversion and Conscientiousness are consistently found to be important in both cross-sectional and longitudinal studies of work and personality, and though findings for Openness vary to some extent from one study to another, there are good reasons to believe that it would be important in a sample of women who graduated from a liberal arts college with a distinguished arts faculty (McCrae, 1987).

We expect to support main findings from the current literature about relationships between these traits and various aspects of work, such as the nature of work and work satisfaction. However, our longitudinal data also enable us to study how personality is related to developmental processes, such as when careers are launched and when they are set aside.

The life contexts in which adult personality is channeled and shaped were studied by Erikson (1950), Havighurst (1972), Kuhlen (1968), Levinson and colleagues (1977), Super (1953), Vaillant, 1977, and others, sometimes with particular attention to work lives. This literature contributed to the selection of ages at which to follow up the Mills women (27, 43, 52,

61, and 70), and to the questions that were asked. With the additional perspective of recent work on the differentiation of middle age (e.g., Helson, Soto, & Cate, 2006; Moen & Wethington, 1999; Staudinger & Bluck, 2001) we have sectioned the women's work lives into three main parts: an early period of exploring and preparing; a middle period including ascending and maintaining phases; and a late period including early and late phases of descending. In their mid-20s many Mills women did explore and prepare, but like most women of their cohort, they were more focused on family than work. In the ascendant phase of the middle period (ages 28-43) they were getting started in work and developing careers, and in the maintaining phase (tested at age 52) they were participating maximally and the nature of their work was clearest. In the third, descending period, the women at age 61 were deciding when and how completely to leave the work world and what to put in its place, and by age 70 most women had retired. Table 1 shows normative themes and major variables in the women's work lives, classified into the three main periods with the several sub-phases.

The Changing Influence of Personality on Work in a Transitional Cohort

Our hypotheses are made in cohort context. The Mills women went to college in a sex-traditional era that was just beginning to change. Women were expected to marry and have children with little delay. Most women thought they might work at some times in their lives (before they had children or after their children were older) but that their main responsibilities would be to husbands and children. They expected an average of four children (though they eventually had an average of two). They were starting their adult lives in the early 1960s and only later experienced the turbulence of the late 1960s and 1970s, which would include a rapidly increasing rate of divorce, concerns about birth control, and increasing entrance of women with children into the labor force.

Therefore, we expect personality to show little relation to work experiences at the 1963-64 follow-up. At this time the women were in their mid-20s, and many women were primarily concerned with finding a partner, helping him get started in his career, and beginning a family. The Women's Movement had barely begun.

Contrary to research indicating strength of proximal correlations between personality and work outcomes (e.g., Judge et al., 1999), we expect correlations between early-adult personality and work outcomes to become numerous only as cultural changes took hold and the sample became more work-oriented. By 1981, when the women were age 43, we should be able to see the effects of the loosening of traditional expectations and the influence of personality on how women reacted to new work opportunities.

The Work Lives of Women High on Extraversion, Openness, and Conscientiousness

The sections that follow lay out the key personality characteristics associated with the salience of Extraversion, Openness to Experience, and Conscientiousness (as opposed to being low on these respective traits), in general and in the world of work. We offer predictions about how much women who were high in each of these traits would have participated in work (or in preparation for work) in the young adult years; in the ascending years how factors such as commitment to the conventional feminine role and the importance attributed to the women's movement would have been linked to personality and, through these links, affected participation in work and the timing of the attainment of social status in work; in the maintaining years what

kind of work the woman was engaged in; and in the descending years what factors might affect the maintenance of careers vs. retirement and financial security.

The Work History of Extraverts

Extraverts tend to be dominant and ambitious as well as energetic, outgoing, gregarious, and inclined to positive emotions (e.g., John et al., 2008). In this cohort, the Extraversion-Introversion dimension would have little effect on attitudes about work when the women were in their mid-20s (in the early 1960s), before doing well in work began to be admired in women. As times changed, however, we expect extraverts to have developed committed work lives sooner than Introverts. Extraverts in our sample would experience more pleasure and feel less anxiety in the social interactions of the work world. Compared to Introverts they would like the kinds of interactions and activities that lead to leadership and status (Judge et al., 1999; Ng, Eby, Sorensen, & Feldman, 2005; Siebert & Kraimer, 2001). Thus, we expect them to enjoy their work and attain status in it. We expect extraverts to be more receptive to social trends than Introverts, and thus to have been influenced towards careers by the Women's Movement.

As to the nature of work, we expect to find, consistent with the literature, that Extraversion in our sample is related to liking for entrepreneurial or social work involving interaction with and influence exerted on others (Costa, McCrae, & Holland, 1984; Barrick, Mount, & Gupta, 2003; Judge, Bono, Ilies, & Gerhardt, 2002; Watson & Clark, 1997). We expect extraverts to choose work that allows them freedom to make their own decisions and to act on their environment. Here we predict that women high in Extraversion will select themselves into work environments and leadership positions that provide autonomy or opportunity for initiative.

Retirement age and other aspects of retirement changed during the late 20th century, creating conditions under which individual differences might be expected to influence how long and how much women worked, how important work was to their identity, and what they turned to as they made work less central in their lives. We expect extraverts, with their higher energy levels and their interest in leadership and status, to continue to be keenly interested and engaged in work, relative to women lower in Extraversion. Because of their energy and pleasure in social interaction, we also expect extraverts to enjoy volunteer work, whether they were retired or not. In terms of long-term financial outcomes, we expect women high on Extraversion to be financially secure because they would choose work that paid well and advance in it.

Work History of Women High in Openness to Experience

Openness to Experience has been defined as a tendency to be curious, adventurous, original, and broad in interests (McCrae & John, 1992). Increased access to the work world for women in the late 1960s and 1970s would have offered life styles that would be highly congenial to open women. In this cohort Openness would have enhanced a woman's ability to imagine a possible self in a "man's world," to seek congenial areas of work, and to take herself seriously in these endeavors.

We expect women high in Openness, as compared to those low, to start their work lives relatively early because they were interested in the kinds of complex thought processes available in some work environments. In contrast, women low in Openness would tend to display resistance or ambivalence to entry into the world of work, preferring more conservative or

constrained paths such as traditional women's work (teaching, nursing, or clerical jobs) and lacking strong goals related to work.

Women high in Openness were expected to be interested in intellectual, investigative work that requires advanced education or professional training (due to their liking for the new and complex) or work that is self-expressive, such as the arts (Barrick et al., 2003; Larson, Rottinghaus, & Borgen, 2002); and to be uninterested in detail-oriented, highly structured work. They should enjoy the autonomy of working for themselves rather than for others (Roccas, Sagiv, Schwartz, & Knafo, 2002). They should demonstrate creativity in their work and perform well in creative aspects of their work (e.g., McCrae, 1987; Williams, 2004).

Women high in Openness should attain high-status occupations, consistent with their more advanced education by mid-life and their greater interest in learning and mastering new tasks. However, Openness has not been associated with consistent perseverance – in fact, an openness to opportunities can be detrimental to focused, sustained job efforts (e.g., Ciavarella, Buchholtz, Riordan, Gatewood, & Stokes, 2004). For women high on Openness the start-up phase of a career would be most exciting. If they become ensconced in a particular career path or work environment they may feel closed in and no longer challenged, and may be tempted to explore new avenues. Thus we expect them to give up careers if their work becomes less challenging and to find other, more stimulating opportunities.

Women high in Openness would be likely to develop financial concerns over time, because they attach low value to financial rewards and would not have chosen work or partners with financial security in mind (Siebert & Kramer, 2001). For example, they may have enjoyed the autonomy of working for themselves but suffered the consequences of less remunerative pensions and benefits than women who work for organizations (Pienta & Hayward, 2002). Helson (1967) found that both creative women and their partners scored lower on economic values than comparison women and their partners.

Work History of Women High in Conscientiousness

Conscientiousness is associated with dutifulness, thoroughness, and being self-disciplined (e.g., John & Srivastava, 1999). On the job it is associated with a responsible, hard-working orientation and good performance (Barrick & Mount, 1991; Barrick et al., 2003; Roccas et al., 2002). In the cohort of the Mills women, however, we predict that highly conscientious women will show a level of adherence to traditional responsibilities of wife and mother that will make their work involvement in the ascending period little different from that of low conscientious women. Only as these family responsibilities lessened and paid work became more accepted for women would conscientious women show strong career involvement.

A related factor that would work against greater work involvement in highly conscientious women in the ascending period would be their lower likelihood of divorce. The divorce rate doubled in the U.S. between 1966 and 1976 (Cherlin, 1981), and evidence shows that women who divorced were much more likely to join the labor force than were women in stable marriages (e.g., Helson & Picano, 1990; Hoffman, 1977; Roberts et al., 2002). Women high in Conscientiousness would be expected to choose a partner prudently, with an eye to practical and family matters. They would work hard on making their marriages successful, and be reluctant to make the risky decision to divorce. Thus, they should be less likely to get divorced by early mid-life and have less need to participate in the labor force at an age when their children were still young. It would be the impulsive women low in Conscientiousness who

would be more likely to make risky life decisions like early divorce.

Conscientious women should transfer their sense of duty to the workplace in mid-life, and should value their participation in work. The responsible, persevering, and goal-oriented nature of conscientious individuals (e.g., Zhou & Siebert, 2006) should lead them to maintain their late-onset careers as they neared the traditional retirement age, but demonstrate a relatively traditional retirement process during their mid-60s. Thus, in terms of exiting the work force, we expect women high in Conscientiousness to persevere within a conventional understanding of retirement age.

We expect women high on Conscientiousness to experience financial security because they would choose work and partners with an eye for security, and avoid risky life styles (such as divorce in their cohort). After entering the workforce we expect Conscientiousness to relate to financial rewards for good performance (e.g., Barrick & Mount, 1991; Sutin, Costa, Miech, & Eaton, 2009). These several factors should lead to a greater level of financial stability than women lower in Conscientiousness would experience.

Comparing the Three Personality Patterns

We expect women high in Extraversion and Openness to be similar in their strong attraction to work, in their initiative, and early success. We expect them to differ in their motivation for work (to mix with people and gain recognition and leadership for extraverts vs. to learn, express, and create for open women) and in the nature of their work. We expect extraverts to differ from women high in Openness and women high in Conscientiousness, in their energy for leadership and social interaction. Open women, we believe, would differ from extraverts and conscientious women in their stronger originality and lesser financial security. Conscientiousness should be differentiated by a sense of duty and respect for norms, leading in this transitional cohort to put family first but to invest in a career later; and to value performing well in work.

Overview

We correlate scores on Extraversion, Openness, and Conscientiousness obtained from a sample of college senior women in 1958 or 1960 with measures relevant to their work lives that were obtained on five subsequent occasions between age 27 and age 70, labeled as early, ascending, maintaining, early descending, and late descending phases. We test hypotheses about how cohort affects the influence of personality on work lives and how the three personality traits are related to career trajectories and nature of work.

Method

Participants

Participants were members of the Mills Longitudinal Study ($N = 123$), born between 1935 and 1939. The women were first studied at age 21 when they were college seniors, either in 1958 or 1960, and who subsequently participated in at least one of the follow-ups in adulthood, conducted approximately at ages 27, 43, 52, 61, and, most recently, 70. Participation rates during these follow-ups were substantial, averaging 85% for the first four follow-ups; even at age 70,

when 18 women had died, 80% of the women still living provided data. Careful record keeping, extensive recruitment and contacting efforts, and the commitment of the women to this study, have contributed to the low rate of attrition in the Mills Longitudinal Study. Moreover, multiple careful analyses have shown no evidence for systematic attrition effects in terms of personality and life outcome variables, with health problems and death by age 70 being the one (expected) exception (e.g., Helson, George, & John, 2009; Helson, Jones, & Kwan, 2002; Helson & Wink, 1992).

Because this research addresses aspects of the women's *work* lives, we focus on the data from those women who worked part-time (at least 10 hours/week) or full-time for at least 20 years. These 91 women constitute the "work sample" and thus the participants for the current research. The sample includes women in a wide range of jobs and work environments; some working for themselves, others working in organizations. Like the entire Mills sample, they were primarily Caucasian, reflecting the composition of the student body typical in the late 1950s when the Mills Study was begun. Attrition analyses showed that this work sample did not differ from the larger Mills Longitudinal Study sample on any of the three personality predictors (i.e., Extraversion, Openness, or Conscientiousness) measured at age 21. The analyses reported in this study include all available data from these women at any given time of testing, and therefore sample sizes vary somewhat across analyses.

As shown in Table 1, we used data on personality traits from age 21 as antecedent *predictors*; and data on work involvement, work experiences, and work outcomes from all five follow-up assessments as subsequent *dependent variables*. The age-21 personality data were obtained in group testing sessions. The work measures were obtained by mail at ages 27, 43, 52, and 70. For the age-61 follow-up, the women returned some initial data by mail at age 59 and then came to the Institute of Personality and Social Research at age 61 for intensive interviews that included detailed coverage of their work lives.

Socio-cultural Background: Role of Paid Work in the Women's Normative Life History

As was common in the 1950s and 1960s even for educated women, most of the Mills women began families within a few years after graduation, and they devoted much more time to mothering than to any other role. In other words, the gender roles now considered "traditional" were normative in terms of both societal norms and personal expectations. The emphasis on the wife-and-mother role held until the women reached their mid-30s (i.e., the early 1970s). Over the next 20 years, the structure of their lives changed in ways consistent with the societal changes going on during that time. Many women worked part-time, at least at first, and chose work with modest educational requirements that they thought could be combined with family responsibilities (Helson, Elliott, & Leigh, 1989). Many were self-employed. By age 43, their level of involvement in work had become as high as that in mothering (Helson & Moane, 1987). Involvement in work continued to increase while involvement in mothering decreased from ages 43 to 52 (Helson & Wink, 1992). From ages 52 to 59 the number of women who described themselves as continuing to build their careers (as opposed to maintaining their careers or reducing career efforts) decreased, and the number who retired increased (Helson et al., 2006). At age 61, about half of the women who had worked had either retired or were expecting to retire within a few years. By age 70, 36% of the women in the work sample were still doing some work (full- or part-time) for pay.

Antecedent Personality Predictors at 21: Extraversion, Openness, and Conscientiousness

At age 21, when they were seniors in college, the Mills women completed the California Psychological Inventory (CPI, Gough, 1957; Gough & Bradley, 1996). The CPI was developed to study personality characteristics that were of basic importance in social life, across cultures. Though its standard scales do not make good contact with the Big Five constructs, the CPI item pool is rich and varied, and has been used in the construction of many additional scales, such as Work Orientation (Gough, 1985), Creative Potential (Gough, 1992), the Haan coping and defending scales (Joffe & Naditch, 1977), and Ego-resilience (Klohn, 1996). Thus, it seemed possible to develop Big Five scales from the CPI item pool.

Soto and John (2009) undertook this task and have produced new Big Five domain scales that can be scored from the CPI item pool and show good reliability and validity evidence in large samples of both college students and adults. More specifically, the CPI Big Five scales had good alpha reliabilities, with alphas for the Extraversion, Openness, and Conscientiousness domains used here averaging .85 in the three validation samples. Most important, the CPI Big Five scales showed low intercorrelations, as well as excellent convergent and discriminant validity evidence, both with Costa and McCrae's (1992) NEO PI-R scales and with independent peer ratings (see Soto & John, 2009).

This research represents the first use of the CPI Big Five scales in the Mills Longitudinal Study. As in Soto and John's (2009) samples, the three scales of interest here had good alpha reliabilities at age 21, with alphas of .85 for Extraversion, .82 for Openness, and .86 for Conscientiousness. The magnitude of the intercorrelations among the three scales was also low, with none of the three intercorrelations even reaching .30. However, two of the intercorrelations were significant. Therefore we conducted multiple regression analyses, thus controlling for any predictor overlap in the prediction of the work outcome variables.

Work Measures: Overview

This study began with the assessment of personality at age 21 before our participants even entered the work force. Subsequently, they showed substantial differences in how soon they entered, how much they worked, and in the nature and status level of their work. We followed them from a period when they had little knowledge of the world of work, through a period of maximum work participation, to a period when most of them were retired. Table 1 shows normative themes and major variables in the women's work lives, grouped into the three main periods that we can capture with the five follow-ups in the Mills Study.

Variables Relevant to Work in Young Adulthood

In view of the emphasis on early marriage and childbearing for women in the early 1960s, we expected relationships between early adult personality and subsequent work to emerge primarily *after* the women had become more work-oriented in early middle age. To test the strength of personality-work links prior to early middle age, we used four broad measures, all obtained at age 27.

Amount of work involvement. Because work experiences varied so greatly at the age-27 follow-up, the women were asked to provide descriptions of each of their work experiences so far. These open-ended descriptions were reliably coded ($\alpha = .79$) in terms of the amount of

work involvement the woman had shown since college using a 3-step scale, with a low score of 1 indicating little or no work involvement and a high score of 3 indicating consistent work involvement.

Satisfaction with work. The women's work descriptions were rated using a 7-point work satisfaction scale, from 1 = Completely unsatisfied to 7 = Completely satisfied. Inter-rater reliability was .63.

Graduate education. During their early and mid-20s, women might not be working because they were preparing for later work by attending graduate school or pursuing artistic, musical, or other creative training or relevant activities. They were therefore asked to list their activities since age 21 following the open-ended prompt: "What have you done since graduating from Mills?" For graduate education, we used a 3-point scale, with 1 = No work toward graduate degree undertaken; 2 = Master's level degree completed or working towards this degree; 3 = Ph.D. or professional degree (e.g., law degree) or working towards this degree. Inter-judge agreement was substantial ($\alpha = .91$).

Creative accomplishments since college. Using the open-ended descriptions of their activities since college, Helson (1967; see also Helson & Srivastava, 2002) had coded creative accomplishments using on a 7-point scale; low scores of 1 indicated no creative activities undertaken and high scores of 7 indicated substantial or outstanding creative accomplishments (such as publishing a novel with good reviews). Inter-rater reliability was .68.

The Ascending Period

Timing of careers. In the period from young adulthood to the early 40s, when many women increased in amount and status of work, we expected that high-scorers on Extraversion and Openness would show earlier career effort and more success than low-scorers in these domains. To test this prediction, we used two of the life-path trajectory variables that had been developed earlier by Helson, Mitchell, and Moane (1984) on the basis of chronology charts of the women's lives from ages 28 to 43.

One was *Early career begun and sustained to age 43*, defined by women who had begun an upwardly mobile career by age 28 and were still continuing this career at age 43. An example of an upwardly mobile career path would be a law degree by age 28, subsequent experience in the field with a well-known mentor, and then an increasing level of responsibility.

The other career timing variable was *Early career begun but not sustained*, defined by women who began careers by age 28 but had not sustained them at age 43. An example of a career not sustained would be work towards a degree in art history at age 28 followed by a position as service librarian begun at age 35.

Cultural influences and competing role demands. We expected antecedent personality traits to relate to features of the socio-cultural context in ways that would encourage or discourage a woman from work involvement. In particular, women high in Conscientiousness, compared to those scoring low, were expected not to show the work-orientation ascribed to them in current literature, and instead adhere to the traditional women's role in young adulthood, with early and continued investment in the roles of wife and mother.

Commitment to the traditional women's role was one index used to test this prediction, and is the z-scored mean of two variables. One of the variables identifies women who married and had a child by age 28, and were living with the same partner at age 43. It is one of the life-path trajectory variables created by Helson, Mitchell, and Moane (1984). The other variable

measures investment of time and effort in the role of wife at age 52, rated by the participants on a 5-point scale.

A second factor was the role of divorce, which was increasing rapidly over the late 1960s and 1970s, and affecting women's labor force participation. We predicted that women high in Conscientiousness should be less likely to get divorced in these years and, unlike women low in Conscientiousness, have less need to participate in the labor force at an age when their children were still young. We thus measure *Early divorce* by whether a woman had been divorced or not by age 43.

A third socio-cultural factor at this time was the Women's Movement, which encouraged women's participation in the labor force and was influential throughout the 1970s, when the Mills women were in their 30s. Given their social orientation, we expected women high on Extraversion to be more attentive to and affected by this important factor in their social climate than women low on Extraversion. At age 43, the women were asked to write about their experiences with the women's movement and how important it had been to them as individuals. Using their open-ended responses, two judges coded the *Importance of the women's movement* using a 3-point scale, where 1 meant "not at all personally meaningful and 3 meant "very personally meaningful; with a significant impact on the respondent's life"; inter-rater reliability between the two coders was .93 (see Duncan & Agronick, 1995).

Catching up with graduate education in mid-life. We expected the intellectually interested and curious women high in Openness to use mid-life to catch up with the *graduate education* they may not have obtained during their 20s. At age 43, the women had reported the graduate education they obtained for the same 3-step scale as we used for age 27, with 1 = No work toward graduate degree undertaken; 2 = Master's level degree completed or working towards this degree; 3 = Ph.D. or professional degree (e.g., law degree) or working towards this degree. At age 52, the women reported whether they had obtained any additional graduate education since age 43; here we coded whether they had done any additional work towards (or completed) a Ph.D. or other doctorate.

The Maintaining Period: Nature and Rewards of Work

For most women, the nature of their work, job, or career is best ascertained during the relatively stable *maintaining* period when they are in their 50s. To test our predictions that women high in Extraversion or high in Openness would select particular kinds of work, we used three kinds of work measures.

Nature of work: Occupational interest codes. Jobs differ in the kinds of interests they allow individuals to pursue, and individuals with different personality traits should choose particular kinds of work or jobs depending on whether the nature of the work matches their interests. Mapping Holland's (1985) six classifications of occupations to the interests and values characteristic of extraverted and of open individuals, we expected Extraversion to be associated with Social and Enterprising work, whereas Openness should be associated positively with Artistic and Investigative work and negatively with Conventional and Realistic work (e.g. Costa et al., 1984; McCrae, 1996). To score these three occupational interests from the particular work chosen by the women, we used the work-interest codes generated by Helson, Roberts, and Agronick (1995); these researchers had trained coders review the extensive open-ended information the women had provided at age 52 about their work history and then code it following the definitions provided by Holland (1985).

Occupational creativity. To test the expectation that women high in O would show more creativity in work than low scorers, we used the OCS (Helson et al, 1985). This scale assesses occupational creativity by assigning points according to the kind of work individuals do (Holland, 1985), with added differentiation based on their personal attainment in artistic and investigative fields. The highest score of 5 was assigned to women in artistic or intellectual occupations that had received the highest level of recognition received for their contributions (with scores of 4 and 3 indicating lower levels of recognition). For example, an artist whose work was reviewed by top art journals would receive a score of 5. A woman employed as a commercial artist would receive a 3. A score of 3 was also assigned to women who had achieved stature for enterprising or innovative work in finance or law. A score of 2 was assigned to jobs that allowed for less creativity, such social or service focused work (e.g., teacher, nurse, or sales), and a score of 1 was assigned to repetitive, methodical, or conventional jobs such as bookkeeping or bus driver. Coders were trained to assign these occupational creativity scores from 1 to 5; two independent raters achieved inter-rater reliability of .92.

Working for self (versus other). The work of individuals also differs in terms of how much the activities are self-chosen by the individual or imposed by external forces, like a company, employer, or boss. Being self-employed is most direct indicator that one is free to define one's work goals and to structure one's work activities. Here we defined "Working for self" not just as owning one's own enterprise, but to include more generally having a position in which one was expected to have one's own agenda (such as a free-lancer, an independent contractor, or university faculty). In contrast, "working for others" was defined as working for a company, school, or other civic organization to carry out the aims of the organization. We used a dichotomous coding scheme where women who were self-employed or expected to set their own agendas were coded as "working for self" and given a score of 2; and those on salaries with prescribed goals and schedules were coded as "working for others" and were given a score of 1. Using detailed information about the women's work at age 52, two raters coded this measure, with an inter-rater reliability of .86. Working for self affords the individual autonomy, self-direction, and entrepreneurship, and should thus be attractive to individuals high in Openness and in Extraversion. However, this kind of free and entrepreneurial work may also have disadvantages, such as limited employment security and fringe benefits (e.g., Pienta & Hayward, 2002).

Rewards of Work in the Middle Period: Status Level of, and Satisfaction with, Work

To test our predictions that women high in Extraversion and Openness would obtain different kinds of rewards from their work efforts than women low on these traits, we used status level in work and work satisfaction.

Status level. Helson, Elliott and Leigh (1989; see also Roberts, 1997), developed a coding scheme for the status level of women's work. High-status work requires extensive training and education, and the very highest scores reflect considerable autonomy and recognition, whereas low-status work requires minimum skills or training, such as clerical work. The 7-step status level scale was scored reliably ($\alpha = .90$) for the Mills women at age 52, using a description of their job or work as well as questions about prior training or education and about responsibilities, recognition, and rewards in work.

Satisfaction. The women rated their satisfaction with the work or job they had at age 43 and with the work or job they had at age 52, both times using a 5-point rating scale. (For a

review of single-item work satisfaction scales, see Scarpello & Campbell, 1983; and Wanous, Reichers, & Hudy, 1997.) Satisfaction varied somewhat with the particular work situation and the 9-year correlation between the two assessments was positive and significant but only moderate in size ($r = .43$). Therefore, we aggregated the two measures to create a more general index representing satisfaction across the entire age 43-to-52 period.

Work in the Early Descending Period at Age 59

By the late 1990s, earlier norms about retiring at age 65 had dissolved considerably. These changes in norms made the period between age 59 (when the women completed questions about work involvement) and age 61 (when they were interviewed about factors influencing retirement) a time of particular complexity in the work lives of the women. Some women had already retired, others expected to retire soon, and still others expected to work for many more years or thought they might never retire. Many women were reappraising their attitudes towards work, to decide when to retire (Ekerdt & Deviney, 1993). We expected personality to influence the women's work and retirement patterns.

For this period of later-life work, we used several measures of ongoing interest in and commitment to work, all from questionnaire data obtained at age 59, that is, about 2 years before the women came to IPSR for interviews.

Importance of work. To assess how much the women who were still working valued their work during this period, they were asked to rate the importance of work to their current identity on a 5-point scale, with 1 = Not at all and 5 = Very much.

Maintaining one's career. This measure was based on a series of "yes-or-no" questions included in age-59 questionnaire, and contrasts women who at this time were still maintaining a career vs. making various kinds of career changes (e.g., beginning a new career, building a career, or reducing career involvement).

Time until expected retirement. To estimate how long the women planned to continue working, the women were asked to rate when they would most likely retire, using a 4-point scale (1 = "next year or so", 2 = "by age 65", 3 = "by age 70", or 4 = "never or not until I have to").

Appraisals of Factors Influencing Retirement at Age 61

At age 61 the Mills women were interviewed about their current or most recent work, their retirement status, and plans for the future. Their interview responses were transcribed from audiotape and then rated on several themes related to work and retirement. One coder rated the interview material for all of the cases, and a second coder rated the material for a random control sample of 25 cases. Ratings were on a 3-point scale (0 = not mentioned, 1 = talked about a little, and 2 = very true or much emphasized). The correlation of the first coder with the second coder was .80.

Of three major themes that were coded, some involved aspects of the work setting. *Enjoying a leadership position* and *Potential for further advancement* were positive aspects encouraging continued work, whereas *Having a difficult relationship with one's supervisor* (who was often younger) was negative and discouraged work. Other themes involved individual preferences, namely *Interest in doing other things* and *Desire to reduce her workload*.

In addition to the preceding factors, the coders assessed the women's *amount of volunteer work* on the same 3-point scale.

Work and Financial Security in the Late Descending Period (Age 70)

By age 70 approximately two-thirds of the women had retired. To examine personality-based patterns of ongoing work involvement and financial security, we used three variables.

Ongoing work involvement: Amount of work for pay. At age 70, the women reported how much they worked for pay per week, using a 3-point scale (1 = little or no paid work; 2 = part time; 3 = full time).

Financial security at 70. To assess the security of their overall financial situation, the women evaluated their financial security on a 5-point scale, from 1 = Not at all secure to 5 = Very secure.

How much partner had worked in middle age. We expected that the financial security the women reported towards the end of their active work lives or in retirement would also be affected by their partner's contribution. Thus, at age 70, the women were asked to look back and assess how extensively their life partner had actually worked for pay during most of middle age, using a 3-step scale (1 = "very little or not at all", 2 = "part-time", 3 = "full-time").

Analyses

The overall design and temporal structure of the data are summarized in Table 1. We conducted simultaneous regression analyses predicting each dependent variable from all three antecedent personality dimensions (Extraversion, Openness, and Conscientiousness measured at age 21). By explicitly including all three traits in each regression, we were able to identify the independent effects of each antecedent personality variable while controlling for the effects of the other two dimensions. That is, when two of the personality domains have significant betas in a regression analysis, then we have evidence that two independent paths lead from these antecedents to the particular outcome variable. We present the findings in Tables 2, 3, and 4 following the temporal order specified by the three main periods in women's work lives which are shown in Table 1.

Results and Discussion

We examined how the personality domains of Extraversion, Openness, and Conscientiousness, measured in the Mills Longitudinal sample when the women were in college, predicted life outcomes related to work over the subsequent 50 years.

Work Preparation and Involvement in Young Adulthood

Because the young adulthood of the Mills sample was strongly differentiated in terms of traditional gender roles, with early marriage and childbearing expected for women (and exploring and preparing for work expected only for men), we thought that personality would show the least relation to work during this period.

As shown in Table 2, we tested this hypothesis with four dependent variables, predicting each from antecedent college-age personality assessed some 6 years earlier. Consider the amount of work involvement the woman had had by age 27: the beta weights in the simultaneous multiple regressions were -.19 for Extraversion, -.04 for Openness, and .12 for Conscientiousness, and none of them were significant. Note also that the non-significant

regression weights were negative for Extraversion and Openness; that is, reversed from the general expectation that individuals high in Extraversion and high in Openness would be more likely to seek out employment outside the home than individuals who are relatively introverted and closed to new experience. Similarly, in contrast to general trait hypotheses and other studies of working adults, Extraversion was not related to satisfaction with the work the woman had experienced by age 27 ($\beta = .02$), and Openness failed to predict the pursuit of post-graduate education and creative accomplishments after college (both β 's = .12).

The Ascending Period: Timing of Careers

Even at a historical time when many women were not yet working, women high in Extraversion and women high in Openness, compared to low-scorers, should be among the first to get started on an upwardly mobile career. Indeed, the first career-trajectory variable in Table 3 (early career begun and sustained to age 42) was predicted by both Extraversion ($\beta = .32, p < .01$) and Openness ($\beta = .35, p < .01$), even though these traits had been measured 12 years earlier. This is a noteworthy finding because it contrasts with the earlier findings in Table 2 for age-27 work involvement.

The second career trajectory variable—early career begun but not sustained—shows, however, that the effects of Openness ($\beta = .30, p < .01$) are not necessarily concordant with those of Extraversion ($\beta = .11, n.s.$). Very open individuals may have trouble sustaining a high-status career.

Factors Affecting Work Involvement

Neither of the early career variables was predicted by Conscientiousness, a notable finding because, in samples of men and later cohorts of women, Conscientiousness tends to be the best predictor of hard work, work involvement, and persistence; by age 43 the highly conscientious women were no more likely to be working on careers than women very low in Conscientiousness. What tasks had the highly conscientious women chosen to work on dutifully and diligently? We used measures of investment in family to examine that question.

Traditional women's role and divorce. In what would be the ascending period of work, we expected the dutiful and norm-following women high on Conscientiousness to follow the social mores of the times and give priority to husband and children during this period, and to be less likely than women low in Conscientiousness to have to work because of family instability like divorce. Table 3 shows that college-age conscientiousness positively predicted greater commitment to the traditional women's role ($\beta = .23, p < .05$) and negatively predicted divorce by age 43 ($\beta = -.25, p < .05$). These findings are consistent with the idea that highly conscientious women considered as their foremost duty during this period their children and families, and maintaining a stable home environment for them.

We had not specifically considered Openness and traditional women's role commitments but Table 3 shows a significant and negative beta of $-.29, p < .01$. This finding is consistent with the greater receptiveness of highly open (vs. closed) women to autonomy and to new attitudes and ways of doing things, and thus their attraction to freedoms and choices that were not part of the traditional definition of women's role.

Importance of the Women's Movement. We expected extraverts to be more affected than Introverts by social movements and cultural trends, particularly the women's movement, which has been shown in two samples to have encouraged women to participation in the labor force (Duncan & Agronick, 1995). Table 3 shows that Extraversion predicted how important and impactful the women's movement would be for the Mills participants by age 43, $\beta = .34, p < .01$.

Catching up with Graduate Education in Midlife

Recall the lack of an Openness effect on pursuit of graduate education by age 27. We can now directly test the socio-cultural context hypothesis: in the first years after college, the highly open women had not been able to realize or even formulate their educational interests and goals. However, 15 years later, with the culture changed to being somewhat more favorable towards women's graduate education, they should seek and find ways to go back to school in mid-life. Indeed, as predicted, Openness was the only significant predictor of graduate education obtained by age 43 ($\beta = .33, p < .01$) as well as with getting (or working towards) a Ph.D. or other doctoral degree after age 43 and before 52 ($\beta = .25, p < .05$). Note that this leaves us with a seemingly paradoxical pattern of findings: Openness measured at age 21 failed to predict educational outcomes merely 6 years later but succeeded in predicting educational outcomes some 20 and 30 years later.

The Maintaining Period: Nature of Work

In the Maintaining period, most women were participating in the work force under relatively stable conditions and achieved their highest work status; we therefore used this period to test hypotheses about the relation of antecedent personality to aspects of the women's work.

As shown in Table 3, Extraversion (but not Openness) predicted the choice of Enterprising and Social jobs in Holland's scheme, whereas Openness (but not Extraversion) predicted the choice of Artistic and Investigative work, with effect sizes of .28 and .38, respectively. Both Openness ($\beta = -.41, p < .01$) and Extraversion ($\beta = -.29, p < .05$) predicted a pronounced lack of interest in work in that fits Holland's Conventional and Realistic areas (Table 3). The negative relationship between Extraversion and Conventional-Realistic work had not been predicted but can probably be understood in terms of the Extraverts' ambition, as Conventional and Realistic jobs usually have low status potential.²

Openness is associated in the literature with creativity, and our expectation that it would be linked to Occupational Creativity was supported here with a substantial effect size of $\beta = .49$, which is particularly noteworthy because Openness was measured a full 30 years before occupational creativity. Surprisingly, Extraversion also predicted occupational creativity ($\beta = .25, p < .05$), a finding examined further below.

In accordance with hypotheses, women high in Extraversion or high in Openness were significantly more likely to work for themselves (as free-lancers, heads of their own enterprise, or in positions where they could set their own agendas) than for others (e.g., in schools, offices,

² Indeed, when we controlled for work status level (see below), the Extraversion effect disappeared ($b = -.15, p = .16$), while the O effect remained ($b = -.25, p = .02$).

or other institutions), with betas of .29 and .36, respectively.

Rewards of Work in Midlife

We expected Extraversion, Openness, and Conscientiousness to be associated with different patterns of rewards from work, which should be evident by age 52. As shown in Table 3, women high in Extraversion were rewarded by attaining higher status in work than women low in Extraversion. Also as predicted, they experienced more work satisfaction. Follow-up analyses showed that their greater work satisfaction was not simply due to their more rewarding high-status jobs: even when the effect of work status was statistically controlled, Extraversion still predicted greater work satisfaction, $\beta = .23, p < .05$.

Not predicted was the association of Openness with high status level at age 52 ($\beta = .34, p < .01$). We had hypothesized early career starts for women high in Openness, and success in creative activity including work, but in the literature Openness is not generally associated with high status level.

Follow-up analyses tested why early Openness was related to status level at age 52. When we controlled the effect of occupational creativity in the regression predicting status level, the effect for Extraversion remained significant ($\beta = .24, p < .01$) but the effect for Openness disappeared ($\beta = .05, ns$). That is, open women who achieved high status did so through their creative work.

Conversely, we also tested why Extraversion was unexpectedly related to occupational creativity (see above in the section on Nature of Work). When we controlled the effect of status level in the regression predicting occupational creativity, Openness still predicted occupational creativity ($\beta = .29, p < .01$) but Extraversion did not ($\beta = .04, ns$). That is, when extraverts showed creativity in their work, they did so through their attainment of high-status jobs, reflecting their ambition, assertiveness, and interest in external rewards rather than through the intrinsic interest and cognitive flexibility central to Openness. In sum, these findings suggest that Extraversion and Openness exert their influences on work outcomes not only independently but also through unique processes, and thus predict generally distinct outcomes in the work domain.

Finally, we considered the role of post-college education in understanding the early personality effects on work status and occupational creativity. In these follow-up analyses, we always controlled both the age-43 and the further age-52 education variables. When predicting work status at age 52, the Openness effect again became non-significant ($\beta = .18, ns$) whereas the effect of Extraversion remained strong ($\beta = .34, p < .01$). In other words, for the open women, higher work status was due, in part, to their greater post-college education. In contrast, the extraverts achieved high work status above and beyond their educational achievements. This is an important finding because it rules out cognitive-ability and educational explanations for earlier demonstrations that extraverts attain higher social status and power in groups, whether at work, politics, or social events.

Conversely, the link between early Openness and subsequent occupational creativity also cannot be explained through educational effects. In fact, Openness at 21 continued to strongly predict occupational creativity ($\beta = .34, p < .01$) above and beyond the significant effect of graduate education completed by age 43 ($\beta = .35, p < .01$). Again, this is an important finding confirming earlier work in the creativity literature: it demonstrates a clear and important long-term longitudinal link between the personality trait of Openness and a work-based creativity

outcome measure above and beyond cognitive ability and education effects.

Work and Retirement in the Descending Period

As the women neared retirement, we considered the women's attitudes about their work, plans for retirement, and sense of financial security. The regression results for the descending period are all shown in Table 4.

Work outlook at age 59. Because women high in Extraversion should continue to have considerable energy and enjoy the leadership and social opportunities that work affords them, we expected Extraversion to be associated with continued work involvement. When reducing work or retiring, we expected them to engage in volunteer work for the same reasons. We thought highly conscientious women would finally show the work commitment that had been delayed by their earlier focus on family commitments. For women high on Openness we predicted a relatively early lessening of work commitment as work became more routine or new opportunities and interests opened up.

As shown in Table 4, results were broadly consistent with these expectations. Both highly extraverted and highly conscientious women rated work at age 59 as important to their identity, and both set their expected retirement dates further in the future, with substantial betas of .50 for Extraversion and .31 for Conscientiousness. At this time the conscientious women were maintaining their careers, in contrast to women low in Conscientiousness, whereas open women were no longer maintaining their careers.

Factors influencing retirement at age 61. The interview data at age 61 provided a view of how the women were appraising their work and retirement plans two years later. As predicted, Extraversion was associated with having leadership opportunities with prospects for advancement at work, and a commitment to volunteer work as an alternative outlet for their energy and social needs. A subsequent analysis determined that paid work and volunteer efforts were independent effects. Even when controlling for the effect of continuing to work, Extraversion was related to volunteering ($\beta = .33, p = .05$). Conversely, even when controlling for volunteering, Extraversion was related to working ($\beta = .39, p = .02$). Moreover, as expected, women already retired were more likely to volunteer, $r = .23, p < .05$.

In contrast, Conscientiousness was not associated with the advantages of leadership opportunities and prospects for advancement and, on the negative side, women high in Conscientiousness had encountered difficulties in their relationships with supervisors. Perhaps these disadvantages, which we had not anticipated, were related to their relatively late start in the world of work, as they may be now have been bypassed by a younger generation of supervisors with new and likely incompatible attitudes.

As predicted, the women high on Openness, who had stopped maintaining their careers already at age 59, now reported they wanted to reduce their workloads and be able to turn to other things.

Work and financial security at age 70. Consistent with the previous findings and their own expectations at age 59, the extraverted women continued to work for pay to a greater degree than more introverted women.

We had expected conscientious women to pick good providers as partners, whereas open women would not pick partners with earning ability in mind. We found support for these hypotheses: conscientious women reported their partners had worked a great deal throughout

middle age, whereas open women reported that their partners were often not working.

As predicted, women high on Openness reported less financial security at age 70 than women scoring lower on Openness. This is an important finding because it links a fundamental personality trait during college to financial concerns at the very end of the women's work lives. It is consistent with the other findings during this descending period, including their relatively early disengagement from career. In addition, the findings in Table 4 also point to relational factors as the women high in Openness choose partners who did not work as consistently and extensively as the partners of the more gender-traditional women low in Openness.

We had expected that Conscientiousness would be positively associated with financial security in retirement. However, their particularly late start in the work world, combined with an exit at the conventional retirement time, probably hindered this cohort of conscientious women from achieving the personal financial security that theory and literature predicts for them. However, the positive association ($\beta = .34$) with the partner work variable shows that they chose their partner prudently, and with the partner's financial contribution, the highly conscientious women were certainly not worse off than those scoring low in conscientiousness who did not have the same kind of hard-working partner.

The extraverts did not report greater financial security at 70 than did more introverted women. Overall, one might expect more positive financial outcomes over time for extraverts, because they seem to appreciate financial success and had the skills and work status to obtain them. However, this was not apparent in the evaluations of financial security at age 70, perhaps because retiring introverts (who were less likely to be self-employed) were receiving guaranteed pensions and benefits increasing their perceptions of financial security, or because feelings of financial security were vulnerable to the challenging financial market at the time of testing in 2007-2008. This factor could have affected the evaluation of financial security by conscientious women also.

General Discussion

We first review and summarize the findings for Extraversion, Openness, and Conscientiousness and comment on some general trends. Then we discuss how our findings on the work effects of personality traits must be considered within the prevailing socio-cultural context, the issues of causality and mediation, the strength and limitations of our research design and how these might be addressed by future research, and how the present findings can inform our understanding women workers today.

Overview of Findings: Work Lives of Women High (vs. Low) in Extraversion

We expected that extraverts would have the confidence and liking for social interaction to try new paths as those paths became prestigious, and this expectation was supported by our results. For hypotheses about the nature of work we relied on the current research literature, without reference to cohort. The nature of work was tested during the "maintaining" period, when most women were engaged in the work they pursued for the longest time. In terms of Holland's categories of work, Extraversion was related to Enterprising or Social work, as expected and consistent with past research, and was negatively related to Realistic or Conventional work. We thought extraverts would be inclined to work for themselves, allowing

them to express Enterprising interests, and we expected that they would continue in high-status work. We found support for these expectations.

Women who considered the women's movement important were more likely to participate in the labor force, and we expected and found that extraverts were more likely than introverts to be influenced by this movement. (In contrast, women high in Openness may have been affirmed by the movement, but were already inclined to live ahead of the curve.)

We expected that there was sufficient variation in retirement practices in the late 20th century and early 21st century for individual differences in personality to affect the women's work-related attitudes and behavior at ages 61 and 70. Correspondingly, in the descending period of work life Extraversion was related to continued importance attached to work and to persistence in careers. Even at age 70, when many women had retired, women high in Extraversion were more often working for pay than women lower in Extraversion.

We thought that an interest in volunteer work might ease the transition to retirement, and in some cases it did. Extraversion was related to both continued paid work and commitment to volunteer work. How could women high in Extraversion keep working and do volunteer work also? There were several women high in Extraversion who worked for big organizations that encouraged their retirement in various ways by their early 60s. These women retired early and created new lives of volunteer work that drew upon their social skills. Other extraverts did keep working at least part-time and participated in volunteer work in addition to their work.

We expected that women higher in Extraversion would, overall, achieve higher levels of status and satisfaction, consistent with interests in leadership and other socially influential types of work such as management and sales positions. This was indeed the case. Notably, follow-up analyses showed that the extraverts were satisfied with their work lives above and beyond their high status they had achieved.

Work Lives of Women High (vs. Low) in Openness to Experience

We thought Openness would be related to understanding, liking, and trying to take advantage of the new possibilities for women in the labor force. Openness was related to early career success and success in creative occupations. Women higher in Openness preferred Artistic or Investigative work, as expected and consistent with past research. They shunned Conventional and Realistic work. As expected based on their characteristic interests in independence and self-actualization, Openness was associated with working for oneself rather than working for others. They pursued their own personal growth goals and new experiences, not compromised by the particular goals of an organization.

We expected that women high in Openness in the descending period of work life would leave their work if it became less stimulating, and would find something new. And many did. We were surprised, at first, that the occupationally creative and high-status open women would have wanted to leave their fields at age 61, but case examples were reassuring. For example, a psychologist retired and led a team that was writing a book about the wetlands and raising money for a center to protect the wetlands. A professor began buying and redecorating homes. A lawyer took over family orchards after senior relatives died. Some of these ventures were successful and others were not, but they all enlarged the women's experience of life. Performing artists faced problems with aging, but they often found ways to maintain their careers.

In terms of eventual financial outcomes, we expected that Openness would be negatively related to financial security in the descending period. We expected open women to pursue artistic

or intellectual work that might be low paying but held a promise of self-expression. We thought that Openness would predict creative achievement but that having chosen partners with values and proclivities like their own, women high in Openness would experience financial insecurity later in life. Findings generally supported our hypotheses, indicating lower levels of financial security during the early-retirement age of 70 and less participation by their partners in paid work.

Work Lives of Women High (vs. Low) in Conscientiousness

We thought conscientious women would maintain their responsibilities to their families while their children were young and avoid risky life changes, but that they would transfer their sense of duty to the workplace in mid-life, becoming solidly committed and involved in work.

In terms of Holland's categories of work, no particular kind of work was associated with Conscientiousness. Although meta-analyses have found a moderate relationship between Conscientiousness and Conventional work interests, our finding suggests an accordance with Barrick et al.'s (2003) results indicating that relationships between Holland's codes and Conscientiousness tend to be weaker than those for Extraversion and Openness, and Larson et al.'s (2002) finding that the relationship between Conscientiousness and Conventional work was weaker for women than for men.

Our main hypothesis for Conscientiousness in the descending period of work life was that, like Extraversion, Conscientiousness would be related to continued importance attached to work and to persistence in careers. The dependability and persistent nature attributed to Conscientiousness in the literature would lead them to continued work involvement as they neared a traditional retirement age, at which point they might have been pulled in an alternate direction: to follow traditional norms and retire in their mid-60s. Findings generally supported these hypotheses, including the fact that the women high in Conscientiousness persisted only to the normative retirement age in their mid-60s. At age 70, women high in Conscientiousness were less likely to be working for pay than women lower in Conscientiousness. Women high in Conscientiousness reported several sources of dissatisfaction at age 61, possibly related to their late starts (e.g., Judge & Hurst, 2008), which may have influenced them to end their careers earlier than one might have expected at age 61. This is a phenomenon that has been reported in the literature, perhaps revealing a process through which the worker brings herself to giving up the rewards of work. However, the late start of the conscientious women may have been a disadvantage. For example, at 61 they were often older than their bosses. Furthermore, their partners were predominantly hard-working professional men who had worked more than partners of women lower in Conscientiousness during middle age, and some of the women were satisfied to show that they could have an independent career. On the other hand, some did maintain long careers.

Contrasting the Paths of Extraversion, Openness and Conscientious Women

We expected that individuals in whom different personality traits are most salient are different people, and that these differences would affect their work lives from start to finish. Overall, Openness and Extraversion were associated positively with amount of involvement and achievement by early middle age (age 43, in 1981), whereas women high in Conscientiousness worked relatively little in this "ascending" period.

We would expect personality to relate to different motivations for work: extraverts enjoy social interaction and leadership, open women like complex thought, doing things in different ways, and conscientious women have a generally responsible attitude towards their chosen roles. Thus we found, for example, that the status level of open women depended on creativity.

The work choices of women high in Extraversion and Openness were related to Holland types, in support of past research.

Extraversion and Conscientiousness were related to continued importance attached to work and to persistence in careers in the descending period, whereas many women high in Openness tended to express less interest in continuing their current work and more interest in doing something new or different.

Neither Conscientiousness nor Extraversion was related to financial security, whereas the negative effects of Openness on financial security appeared clearly at age 70. Partners of women high in Conscientiousness were predominantly hard-working professional men, whereas women high in Openness tended to have partners who were in low-paying or risky occupations, unemployed for long periods, or prone to bad financial decisions.

What is most impressive in this article is its demonstration that Conscientiousness, Extraversion and Openness at age 21 were related to major aspects of work lives such as nature of work, satisfaction with work, creative achievement and status, persistence in work at older ages, and financial security, over the next 50 years. Through periods of ascending, maintaining, and descending the highly extraverted women repeatedly showed their pursuit of rewards through indefatigable energy, positive attitude, and outward orientation; the open women were absorbed in self-actualization, both intellectually and artistically; and the conscientious women showed their commitment to the duties life presented to them, initially in the context of family and later work. These characteristics of personality showed selection effects, affecting the kinds of jobs or careers the women chose and the amount and kind of post-graduate education they sought. They showed shaping, modification, and evocation effects: some women pushed for and were afforded high status in the work environment whereas others did not push or persevere and were not afforded high status. They showed construal or appraisal effects: at the time of maximum work involvement both extraverts and women high in Openness held relatively high-status jobs, yet the extraverts (compared to introverts) were very satisfied with their work (even when status was controlled) whereas the open women (compared to women low in Openness) were not.

This is not to say that the influence of personality was always direct, or that personality change did not occur. We have identified several instances where personality led to particular life choices, such as the adoption or disavowal of a traditional women's role or the choice of type of work, which likely led to subsequent differences in work lives. These choices were influenced by personality but in turn would have augmented its effects. For example, Extraversion would lead to Enterprising or Social work, which over time would increase confidence and skill in social interaction (e.g., Roberts et al, 2003). Similarly, extraverted women were more influenced by the women's movement, which encouraged them to pursue work outside the home and helped increase their assertiveness and confidence (e.g., Agronick & Duncan, 1998). Such interesting and important effects are consistent with our model, but are outside the scope of the present article.

Personality Traits and Socio-cultural Context

We have demonstrated a wide range of links between Extraversion, Openness, and Conscientiousness at age 21 and work-related variables later in life, but there is one important qualification. Even though we had expected that the women's lives would revolve around finding a partner and starting a family in their mid-20s, thus suppressing systematic individual differences in work, we were surprised to find that none of our personality variables predicted any of the work and work preparation variables at that time (see Table 2). Even progress in graduate school and creative accomplishment showed no relation to Openness at this time.

However, change in gender roles accelerated over the 1960s and 1970s, and we found that individual differences became highly important in how the Mills women subsequently reacted to the work world. In current literature, conscientious individuals are conspicuous for their steady above-average job performance in the labor force regardless of type of jobs. But in the transitional generation studied here, we found that highly conscientious women were more committed than women lower in Conscientiousness to the traditional woman's role throughout the ascending and maintaining periods, so that their investment in work came later than one would expect for younger generations. The high versus low Conscientiousness effect in the workplace that is typically seen in current cohorts did not emerge until the women were well into their 50s (on the questionnaire preceding the age-61 assessment), when they rated work as more important to their sense of identity than did women lower in Conscientiousness, and said that they intended to work longer. At last they were acting the way we would expect conscientious women to act today.

Another example of how individual differences affected the way women negotiated their way in a changing culture was the graduate education experiences of women high in Openness. They did not differ from women low in Openness in the first few years after college, but early Openness was associated with level of graduate education by age 43, and with going back to school for a Ph.D. between ages 43 and 52. Why so late? One of these women had reared five children in her earlier years; another was married to a minister whose work caused the family to move frequently; and there were other stories with similar themes of delay and disruption.

In our prospective longitudinal design, we can demonstrate how women with different personality traits (e.g., women high in Openness and those low in Openness) adjusted in the changing socio-cultural context through which they moved. Thus, our study makes vividly the point that personality is not culture-free. Failure to find expected correlations with personality traits may sometimes result from the failure of culture to provide the same motivations and opportunities for the trait to be expressed.

Causality and Mediation

We assessed our personality trait predictors before the women had even entered the world of work. This was appropriate because we conceive of personality as representing the preexisting affective, cognitive, and motivational structures that individuals bring with them to a new environment, situation, or task, and thus the effect of personality unfolds in interaction with that of situation or environment.

Our multiple regression design enabled us to show the effect of each trait with the effects of the other two controlled. Testing for independent effects allowed us to clarify patterns. For example, we showed that Openness was related to status level only by way of education and

creativity, and that Extraversion was related to Occupational Creativity only through status level. Thus in our sample eminent creative women were likely to be both open (accounting for their creativity) and extraverted (accounting for their status achievement).

We have tried to include important aspects of the socio-cultural environment that might have had a differential impact on the women as a function of their prior personality. Thus, we found that importance attributed to the women's movement was associated with Extraversion, consistent with their early entry into the labor force. (Open women may have felt affirmed by the movement, but were already inclined to live ahead of the curve.) In the case of Openness we found a series of factors that over time would likely contribute to their feelings of financial insecurity at age 70. They were self-oriented in their choice of work, which meant that they had autonomy but often at the price of good salaries, pensions, and benefits. They followed their own interests and predilections and many were not highly committed to promising or even high-status careers, often giving up a line of work that had become uninteresting to them. Furthermore, they had chosen partners who were not money-minded, either: their partners had more periods of unemployment and were less likely to work full time than partners of women low in Openness.

As this example suggests, the demonstration of mediating factors is complicated, as no one of these factors alone would account for the financial insecurity the highly open women experienced at the end of their work lives. Future research with a larger sample and a focus on these mediating variables may be able to demonstrate the causal connections between personality traits and work experiences and outcomes.

Limitations and Future Directions

Of course this research has some important limitations. We have studied a relatively small, well-educated sample, which limits generality but enabled us to obtain data at six different periods and find what women with resources could do as culture changed. Future studies should examine other cohorts and include men and individuals of varied ethnic and economic backgrounds.

We have emphasized the transitional nature of the socio-cultural context that our sample experienced, but there were other special influences of their period of history that we understand less well. One was the effect of the financial crisis, which hit about the time of the age-70 follow-up, and may have made extraverts and conscientious women feel less financially secure than they would have in more normal times.

We can also ask what the current findings tell us about today's women workers. Women today expect to work and support themselves, and have a much wider range of educational opportunities and perceived career paths than did the Mills women when they were young adults. However, today's women continue to navigate multiple, substantial role involvements. They continue to face the prospect of exiting and re-entering the workforce over time, as a considerable percentage of women leave the labor force to care for young children (e.g. Phillips & Imhoff, 1997). The concept of family duty still applies, with complicated trade-offs between family, career, and care giving. Gender differences illustrated in the Mills sample may still be relevant for today's women.

Table 1

Overview of College-Age Personality Predictors (Measured at 21) and Dependent Variables to be Predicted by College-Age Personality: Three Main Periods in Women's Work Lives, from Young Adulthood in the Mid-20s to Typical Retirement Age at Age 70, and Examples of Outcome Variables Studied in Each Period in the Mills Longitudinal Study

Personality Predictors (age 21)	Three main periods of work, and examples of variables studied		
	Young adulthood: Early work experience (age 27)	<i>Ascending</i> work involvement between young adulthood and age 43, and <i>Maintaining</i> involvement to age 52	<i>Descending</i> involvement from age 59 to 70: Work and retirement
Conscientiousness Extraversion Openness	Work involvement Graduate education Creative accomplishments since college Satisfaction in work	Timing of early work: Career trajectories Commitment to traditional woman's role Graduate training in midlife Types of jobs Status level of work	Importance of work Time expected until retirement Factors affecting retirement Amount of work for pay Financial security

Table 2
*Work-Related Outcome Variables at Age 27 Predicted from Personality Traits at Age 21:
 Beta Coefficients from Simultaneous Multiple Regression Analyses*

Outcome variables by age 27	Predicted from personality traits at age 21		
	Extraversion	Openness	Conscientiousness
Amount of work involvement	-.19	-.04	.12
Satisfaction with work	.02	.01	.08
Graduate education	.00	.12	.11
Creative accomplishments since college	.10	.12	.08

*p<.05; **p<.01

Table 3

Personality Effects in the Ascending and Maintaining Period: Early Patterns of Work Involvement, Graduate Education in Mid-Life, and Nature and Rewards of Work at Peak Work Involvement

Outcome variables, ages 43-52	Predicted from personality traits at age 21		
	Extraversion	Openness	Conscientiousness
Early work involvement and relevant social factors			
Early career begun and sustained to age 43	.32**	.35**	.07
Early career begun but not sustained	.11	.30**	-.03
Commitment to traditional woman's role	-.12	-.29**	.23*
Early divorce	.17	-.06	-.25*
Importance of the women's movement	.34**	.19	.05
Catching up with graduate education			
Graduate training by age 43	.14	.33**	.18
Ph.D. work age 43-52	.12	.25*	-.02
Nature of work			
Enterprising or Social work	.28*	-.10	.01
Artistic or Investigative work	-.01	.38**	.08
Conventional or Realistic work	-.29**	-.41**	-.08
Occupational creativity	.25*	.49**	.04
Works for self	.29**	.36**	-.06
Rewards of work			
Status level of work	.40**	.34**	.06
Work satisfaction	.34**	-.01	-.08

*p<.05; **p<.01

Table 4

Personality Effects in the Descending Period: Continued Work Involvement, Transition to Retirement, and Financial Security

Outcome variables at ages 59/61 and 70	Predicted from personality traits at age 21		
	Extraversion	Openness	Conscientiousness
Work involvement in the early descending period (age 59) ^a			
Importance of work	.29*	.12	.35**
Maintaining career	-.02	-.27*	.26*
Time until expected retirement	.50**	-.04	.31*
Factors influencing transition to retirement (age 61)			
Has a leadership role, potential for advancement	.27*	.19	-.25*
Difficult relationship with supervisor	-.09	.14	.33**
Interest in reducing work load and doing other things	.10	.29*	.05
Amount of volunteer work	.33**	.20	.11
Work and financial security in the late descending period (age 70)			
Amount of work for pay	.29*	.19	-.20
Overall financial security at typical retirement age	-.06	-.25*	.14
How much partner worked in middle age	.17	-.32*	.34*

^a For the women not yet retired (N=70).

Study 2: Predicting Increases in Neuroticism from Positive Work Experiences

The construction of a satisfying or successful work life has been shown to predict gains in well-being and in personality traits, whether conceptualized as positive or negative emotionality or in a broader personality domain such as Big Five Neuroticism or Extraversion. In Roberts, Caspi, and Moffitt's (2003) study of young adults in New Zealand, work satisfaction was related to decreases in negative emotionality, and status level of work was related to faster-than-normative decreases in negative emotionality over time. Similarly, Scollon and Diener (2006) found that increases in work satisfaction in a large Australian sample related to decreases in Neuroticism.

While these studies are important for increasing our understanding of intra-individual change in personality, they may also be useful for understanding normative patterns and mean-level changes seen in adult personality over time. Roberts and Mroczek (2008) noted that the field of personality development "desperately needs a greater understanding of the developmental experiences that are consequential for personality traits across the life course," with the hope of eventually understanding causal mechanisms involved in personality change (p. 34). The current study is intended to further this understanding of the processes involved in personality change.

My first aim is to replicate previous research connecting work satisfaction to decreases in Big Five Neuroticism. I focus on reductions in Neuroticism because low N has been found to be a generalized predictor of overall work performance, not specific to a particular type of job (Barrick & Mount, 2005). Neuroticism is associated with considerable pain and difficulty in life, through psychological distress such as depression or anxiety and implications for physical health and longevity (e.g. Friedman, Kern, & Reynolds, 2010). An increased understanding of change in Neuroticism might be beneficial for alleviating suffering in the workplace and more broadly in life.

In the current study I will use data from the age-43 and age-61 follow-ups of the Mills Longitudinal Study. In accordance with past research I expect that high work satisfaction will be related to decreases in Neuroticism. To further pinpoint the nature of the relationship between work and change in Neuroticism, I will also include a measure of occupational attainment: status level of work. Satisfaction and status level are not completely independent constructs, but status level adds a motivational component. Relatively few individuals in the workforce invest the time and energy to reach high-status positions. Barrick and Mount (1991) suggested that the pressure of higher-status jobs might cause an increase in the display of neurotic traits. Antecedent emotional stability (low Neuroticism) may be important for some types of higher-status work (e.g., Zhou & Siebert, 2006). Therefore, I expect that the relationship between occupational attainment and change in N will be weaker than that of work satisfaction.

Assuming that work satisfaction does show a significant relationship to Neuroticism, I will investigate potential mediators of the relationship. A recent conceptualization of personality change by Roberts, Wood and Smith (2005), which they termed the social investment principle, suggests that commitment to an important social role such as work, with its set of external expectations, rewards and punishments, should encourage low Neuroticism. Through positive attitudes and repeated positive behaviors within the work role, individuals should experience a strengthening of work identity and a decrease in Neuroticism. Because low Neuroticism (high emotional stability) at work is associated specifically with the capacity to accomplish tasks (e.g. Barrick & Mount, 2005), I will examine the impact of work on the development of self-

confidence, representing positive attitudes of self-efficacy and competence (e.g. White, 1959), and how the development of self-confidence relates to decreased Neuroticism. I expect that the self-referent growth of self-confidence will demonstrate a relationship to change in Neuroticism. However, I will also include three other, more externally focused constructs: the impact of work on achievement, autonomy, and positive relationships. An increase in achievement represents an individual's sense of accomplishment and upward mobility, and an increase in autonomy represents the expression of freedom or independence at work. The impact of work on the development of satisfying relationships with others represents work-based affiliation, and may be especially valued by women.

Roberts et al. (2005) described their social investment principle within a context of important social commitments in young adulthood, but women in the Mills cohort followed a different timeline. The Mills women tended to become committed to work considerably later than many women in today's world, starting careers in their late 30s or early 40s after their children were well along in school (see Helson & Moane, 1987). Thus, the development associated with their entry into the workforce should have occurred later in life.

Overview

The aims of this study were two-fold. First, I seek to replicate the finding that significant individual differences in change in Neuroticism exist, and that these changes correlate with work satisfaction. Second, I examine four possible mediators of the Neuroticism change process, testing several competing alternatives. I study the women's work experiences in their early 40s when many were establishing their work lives; and change in Neuroticism from their early 40s until age 61, a time when many of the women were retiring or starting to plan their retirement.

A number of previous Mills studies bear on the topic of how work is related to personality change. Work variables have included objective measures of amount of work or achievement in work (e.g., Helson & Srivastava, 2002; Roberts, 1997; Roberts, Helson, & Klohnen, 2002) and, more rarely, subjective measures of satisfaction in work (e.g., Roberts and Chapman, 2000). Personality change variables have included measures of ascendance and confidence (e.g., Helson & Picano, 1990; Roberts, 1997) and measures of adjustment, integration, and well-being (e.g., Roberts & Chapman, 2000; Helson & Soto, 2005). Most of these studies have extended from ages 21 or 27 to age 43 or 52.

Method

Participants

The Mills Longitudinal Study consists of 123 women who contributed data in at least one follow-up since the original testing of the Mills women when they were college seniors, at age 21 on average, in 1958 or 1960. This study used work and personality data at age 43, and personality data from age 61. Of the core sample, 108 women participated at the age 43 follow-up (88%) and 110 participated at age 61 (89%). Data used in this study were obtained by mail.

To study women in the work world, we identified 91 women who worked part-time or full-time for 20 or more years. These women compose the "work sample" for the current study. Like the overall Mills sample they were primarily Caucasian, reflecting the composition of the student body at Mills College at the beginning of the study. Most of their mothers had been

homemakers and most of their fathers were in business or the professions. The work sample did not differ from the core sample on Extraversion, Openness, or Conscientiousness at age 21. In our analyses we include data from all of the 91 women who had provided data at a given time of testing.

Measuring Neuroticism (Ages 43 and 61)

Neuroticism was assessed at ages 43 and 61 using the CPI-Big Five (Soto & John, 2009), scored from items on the California Psychological Inventory (CPI) (Gough & Bradley, 1996) and converge well with Costa and McCrae's (1992) NEO PI-R. Domain scale reliability for Neuroticism averaged from .87 to .90 in their three validation samples, approaching scale reliabilities of the NEO PI-R scale. Orthogonality of domain scores was similar to those of NEO PI-R scores for Neuroticism, as were convergent correlations between CPI-Big Five and NEO PI-R measures of Neuroticism, which averaged from .74 to .77 across validation samples. For more information refer to Soto and John (2009).

In the work sample used for this study, overall means on Neuroticism were similar at ages 43 and 61: 53.67 at age 43 (SD = 9.73) and 54.51 at age 61 (SD = 10.23). In a paired-samples t-test there was no significant difference, $t = .83$, ns ($N = 79$). There was no mean-level difference in this sample between Neuroticism at 43 and 61.

Measuring Work Experiences (Age 43)

Subjective work satisfaction was reported by the Mills women at age 43. They answered the question, "Overall, how much work satisfaction have you experienced?" using a 5-point scale, from 1 = little to 5 = a great deal.

Status level of work was rated on a 7-point scale based on the amount of autonomy, responsibility, training, and talent involved in her work. Low scores indicate positions that required minimum skills or training, such as clerical work, or jobs that were relatively low in status in this sample, such as teachers. High scores indicate positions that required extensive training and education; the highest scores reflect considerable autonomy and recognition. Inter-rater reliability was .94 (Helson et al., 1989).

These two measures are not independent; the correlation between work satisfaction and status level of work in this sample was $r = .24$ ($p = .05$, $N = 67$).

Measuring the Psychological Impact of work (Age 43)

The women filled out several pages of open-ended questions about their experiences of work. Two raters read the page of questions shown in Appendix A, ending with the question "How does your work relate to your sense of yourself? What changes have there been in your self-concept as a result of the work you do?" They rated this material for the impact of work on the psychological domains of self-confidence, sense of achievement, autonomy, and relationships with others. Ratings were on a 4-point scale: -1 = negative impact, 0 = not mentioned or no impact, 1 = positive impact, and 2 = positive impact emphasized. Inter-rater reliabilities based on Cronbach's alpha were .80 for self-confidence, .77 for achievement, .84 for autonomy, and .78 for relationships with others. Ratings from the two raters were averaged to obtain the final measure. Coders were blind to work satisfaction ratings and Neuroticism scores.

Results

Predicting Change in Neuroticism from work measures at age 43

In support of the first hypothesis, subjective work satisfaction at 43 predicted Neuroticism at 61, controlling for Neuroticism at 43 ($\beta = -.21, p = .04, N = 65$). Happier work experiences were associated with decreases in Neuroticism in subsequent years. Status level at age 43 did not predict change in Neuroticism ($\beta = -.04, ns, N = 76$).

The Impact of Work Experiences on Change in Neuroticism

Table 5 lists regression results for the four coded measures of work impact. As predicted, only self-confidence was related to change in Neuroticism from 43 to 61. Coded impact of work on achievement, autonomy, and relationships with others did not relate to change in N.

Additional regression analyses were performed to test whether self-confidence mediated the relationship between work satisfaction and change in Neuroticism. Figure 1 shows the results of the mediation test, in which work satisfaction led to a boost in self-confidence, which then predicted N at 61, controlling for N at 43.³ Due to the time-sequenced nature of the mediator and dependent measure I did not run a standard reverse mediation, exchanging the impact of self-confidence with Neuroticism at age 61. However, in an alternate model reversing work satisfaction and the impact of self-confidence, work satisfaction did not mediate the relationship between self-confidence and Neuroticism, suggesting that self-confidence is a mediating process through which work satisfaction relates to change in Neuroticism.

Discussion

Past research suggests that happy work experiences have positive benefits. The current study replicated this work in a sample of Mills women who worked substantially during midlife. Work satisfaction at 43 (as the women launched their careers) predicted decrease in Neuroticism from age 43 to age 61, a span of time when many Mills women were highly involved in work. The association with work satisfaction and the lack of association with status level indicate that the N-reducing effects of work satisfaction are due to a subjective sense of personal satisfaction, not achievement from a social status perspective.

Self-confidence emerged as a mediator of this process, ruling out several competing possibilities. For a closer look at the connection between work satisfaction and self-confidence, following are excerpts from the responses of four women who reported high work satisfaction in work at age 43, and who decreased in Neuroticism from age 43 to age 61. (All names have been changed.)

³ Results of a Sobel test were marginally significant, $p = .08$. However, additional work is needed to verify that this approach accurately tests for significance in a regression model that includes a control variable.

Illustrative Work Narratives

When asked how her work related to her sense of herself, Paula responded, “Very much. I am much more confident, independent, secure, as a result of my work experiences over [the] last 9 years. I can see and feel my own progress, know I’m good at what I do, and enjoy sharing it. Will take risks, including of disapproval, that I could not have taken before. [I] derive a strong sense of well being from my work.” Paula first became involved in work after a divorce. “When I divorced, work was mostly a matter of economics, and I felt lucky to fall into a fairly decent job. I did not have a clear idea of what kind of work I would do, or the extent of commitment I would make.” After a series of increasingly responsible positions in her field, she realized that she saw her work as a meaningful career. She describes her work as the “most consistently interesting part of my life... Can’t imagine my life without work, it is a major role for me.”

Karen also reported a strong connection between work and her sense of self. “First, failing confidence and fear that I was really out of my depth. Then, in time, finding my footing and my rhythm, my beat, and beginning to dance to it!” Initially Karen taught music, which she found difficult and unappealing as a life work. Later she became a social worker, and then a psychotherapist. She expressed pleasure at developing a positive reputation, saying “It is nice to find my professional reputation growing, to be asked to lecture to other professional peer groups, etc.”

Julia reported “a sense of self-worth – I feel I am doing a meaningful job. Presently I am much more self confident and independent than ever before.” She initially worked as an occupational therapist for several years, but said she became “progressively dissatisfied with it. There was not much room for creativity or expressing myself and the salary was quite limited.” A few years later her husband required some office help, and she “grew into this position as office manager. I love it. I have a responsible job, working primarily with numbers, and troubleshooting.”

Marjorie pursued work despite serious health challenges, and viewed work as very important to her development. “Work is very closely related to my sense of myself. [I] had no confidence until I found a job I liked and was given recognition for doing a good job. [I] feel I am more outgoing and independent as a result.” She started her working life as a secretary and “found it interesting work, and the people good to work with. After I stopped learning and the job became routine, I started looking around.” She moved into a nonprofit organization aligned with her strong interest in and commitment to legal aid, and reported that she found it very stimulating. She took on office management duties and then fulfilled the requirements for paralegal work. She reported enjoying legal research and conducting interviews and hearings, reporting that she is “pleased with responsibility.”

These sketches suggest that the commitment to an important social role such as work did indeed foster increased well-being for these women. Each woman’s experience was unique, but all four describe initial adjustments or challenges followed by a growth in self-confidence in addition to other psychological benefits.

Reconciling the Results for Work Satisfaction and Status Level

In the preceding four examples, the women reported satisfaction and enthusiasm for their work lives. The first two women sought and achieved high levels of status at work, while the

last two reported satisfaction with lower-status roles. Satisfaction at work and the associated reduction in Neuroticism do not require high-status work, although it is possible to find a connection between satisfaction and change in Neuroticism when there are high levels of achievement involved.

Limitations and Strengths

This work was based on a longitudinal sample consisting of women who graduated from Mills College around 1960, a group that could be viewed as relatively privileged. However, many women in the sample engaged in work comparable to today's women, which may increase the generalizability of this study beyond cohort and educational characteristics. The study utilizes both self-reported and coder-rater variables across an approximate 20-year span of middle age, a time when the women were productive and engaged at work.

Within the body of research generated by the Mills Longitudinal Study, this work extends the study of personality development to include the CPI dimension Neuroticism and age 61 data.

Conclusions

Past research has established both the stability and the plasticity of personality over time, and has formulated personality as both a predictor and a consequence of important life domains such as marriage and work. The current study replicated past research that related positive work experiences with increased intra-individual dispositional well-being, conceptualized here by a reduction in Big Five Neuroticism. Work satisfaction held a stronger connection to personality growth than did status level, and self-confidence played the critical role when seeking potential mechanisms for the change in Neuroticism. Discriminant tests between work satisfaction and status level, and the incorporation of self-confidence as a psychological impact of satisfying work and mediator of the work-Neuroticism relationship, extend past research towards a greater understanding of how personality growth occurs during adulthood.

Table 5

Relations between Work-related Impact Measures at age 43 and Change in Neuroticism from 43 to 61: Standardized Regression (“beta”) Coefficients

Impact of work on:	Change in Neuroticism
Self-confidence	-.26**
Autonomy	-.10
Achievement	.09
Warm relationships with others	.04

* $p < .05$; ** $p < .01$; all N 's = 58.

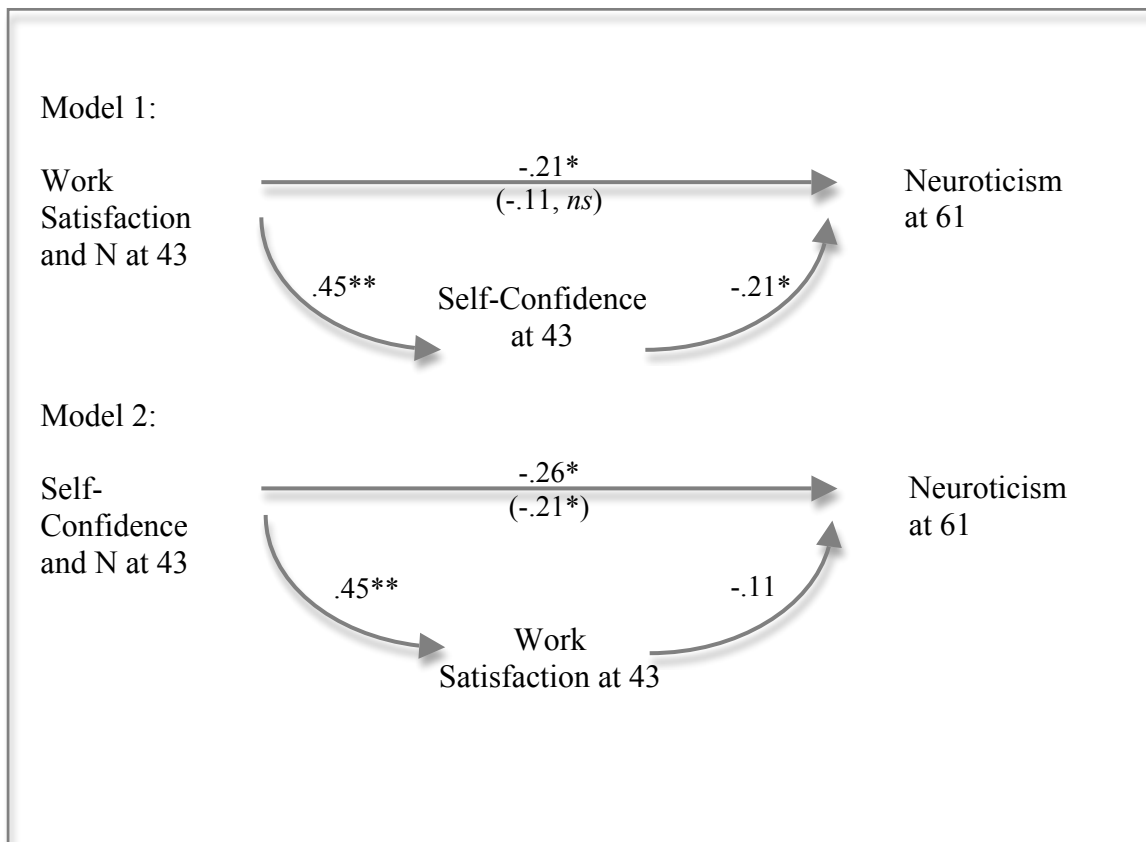


Figure 1. Mediation models. The first model shows standardized regression coefficients for the relationship between age 43 work satisfaction and Neuroticism at age 61, controlling for Neuroticism at 43, as mediated by the impact of work on self-confidence. The second model reverses work satisfaction and self-confidence. Regression coefficients after controlling for the proposed mediating variable are listed in parentheses. $*p < .05$; $**p < .01$.

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Appendix A. Questionnaire used to code the impact of work on self-confidence, autonomy, achievement, and positive relationships.

What aspects of your work do you like most? What aspects do you dislike or find difficult?

How do you feel about the remuneration you have received for your work? If applicable, how does your spouse/partner feel about it?

What recognition have you received for your work? How do you feel about this? How do significant others feel about it?

How well do you like your associates at work? Do you see any of them outside the work situation? Have you had problems with your “boss” or co-workers? (Who and what kind?)

What future do you see for yourself in your present work? Is there other work you would prefer?

How is your work related to your sense of yourself? What changes have there been in your self-concept as a result of the work you do?