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Work Environment Perceptions: An Examination of Reliable Change and Predicting Health

Status and Satisfaction

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### Abstract

Reliable change over 7-years in three domains of work environment perceptions (WEP; autonomy, worker control, innovation) and the influence of WEP on health and satisfaction were examined in a sample of Seattle Longitudinal Study (SLS) participants. The participants (N = 936; males=407; females=529) were classified into one of three change categories for each of the three WEP domains: (1) reliable decrease in perceived level, (2) no reliable change, (3) reliable increase. Multinomial logistic regression analyses were used to predict membership in the change categories. Results indicate that time 1 level of perceived autonomy was a significant predictor of autonomy group membership when comparing stable to both gain and decline ( $p < .001$ ). Time 1 levels of worker control was a significant predictor of stable versus decline group membership on control ( $p < .001$ ) and stable versus gain group membership ( $p < .001$ ). Finally, the level of perceived innovation at time 1 was a significant predictor of group membership on innovation when comparing stable to both gain and decline ( $p < .001$ ). Higher levels of innovation at time 1 ( $p < .001$ ) and increases in worker control over 7 years ( $p < .01$ ) significantly predicted higher subjective health status. High time 1 levels of autonomy ( $p < .05$ ) and innovation ( $p < .01$ ), and 7-year increases in autonomy and innovation ( $p < .05$ ) significantly predicted higher reports of life satisfaction. Finally, high levels of job satisfaction were predicted by high time 1 levels of autonomy and innovation ( $p < .001$ ), 7-year increases in perceived autonomy ( $p < .001$ ), and 7-year increases in perceived innovation ( $p < .05$ ).

## Literature Review

### *Overview*

Research in the area of work and adulthood is becoming increasingly important, especially with the growth of the aging workforce. Many adults spend a great deal of their days in a work environment, making work a very important construct to adult development and aging. With data from the Bureau of Labor Statistics, Dohm (2000) reported that between the years of 1998 and 2008, the oldest cohort of Baby Boomers will be turning 52 – 62 years of age, and will begin to enter into retirement. Dohm (2000) also noted that by the year 2018, all but the youngest cohort of Baby Boomers will be at the retirement stage and the percentage of individuals retired to those still employed will be more unbalanced than in any other time in U.S. history. This will put a unique strain on the remaining workforce, which may have implications for changes in the work environment and how the work environment affects adults. The aging workforce is creating multiple social problems, therefore, research in the area of work and aging is becoming increasingly important.

### *Work Environment*

In particular, examining the work environment is a key area of research. A great deal of past research has examined the influences of the work environment on a variety of domains, including health, well-being, and cognition (Kohn & Schooler, 1983; Schooler, 1984; Gould, 1979; Schooler, Mulatu, & Oates, 2004; Wooten, Barner, & Silver, 1994; Spector, 1986; Janssen, 2000). There is also evidence that perceptions of the work environment can influence work-related behaviors. For example, Janssen (2000) found that when employees perceived adequate rewards for their efforts, responses to job demands were more innovative. However,

very little research has addressed the importance of stability versus change in work environment perceptions for domains such as health and satisfaction.

There is ample evidence that the work environment has important implications for a variety of domains for individuals. For example, research has found evidence that personal attributes and demographic factors account for individual differences in cognitive performance (Schaie, 1989); thus, the work environment is an important area to study in regards to its relationship to personal attributes. Further, workplace and employee characteristics are important components of the contextual factors that lead to individual differences in areas such as well-being, cognition, and health. Past research has found that work environment characteristics exert an impact on worker cognition as well as satisfaction and self-direction (Kohn & Schooler, 1983; Schooler, 1984; Gould, 1979; Schooler, Mulatu, & Oates, 2004). There are also several domains of the work environment that are pertinent to development in adulthood, specifically to domains of health and satisfaction.

### *Autonomy*

A classic longitudinal study by Bray and Howard (1983) examined a large sample of employees at AT&T. The AT&T study examined empirical factors associated with hiring good managers and also examined what the effect of working in a large corporation had on individual employees. In relation to autonomy, one of the findings of the AT&T study was that the desire for autonomy at work increased with age and time at the organization. Additionally, Lorence and Mortimer (1985) examined age differences in work autonomy and job involvement. They found that with increasing age, reports of work autonomy stabilized. In the younger years autonomy reportedly increased, most likely as a factor of becoming more established in one's

career. With older age, individuals were more settled into their work and therefore, stabilized in their perceptions of work autonomy.

### *Control*

Before the discussion of the literature on perceived control by gender and age, perceived control should be operationalized. First, there are two distinct types of control that must be considered: internal versus external control. Some studies examine individual levels of internal control, or the extent to which an individual feels that they exert control over their environment. Alternately, there is also a sense of external control, or the extent that an individual feels that environmental factors are what controls their behavior. Generally, high perceptions of internal control and low perceptions of external control are considered desirable and are related to positive outcomes (Riggs, Lachman, & Wingfield, 1997).

There are contrasting findings in the literature of age related differences in the domain of control. There is literature that argues with increasing age and into late adulthood, one's global sense of control decreases, due to a variety of correlated factors such as failing health and the dependency on others for instrumental tasks (Wolinsky et al., 2003; Xu et al., 2003). On the other side, when control is considered within specific domains, such as in the work environment, the understanding of age-related differences is not as clear. The literature on a sense of control in the workforce argues that with increasing age, individuals experience gains or stability in perceived work control (Lachman & Weaver, 1998). This is explained by considering that older individuals have likely been employed in their job for a longer period of time than younger workers, and due to their experience and seniority in the company, the older workers have higher levels of perceived control.

In support of the literature that global measures of control decrease with age, Soederberg-Miller and Lachman (2000) found that adults in midlife had lower scores of control beliefs than younger adults, even though the midlife individuals had equivalent performance on cognitive tasks compared to the younger adults. Additionally, Wolinsky, Wyrwich, Babu, Kroenke and Tierney (2003) examined a global measure of perceived control in older adults with both cross sectional and longitudinal designs. The results of the cross sectional and longitudinal data illustrated that there is a strong, inverse relationship between perceived control and age. This finding makes sense in that as people age and declines in areas such as health may become prominent, one's feelings of control may begin to diminish.

Alternately, Lachman and Weaver (1998) wanted to test whether examining perceived sense of control differed when examined within specific domains. Adults aged 25 to 75 were assessed for measures of control in seven different domains, including work, finances, marriage, relationship with children, and sex life. The results found that, similar to measures of global perceived control, within the domains of relationship with children and sex life, measures of control decreased with age. However, within the domains of work, finances and marriage, with increasing age perceived control increased. This is a critical finding in the literature on perceived control because it illustrates that domain specific measures of control may be more appropriate.

### *Innovation*

There is some research that examines the predictors of job creativity/innovation. Chusmir and Koberg (1986) examined differences in predictors of job creativity in male and female managers. The results indicated that in men, need achievement was a significant predictor of job creativity. However, in women need affiliation was the significant work related

predictor of job creativity. Additionally, in women managers, age, education, and hierarchical position within the organization were also significant predictors of job creativity. Thus, in predicting job creativity, a construct similar to work innovation, men and women have differing influences.

The relationship between the work environment and two specific domains, health and feelings of satisfaction, will be addressed.

#### *Health Status Outcomes Associated with Work Environment Perceptions*

Previous research has found many links between the work environment and health status, both physical and mental, of individuals. Gimeno and colleagues (2004) examined the relationship between psychosocial work factors and work-related health absences, where psychosocial work factors were defined in terms of psychological job demands and job control. Specifically, high levels of job control indicated that the individual perceived having a great deal of control over his/her own work environment. The results indicated that jobs with high levels of psychological demands, low levels of job control, high levels of job strain and passive work were positively related to more absences from work due to illness. In a related study, Ziff, Conrad and Lachman (1995) found that perceived control accounted for a significant amount of variance in health and several health behaviors. These two studies indicate a significant relationship between control and health outcomes.

With a large, nationally representative sample, Borg, Kristensen and Burr (2000) examined the influence of the work environment on changes in self-rated health. This study examined participants aged 19 to 59 two times over a period of 5 years. Borg and colleagues (2000) found that after age, gender and disease was controlled for, a variety of work environment characteristics predicted lowered self-rated health at time two for individuals who had high

levels of self-rated health at time one. These work environment characteristics included repetitive work, high psychosocial demands, low social support, high job insecurity, and high ergonomic exposures. The findings of this study were particularly important because they were the first to specifically use work environment factors to predict changes in self-rated health.

When considering the findings from all the literature on health and the workplace, it is evident that the work environment has an influence on the health of individuals, and the effect may be differentiated by demographic factors such as age and gender. However, more research needs to specifically examine how work environment perceptions are related to health in adults.

### *Feelings of Satisfaction*

**Life Satisfaction.** In addition to research linking health to the work environment, there are many findings that illustrate a relationship between work and feelings of satisfaction. Rice, McFarlin, Hunt and Near (1985) examined the relationship between participation in organizational work and perceived quality of life. Perceived quality of life was defined in terms of feelings of pleasure, happiness, well-being, and satisfaction. Results indicated that participation in organizational work can influence one's perceived quality of life. It was also found that the influence of organizational work on one's overall quality of life could be mediated by changes in the quality of both work and non-work life. Therefore, not only does participation in work affect the perception of one's quality of life, but changes in one's perceived work quality can exert an influence on the relationship.

**Job Satisfaction.** Similarly, in a study of working nurses, Tummers, Landeweerd and van Merode (2002) examined the relationship between work characteristics (autonomy and workload) and work reactions (work satisfaction and health complaints). For this study, job satisfaction was measured using a 21 item Likert scale questionnaire. The findings indicated that job



autonomy was correlated with both autonomy and workload. Additionally, Carmel and Bernstein (2003) found that perceived sense of control (globally) was a significant predictor of satisfaction. However, this pattern was only found for men and not in women. Thus, these studies illustrate a potential link between perceived autonomy and control with job satisfaction.

There is also evidence that perceptions of personal control mediate the prediction of life satisfaction. Prenda and Lachman (2001) examined the relationship between future planning and life satisfaction in adults. The authors found that although future planning decreased with age, when older adults partook in future planning it predicted higher life satisfaction than for younger adults. However, for all ages, the relationship between future planning and life satisfaction was mediated by control perceptions.

For the present study, two research questions were examined in relation to the work environment: 1) what are the predictors of reliable change status in work environment perceptions (WEP), specifically for autonomy, worker control, and innovation. Groups of predictors include, time 1 WEP, concurrent Schooler domains (employer control, complexity, routine), work structure variables, demographic domains, and age; 2) Are time one level and/or change in the three WEP associated with subjective health status, life satisfaction, and job satisfaction.

## Method

### *Sample*

The total sample consisted of 936 individuals (407 males and 529 females). All participants were working part-time or full-time at both time points (1989/91, 1996/98). The sample was well-educated ( $M = 16.0$  (2.36) years,  $range = 6 - 20$ ); the average age was 42.8 (10.77) ( $range = 21 - 81$ ) at the first time of measurement. Four age groups were considered

(defined at Time 1): young adults (ages 21 – 34), young middle-age (35 – 45; young MA), old middle-age (46 – 54; old MA) and old age (55 +). In addition, the mean occupational level for men was 6.9 (2.2) and the mean occupational level for women was 6.8 (1.9), (6 = clerical or sales occupations; 7 = proprietors and managerial occupations) on a scale of 0 – 9 (0 = unskilled laborer and 9 = professional requiring MA or Ph.D).

In the total sample, the majority of participants were working full-time. There was a slightly higher percentage of men working full-time (82%) than women working full-time (65%). However, when examined by age group, the old adult group had the largest percentage of individuals in the part-time work category (64%). Additionally, across gender and the age groups, relatively low percentages of participants were employed in unskilled labor, domestic services, operatives/factory, and protective services. Across men and women and for all age groups, the highest percentage of participants were employed in semi-professional work.

The participants in this study were assessed in two waves as part of the Seattle Longitudinal Study (SLS; n = 412) and the Family Similarity Study (n = 528). Participants in the SLS were tested in 1991 and 1998, whereas participants in the Family Similarity Study were tested in 1989 and 1996. Individuals in the Family Similarity Study were the siblings and children of members of the SLS.

### *Dependent Measures*

#### *Work Environment Perceptions*

The three domains from the Work Environment Inventory (Moos, 1981) are: Autonomy, Worker Control, Innovation. The Moos Scales were reduced to five items for each scale, and the individual items were converted to 5-point Likert scales from 1 = strongly disagree to 5 = strongly agree to increase variability. The scores for the three dimensions were the sum scores

of the 5 questions for each domain, with a maximum value of 25. The WEP dimensions measures the following three domains.

*Autonomy.* This scale assessed employees' perceptions of being encouraged to be self-sufficient and make their own decisions. Example: "You have a great deal of freedom to do as you like in your workplace."

*Worker Control.* This scale assessed employee perceptions of control in his/her work environment. Example: "You are expected to follow set rules in doing your work." Scores were reversed so that higher levels of control represent high levels of worker control over their work environment.

*Innovation.* This scale assessed employee perception of whether variety, change, and new approaches in their work were emphasized.

Example: "You are encouraged to do your work in different ways."

### *Outcome Measures*

#### *Health Status*

The Subjective Health Status factor derived from the Health Behavior Questionnaire (HBQ), an 85-item measure of various health behaviors, was used. The subjective health status factor was created from measures of self-rated health, self-rated vision, self-rated hearing, and self-rated decline in health. Each item used in creating the subjective health status factor was measured on a 6-point Likert scale.

#### *Life Satisfaction and Job Satisfaction*

Two measures of satisfaction were used in the present study. Measures of life satisfaction and of job satisfaction from the Life Complexity Inventory (LCI; Gribbin, Schaie &

Parham, 1980) were used. Both indicators of satisfaction were assessed on a 5-point Likert scale ranging from very happy to very unhappy.

### *Predictors*

#### *Schooler Domain Variables*

An exploratory factor analysis was previously conducted on work variables derived from the research of Schooler (e.g. Kohn & Schooler, 1983; Schooler, 1984) and contained in the Life Complexity Inventory (Gribbin, et al., 1980). Three Schooler domain factors were created: Employer Control, Job Complexity, and Job Routine (DeFrias, 1998). All Schooler domain factors represent time two variables. The employer control factor was created from items measuring: 1) the number of employees one deals with on a daily basis, 2) work speed, and 3) work pressure. High levels of employer control indicate that the employer has a great deal of control over the individual's work environment.

The job complexity factor was created from variables measuring: 1) the number of hours spent reading at work, 2) number of hours spent talking to people at work, 3) the number of employees one deals with on a daily basis, and 4) work pressure. High values of job complexity indicate jobs that are highly multifaceted and variable.

The job routine factor was created with variables measuring: 1) the number of hours one works with their hands at work, 2) the type of work one does, and 3) how long it takes to complete a task at work. Increased levels of job routinization indicate a job that is highly routinized.

#### *Work Structure Variables*

Additional work structure variables assessed at time 2 from the LCI (Gribbin, Schaie & Parham, 1980) were included based on significant correlations with the time 2 WEP factors. The

work structure variables considered to be potential predictors of change in work perceptions included: degree of employment (full-time or part-time), frequency of changes in one's place of employment over the last 5 years, frequency of changes in one's trade or profession over the last 5 years, occupational status (ranging from unskilled labor to professional, requiring a graduate degree), and participation in on-the-job-training. Only those work variables significantly correlated with the individual WEP values at time two will be included in the hierarchical regression models.

### *Demographics*

Data from the LCI (Gribbin, Schaie & Parham, 1980) will provide information about demographics. The demographic variables considered to be potential predictors of change in work perceptions include individual's marital status, years of education, total family income at Time 1 (1989/91), number of children living at home, and gender. The variables assessing marital status and the number of children living at home are included to examine the possible work-family spillover effects (Crouter & McHale, 2003; Menaghan & Parcel, 1995) on WEP.

### *Classification of Change in Perceptions at the Individual Level*

Two measures of change on the three WEP domains were computed: Raw change score and reliable change status at the individual level (gain, stable, decline). The three categories of reliable change are defined using one standard of error of measurement as the criterion for significant change (Dudek, 1979) in the level of that dimension of WEP. The three categories of change are: (1) reliable decrease in perceived level of the domain (e.g., autonomy), (2) no reliable change in perceptions (i.e., stable perceptions), (3) reliable gain in work perceptions. It should be noted that, although the worker control scale actually reflects the perception of lack of control individuals have in their work environment, the items are reverse-scored so that high

levels of perceived worker control reflect high level of control over one's work environment. To assess change in WEP and Schooler domains as correlates/predictors of health and feelings of satisfaction, change scores were created.

## RESULTS

Two research questions were addressed in the current study: 1) what predicts reliable change status in work environment perceptions over a 7-year period and 2) are time one level and magnitude of change in WEP associated with time two subjective health status and life satisfaction and job satisfaction.

### *Predictors of Reliable Change Status*

To assess predictors of reliable change status in WEP, a separate multinomial logistic regression analysis was performed for each of the WEP domains. The dependent variable for each regression analysis was the 3 levels of group membership (Gain, Decline, Stable) for change in perceived autonomy, perceived worker control, and perceived innovation. The four domains of variables considered included time 2 Schooler levels, time 2 work structure variables, demographic variables, and time1 WEP levels.

### *Autonomy*

In addition to time 1 levels of perceived autonomy, the Schooler factors of employer control was a significant predictor differentiating group membership in decline versus stable groups ( $p < .001$ ) and job complexity was a significant predictor differentiating group membership between decline versus stable groups ( $p < .05$ ). When comparing the decline and stable groups, individuals with high levels of employer control were more likely to be declining in autonomy and individuals with low levels of employer control were more likely to be in the stable group

(OR=1.43). Also, individuals with high levels of job complexity were more likely to remain stable on autonomy in comparison to the decline group (OR=.95). Finally, individuals with more years of education were more likely to report gains in autonomy in comparison to the stable group ( $p<.05$ ; OR=1.12). There were no significant work structure predictors of group membership.

After controlling for the Schooler factors, work structure variables, and demographic variables, time 1 level of perceived autonomy maintained as a significant predictor of group membership for both gain and decline in autonomy in comparison to membership in the stable group. Specifically, when comparing the stable and gain group, individuals with higher levels of perceived autonomy at time 1 were more likely to be in the stable and individuals with lower levels of perceived autonomy are more likely to be in the gain group ( $p<.001$ ; OR=.67). Also, when comparing the stable and decrease groups, high levels of perceived autonomy at time 1 were more likely for individuals in the decrease group and low levels of perceived autonomy at time 1 were more likely to be in the stable group ( $p<.001$ ; OR=1.18).

#### *Worker Control*

Even after including time 1 WEP domain level, high levels of employer control (Schooler factor) were significantly more likely to predict individuals in the decline group as opposed to the stable group ( $p<.001$ ; OR=1.39). There were also several significant demographic predictors of group membership. Individuals with more years of education were significantly more likely to be in the stable group than reporting a decline in worker control ( $p<.05$ ; OR=.91). More years of education was also a significant predictor of individuals being in the gain group in comparison to the stable group ( $p<.05$ ; OR=1.11). Finally, older individuals were significantly more likely to be in the stable group in comparison to the decline group ( $p<.05$ ; OR=1.03). As was the case for

perceived autonomy, no work structure variables were significant predictors of group measurement. In the full model, time 1 level of worker control remained a significant predictor of stable versus decline group membership ( $p < .001$ ) and stable versus gain group membership ( $p < .001$ ) after including time 2 Schooler factors, time 2 work structure variables, and time 2 demographic variables. Specifically, high levels of time 1 worker control were more likely to be reported by individuals in the stable group in comparison to those who reported gains in worker control ( $OR = .71$ ). Further, individuals with high levels of worker control at time 1 were more likely to report declines in worker control as opposed to remaining stable ( $OR = 1.27$ ). Overall, the significant predictors of change in group membership for worker control included employer control, years of education, income, age, and time 1 level of worker control. However, the majority of the variance appears to be accounted for by employer control and time 1 worker control level.

### *Innovation*

After including time 1 WEP domain level, time 2 occupational status remained a significant predictor of group membership. Specifically, individuals with high levels of occupational status were significantly more likely to report stable levels of innovation than be in the decline group ( $p < .05$ ;  $OR = .89$ ). Occupational status was not a significant predictor of group membership when comparing gain and stable groups. Finally, the Schooler factors and demographic variables were not significant predictors of group membership in the full model.

After including time 2 Schooler factors, time 2 work structure variables, and time 2 demographic variables, the level of perceived innovation at time 1 remained a significant predictor of group membership. Individuals with high levels of perceived innovation at time 1 were significantly more likely to be in the stable group as opposed to the gain group ( $p < .001$ ;



OR=.74). In addition, individuals with high levels of perceived innovation at time 1 were significantly more likely to be in the decline group in comparison to the stable group ( $p<.001$ ; OR=1.27).

### *Level and Change in WEP as Predictors of Health and Satisfaction*

To address the influence of time 1 level and change WEP on subjective health status and life and job satisfaction, three separate hierarchical regression analyses were performed. For this question, the three outcome variables include subjective health status, life satisfaction, and job satisfaction. Three domains of predictor variables were included in the model; the first step was the time 1 level of the three WEP domains, the second step included change scores of the three WEP domains, and the third step included demographic predictors.

#### *Subjective Health Status*

When all three time 1 levels of WEP are entered to predict subjective health status, only perceived innovation was significant ( $p<.001$ ). Specifically, high levels of innovation at time one predicted reports of higher subjective health status. Only 2% of the variance in subjective health status was explained by time 1 levels of WEP ( $R^2=.02$ ).

In the full model with the demographic variables were included, change in perceived autonomy remained a significant predictor of subjective health status ( $p<.01$ ). Specifically, individuals who reported increases in perceived autonomy reported higher subjective health status. In addition to change in autonomy, time 1 level of perceived innovation remained a significant predictor ( $p<.001$ ). Individuals with higher levels of perceived innovation at time 1 had higher subjective health status at time 2. Finally, the number of children living at home was a significant predictor of subjective health status. That is, having more children at home related

to higher subjective health status even when accounting for age ( $p < .05$ ). In the full model, 4% of the variance in subjective health status was explained ( $R^2 = .04$ ).

### *Life Satisfaction*

Time 1 level of perceived innovation was a significant predictor of life satisfaction ( $p < .01$ ). Specifically, high levels of perceived innovation in the work environment at time 1 was related to higher reports of life satisfaction. Neither time 1 levels of perceived autonomy or worker control were significant predictors of life satisfaction ( $p > .05$ ) in Step 1. Using time 1 levels of WEP, 3% of the variance in life satisfaction was accounted for ( $R^2 = .03$ ).

In the full model, both change in perceived autonomy and change in perceived innovation remained as significant predictors of life satisfaction ( $p < .05$ ). Specifically, individuals reporting gains in autonomy reported higher levels of life satisfaction and individuals reporting gains in perceived innovation reported higher levels of life satisfaction. In addition to change in WEP, time 1 levels of autonomy and innovation were also significant predictors of life satisfaction in the full model. Individuals with high levels of time 1 perceived autonomy ( $p < .05$ ) and time 1 innovation ( $p < .01$ ) had higher levels of life satisfaction at time 2. Finally, marital status ( $p < .001$ ), years of education ( $p < .001$ ), and income ( $p < .01$ ) were all significant predictors of subjective health status. Specifically, being married as opposed to single/divorced/widowed, more years of education, and higher income predicted stronger reports of life satisfaction.

However, even after adding the demographic variables, time 1 level of autonomy and innovation in addition to change in autonomy and change in innovation remained as significant predictors. Finally, time 1 level of autonomy only became a significant predictor of life satisfaction once the change in WEP variables were included in the model. After including time

1 WEP levels, change in WEP, and demographic variables, 11% of the variance in life satisfaction was explained ( $R^2=.11$ ).

### *Job Satisfaction*

Similar to both subjective health status and life satisfaction, only time one levels of perceived innovation was a significant predictor of job satisfaction ( $p<.001$ ). Specifically, high level of perceived innovation was related to higher levels of job satisfaction. Using the time 1 levels of WEP as predictors of job satisfaction, roughly 5% of the variance was accounted for ( $R^2=.05$ ).

Additionally, both change in perceived autonomy and change in perceived innovation were maintained as significant predictors of job satisfaction in the full model. Specifically, individuals who had gains in perceived autonomy had higher job satisfaction ( $p<.001$ ) and individuals with gains in perceived innovation had higher job satisfaction ( $p<.05$ ). In addition, both time 1 levels of perceived autonomy and innovation remained significant predictors of job satisfaction after change in WEP and demographic variables accounted for additional variance in job satisfaction. Individuals with higher levels of autonomy ( $p<.01$ ) and innovation ( $p<.001$ ) at time 1 had higher job satisfaction. Finally, years of education ( $p<.05$ ), income ( $p<.001$ ), and gender ( $p<.05$ ) were significant predictors of job satisfaction. Specifically, individuals with more years of education, higher income levels, and women were more likely to have high job satisfaction. In the full model, 13% of the variance in job satisfaction was explained by time 1 levels of WEP, change in WEP, and demographic variables ( $R^2=.13$ ).

## Discussion

This study examined the characteristics of three work environment perceptions drawn from the Work Environment Inventory (Moos, 1981), focusing on autonomy, innovation, and worker control. Two research questions were addressed. First, what predicts reliable change status in the three WEP domains? Second, are work environment perceptions associated with health status and life and job satisfaction?

### *Predicting Reliable Change Groups in WEP over a 7-Year Interval*

#### *Autonomy*

For the domain of autonomy, higher levels of concurrent employer control, lower levels of job complexity, and a higher reported level of time 1 autonomy were more likely to account for variance in individuals experiencing reliable decline than stability. It makes sense that reports of higher level concurrent employer control and lower job complexity are more likely in the decline group than in the stable group. Interestingly, high level of time 1 autonomy was more likely for those who experienced reliable decline relative to stability. It was hypothesized that those with higher time 1 levels would be more likely to remain stable or to be in the gain group at time 2, however the results suggest the opposite. This is possibly due to regression to the mean, in that if they had high levels at time 1, there is not a great deal of room for them to increase in the future.

#### *Control*

Similar to perceived autonomy, in predicting group membership for worker control, high levels of time 1 worker control accounted for more variance for decliners as opposed to those who remained stable. Again, this is possibly a sign of regression to the mean, where there is little room to increase when individuals reported high levels at time one. In addition, higher

years of education and younger age were more likely for those who maintained stable perceptions of worker control as opposed to perceiving decline. Interestingly, higher education and not higher occupational status was a predictor of stability since both variables were in the model and only education was significant. The finding that being younger was associated with stable perceptions of worker control as opposed to decline parallels the earlier finding that younger age predicted higher level of worker control at time two.

### *Innovation*

Finally, in predicting stability categories for perceived innovation, the concurrent Schooler factors were not significantly associated with group membership. However, a higher level of occupational status at time 2 was more likely for those who reported stable perceptions of innovation than decliners. In addition, the same relationship between time 1 level of innovation and time 2 group membership found for autonomy and worker control held for perceived innovation. Specifically, high time 1 level of innovation accounted for more variance in individuals who remained stable as opposed to gained and for individuals who declined as opposed to remained stable. This is further support that when level of WEP at time 1 are high, there is little room to increase over time. There are several possible explanations for this finding. First, it is possible that, perhaps due to personality factors, certain individuals will consistently respond positively regardless of what they actually perceive in their work environment. It is also possible that some individuals may be in career tracks that are geared toward high autonomy, worker control, and innovation throughout the course of their careers. Therefore, level of perceptions for the three WEP domains examined in the current study will be high over time for those individuals due to the nature of their work. It is also possible that using items on a 5-point

Likert scale to measure the three WEP domains, as the Work Environment Inventory (Moos, 1981) does, is not the optimal measurement technique and other methods could be considered.

*Influence of Level of and Change in WEP on Health and Satisfaction*

*Subjective Health Status*

For this question, time 1 level of the three WEP domains, change in WEP, and demographic variables were included to predict subjective health status. It was hypothesized that the time 1 WEP level and change in WEP would be significant predictors of subjective health status. This hypothesis was partially accepted. Only 4 percent of the variance was accounted for, although the full model reported that time 1 innovation level and change in autonomy were significant predictors of subjective health status. However, it is still important to consider why high time 1 innovation level and increases in autonomy were significant predictors of better subjective health status. Perhaps gains in perceived autonomy work as a protective factor for health status. It is possible that when individuals experience more independence in their work environment, they may be more likely to take charge and be more responsible for other aspects of their lives, such as health behaviors. Alternately, increases in autonomy may reflect individuals that were in higher status positions at time 2 and could afford better health care.

These findings add to the existing literature linking environmental domains to health status. For example, Melchoir and colleagues (2003) examined a sample of employees from one company longitudinally for a year. The results indicated that low social support predicted poor health status in both men and women; however, the effect of low social support was exacerbated in men with high occupational status, but there was no difference for women. Additionally, Rudy and colleagues (2003) found that psychosocial factors, including self-efficacy, perceived emotional and physical functioning, and pain cognitions, accounted for the most variance in the

health status of disabled persons. The current study adds to these findings by linking specific work environment factors to the prediction of health status in adults.

### *Life Satisfaction*

Similar subjective health status, it was hypothesized that time 1 WEP level and change in WEP would be significant predictors of life satisfaction. This hypothesis was partially accepted because only the domains of autonomy and innovation seemed to be playing a role. In using time 1 WEP level and change in WEP to predict life satisfaction, the results found that time 1 level of autonomy and innovation in addition to change in autonomy and innovation significantly predicted life satisfaction. Specifically, higher time 1 level of autonomy and innovation and increases in autonomy and innovation predicted higher ratings of life satisfaction. This finding supports prior research which also found that the work environment is influential in ratings of life satisfaction (Rice et al., 1985; Keyes, 2000). Specifically, it makes sense that when individuals experience increases in perceived work autonomy and innovation, their overall sense of life satisfaction will be higher. Considering the large proportion of time that adults spend in the work environment, positive components associated with the work environment will logically be related to general feelings of satisfaction with life.

### *Job Satisfaction*

It was hypothesized that time 1 WEP level and change in WEP would be significant predictors of job satisfaction. As was the case with life satisfaction, this hypothesis was partially accepted because only the domains of autonomy and innovation were significantly affecting job satisfaction. Predicting job satisfaction with time 1 WEP level and change in WEP is even more of a salient outcome than life satisfaction. Similar to the findings related to life satisfaction, time 1 level of perceived autonomy and innovation in addition to changes in autonomy and innovation

significantly predicted job satisfaction. With a similar logic as was used to explain the findings for life satisfaction, the finding that increases in autonomy and innovation are associated with higher job satisfaction was expected. Being innovative and independent in one's work are generally considered desirable qualities in a job (Aycan & Fikret-Pasa, 2003); thus, increases in one's perceived autonomy and innovation will likely be associated with higher reports of job satisfaction, as was supported in the present study.



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