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Creating a Recovery Filled Weekend: The Moderating Effect of Occupation Type on the Relationship between Non-work Creative Activity and State of Feeling Recovered at Work

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The activities workers engage in during their personal time are likely to influence whether workers return to work feeling reenergized, refreshed, and fully rested. Two longitudinal studies were conducted to examine the importance of nonwork creative activity during the weekend on workers' state of feeling recovered at work on Monday. Job titles were coded using the Occupation Information Network (O*NET) to gain an objective indicator of each worker's occupational requirements for creativity. As expected, the occupational requirements for creativity moderated the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. Specifically, workers with low occupational requirements for creativity (e.g., cashier, security guard, nuclear equipment technician) are likely to benefit from nonwork creative activities, whereas workers with high occupational requirements for creativity (e.g., interior designer, architect) are not likely to benefit from nonwork creative activities. These results have important implications regarding the development of organizational efforts to educate workers about the benefits of non-work creative activities.

Organizations often devote considerable resources to understand and promote creative activity within the work environment (e.g., Amabile, Conti, Coon, Lazenby, Herron, 1996) because new perspectives and innovation enable an organization to thrive in demanding circumstances (e.g., Coutu, 2002; Lengnick-Hall, Beck, & Lengnick-Hall, 2011). Similar to how organizational creative activity is integral to the success and well-being of many organizations, nonwork creative activity may be integral to the success and well-being of many workers. Workers engage in (or avoid) an array of nonwork activities to achieve a state of rejuvenated energy, greater levels of physical and mental freshness, and feelings of restfulness while in the workplace (Sonnentag, 2003). In turn, this state of feeling recovered at work may improve other work-related variables, such as a worker's job performance (Binnewies, Sonnentag, & Mojza, 2010). Surprisingly, creative activity

during a worker's nonwork time has received little attention from organizational researchers despite ample evidence that creative activity is associated with recovery from mental health issues, self-perceived psychological well-being and quality of life, and greater performance in other life domains (Baer, 2012; Griffiths & Corr, 2007; Ivcevic, 2007; Müllersdorf & Ivarsson, 2012; Richards, 1990).

Only one study has directly examined the relationship between nonwork creative activity and workplace variables (Eschleman, Madsen, Alarcon, & Barelka, 2014). Although Eschleman et al. (2014) found positive correlations between nonwork creative activity, recovery experiences, and performance-related outcomes, there are several methodological limitations to the study that limit the theoretical and practical implications of nonwork creative activity. Specifically, Eschleman and colleagues relied on cross-sectional data and did not assess the workers' state of feeling recovered at work. Worker recovery is believed to be a fleeting phenomenon that is best examined longitudinally and over a short duration (Fritz & Sonnentag, 2005; Sonnentag, Mojza, Binnewies, & Scholl, 2008; Trougakos, Beal, Green, &

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Weiss, 2008). Our research overcomes these limitations and expands upon Eschleman et al. (2014) by assessing nonwork creative activity and state of feeling recovered longitudinally over four waves of data collection during a short-duration. Specifically, the effects of nonwork creative activity during the weekend on state of feeling recovered at work on Monday was tested. In addition, the moderating effect of occupation type was examined to determine the occupations that are most likely to benefit from nonwork creative activity. Identifying beneficial nonwork activities for each occupation type will enable organizations to better educate their workforce on effective recovery strategies.

THEORETICAL MODEL

Conservation of resources theory (COR; Hobfoll, 1989) describes the importance of nonwork activities on workers' state of feeling recovered at work, which involves revived energy, feeling fully rested, and being both physically and mentally refreshed (Sonnentag, 2003). COR is based on the assumption that people strive to acquire, retain, and protect their resources. Resources can take several forms, such as objects (e.g., office, car), personal characteristics (e.g., self-esteem, self-efficacy), conditions (e.g., job status, job security), and energies (e.g., time, money). If resources are being depleted or threatened, a person will seek out additional resources to help them return to baseline and successfully manage their behaviors. Acquiring resources often requires expending resources. For example, a worker expends energy and time to acquire money from a paycheck. In the context of organizations, COR implies that the demands of the work environment threaten and deplete resources, which need to be restored by investing one's remaining resources into resource-laden activities while away from work. It is crucial to the recovery process that the resources expended to acquire new resources during one's personal time do not further threaten the resources being depleted from one's work.

NONWORK CREATIVE ACTIVITY AND STATE OF FEELING RECOVERED AT WORK

According to contemporary researchers, creativity is the subjective appraisal that (a) a product or response is novel and useful and (b) the task did not have a clear and identifiable path to a solution (c.f., Amabile, 1983). This definition of creativity not only emphasizes a product and decision-making process, but also the subjectivity necessary in determining what is or is not creative. Amabile (1983) noted that for the purposes of empirical research, it is appropriate to rely on subjective criteria for creativity and that it is a common assumption among researchers that people are capable and consistent in recognizing creativity without

being provided a guiding definition. Our examines creative activity using a subjective evaluation (e.g., I engaged in creative activity) without specific reference to a product, response, or underlying decision-making process, which relies on a person's ability to determine for oneself what is or is not creative. No reference to a type of creative act was provided because many activities have the potential for being creative for an actor. That is, creative activities may take many forms beyond the common conceptualizations of creating art, such as cooking, telling jokes, or playing video games (Eschleman et al., 2014; Murdock & Ganim, 1993; Runco & Bahleda, 1986).

According to COR theory, workers will engage in an array of nonwork activities in an effort to acquire resources necessary to experience a state of feeling recovered at work. Although creative activity is rarely examined in the context of worker recovery, creative activity has been used in mental health treatments and is associated with both greater life satisfaction and improved performance in other life domains (Baer, 2012; Griffiths & Corr, 2007; Ivcevic, 2007; Müllersdorf & Ivarsson, 2012; Richards, 1990). Creative activity, in general, is also positively associated with the development of knowledge, skills, and abilities (Amabile, 1983); perceptions of control (Einstein, 1949); positive affect (Frederickson, 2001); and increased physical energy, concentration, freshness, and enthusiasm (Csikszentmihalyi, 1997). In the only study of nonwork creative activity and worker recovery, nonwork creative activity was associated with several underlying resource-laden experiences. Using two cross-sectional data sets, Eschleman et al. (2014) found that nonwork creative activity was positively associated with nonwork experiences of mastery, control, and relaxation.

Several researchers have demonstrated that resources acquired from nonwork activities and experiences during the weekend can spill over to affect people's feelings and behaviors in the work environment (Binnewies et al., 2010; Fritz & Sonnentag, 2005; Fritz, Sonnentag, Spector, & McInroe, 2010). Additionally, Eschleman et al. (2014) found associations between nonwork creative activity and work-related variables. Specifically, nonwork creative activity was positively associated with self-rated and other-rated performance-related behaviors. Eschleman and colleagues attributed the positive relationships to nonwork creative activity providing workers a state of feeling recovered at work, enabling workers to perform at a higher level. However, the actual state of feeling recovered at work was not assessed. The study is also limited by assessing nonwork creative activity with a long-term frame of reference (i.e., past 30 days). Resource acquisition and feeling recovered at work are most commonly recognized as fleeting phenomena that require experience sampling and other short-term longitudinal methods to accurately examine the phenomena (e.g., Fritz & Sonnentag, 2005; Sonnentag et al., 2008; Trougakos et al., 2008). Our study examines the

potential positive effects of nonwork creative activity on state of feeling recovered at work over a short duration. Specifically, nonwork creative activity during the weekend is expected to be positively associated with state of feeling recovered at work on Monday.

Hypothesis 1: Non-work creative activity during the weekend is positively associated with state of feeling recovered at work on Monday.

MODERATING EFFECT OF THE OCCUPATIONAL REQUIREMENTS FOR CREATIVITY

Although nonwork creative activity is expected to be positively associated to feeling recovered at work for workers in general, some workers may benefit more from nonwork creative activity than others. COR emphasizes the importance of protecting resources that are depleted or threatened in other life domains. In other words, workers should not engage in nonwork activities that require the same resources being depleted or threatened from their work tasks. Without taking into account the resources required to complete one's job successfully, it is unlikely that a worker can effectively use their personal time to recover. The interaction between the resources required in one's occupation and the effectiveness of nonwork resource acquisition is supported empirically in the rare cases that it has been examined. For example, psychological detachment from work has a stronger positive relationship with positive affect when work engagement is high compared to when work engagement is low (Sonnentag et al. (2008). In other words, workers benefit most from psychological detachment when their work environment does not afford them the opportunity to detach. Similarly, Sonnentag and Zijlstra (2006) found differential relationships between nonwork activities and a workers' need for recovery, which is argued to be because of the relevance of each activity to one's work requirements. Specifically, engaging in nonwork activities that draw on the same resources used during one's job further increases the strain process. Similarly, Sonnentag (2001) found that low-effort activities had a positive effect on well-being for teachers, which was described as a high energy demanding occupation.

Based on COR and the prior research, a worker with high occupational requirements for creativity is unlikely to recover by engaging in nonwork creative activity. Although nonwork creative activity is a resource-laden activity (e.g., Eschleman et al., 2014), creativity is also an effortful process that can be both mentally and physically taxing (Csikszentmihalyi, 1997; Shalley & Gilson, 2004). Engaging in similar activities in one's free time may prevent the worker from protecting and acquiring the necessary resources to recover. Conversely, a worker with low occupational requirements for creativity, such as an occupation that requires adhering to safety protocols or assembly instructions, are more likely to benefit from nonwork creative activity. It

is hypothesized that the occupational requirements for creativity will moderate the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. Specifically, there will be a stronger positive relationship between nonwork creative activity and state of feeling recovered at work for workers with low occupational requirements for creativity compared to workers with high occupational requirements for creativity.

Hypothesis 2: The occupational requirements for creativity will moderate the positive relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. Specifically, non-work creative activity during the weekend will have a stronger positive relationship with state of feeling recovered at work on Monday for workers with low occupational requirements for creativity compared to workers with high occupational requirements for creativity.

STUDY 1

Study 1 incorporates a short-term longitudinal design to test the hypotheses. Two control variables were included in the Study to more accurately examine the effect of nonwork creative activity during the weekend on state of feeling recovered at work on Monday. Prior ratings of state of feeling recovered at work were assessed on Friday and controlled for in the analysis. In addition, participants also rated how often they had engaged in nonwork creative activity in general during Wave 1 to control for one's disposition to be creative. The dispositional nature of creativity has received considerable attention (Amabile, 1983) and should be controlled for when examining short-term creative activity. Similar efforts to control for one's disposition to be creative were made by Eschleman et al. (2014) with the inclusion of openness to experience.

METHOD—STUDY 1

Sample and Procedure

The final sample for Study 1 included 167 adults, recruited through Amazon's Mechanical Turk (MTurk), who completed four waves of data collection. Four hundred workers completed an initial survey on Thursday (Wave 1). Participants were informed that there would be three additional short surveys over the next several days: Friday afternoon/evening (Wave 2), Sunday afternoon/evening (Wave 3), and Monday afternoon/evening (Wave 4). Participants were paid \$1.00 for each survey. Participants were required to work a minimum of 30 hr per week. Data were excluded from participants whom did not meet the work requirements ($n = 13$), failed to complete all waves of data collection ($n = 184$), provided a vague job title (e.g., business; $n = 24$), or did not respond accurately to two attention checks

included in each of the four surveys ($n = 12$). Attention checks were embedded within the psychological scales and included instructions for participants to mark a specific answer choice (e.g., “Please mark the disagree option;” Meade & Craig, 2012). The attrition rate (46%) was not surprising because each survey was available for only 8 hr to ensure the surveys were completed during or immediately after each experience. Participants most commonly reported being from the United States ($n = 90$) and India ($n = 55$). Differences between international time zones (e.g., United States vs. India) were taken into account during survey distribution, but differences between time zones within a country were not accounted for (e.g., Pacific Standard Time vs. Eastern Standard Time). The mean age of the participants was 32 years old, 47% were female, 66% were Asian, and 27% were Caucasian/White. Participants worked in a wide range of occupations (e.g., civil engineer, software developer, marketing manager, business owner, secretary, bank teller). The average hours worked was 43 hr per week and 5 hr during the weekend.

Measures

The survey length was intentionally kept short to increase participation and minimize the intrusion into the participants’ leisure and work time (average completion time = 2 minutes and 44 seconds). Alpha reliabilities were calculated for scales of 3-items or more, whereas 2-item scale reliabilities were estimated with the Pearson correlation between the items (e.g., Gosling, Rentfrow, & Swann, 2003). All scales demonstrated acceptable reliabilities.

Disposition

Participants rated how often they had engaged in nonwork creative activity in general during Wave 1 to control for one’s disposition for nonwork creative acts. Similar efforts to control for general tendencies for creativity were made by Eschleman et al. (2014) with the inclusion of openness to experience as a control variable when evaluating non-work creative activities. Participants were instructed to think about their nonwork personal time in general/on average and then respond to two items adapted from Eschleman et al. (2014; “In general, I take part in creative acts during my personal time” and “In general, I express myself creatively during my personal time”). Response options were on a 5-point scale from 1 (*almost never*) to 5 (*almost always*). The Pearson correlation for nonwork creative activity in general items was .84.

Weekend Activity

Nonwork creative activity during the weekend was assessed during Wave 3. Participants were instructed to think about their nonwork personal time from Friday to Sunday and then respond to two items adapted from Eschleman et al. (2014; “This weekend, I took part in creative acts during my personal time” and “This weekend,

I expressed myself creatively during my personal time”). Response options were on a five-point scale from 1 (*almost never*) to 5 (*almost always*). The Pearson correlation for nonwork creative activity during the weekend items was .87.

State of Feeling Recovered at Work

Participants rated their state of feeling recovered at work on Friday during Wave 2 and state of feeling recovered at work on Monday during Wave 4. State of feeling recovered at work (i.e., “I felt rested at work today,” “I felt physically refreshed at work today,” “I felt mentally refreshed at work today,” and “I felt filled with new energy at work today”) was assessed with four items (Sonnetag, 2003). Response options were on a five-point scale from 1 (*almost never*) to 5 (*almost always*). The alpha reliabilities for state of feeling recovered at work on Friday and Monday were .87 and .86, respectively.

Occupational Requirements for Creativity

The occupational requirements for creativity were assessed objectively by coding participant job titles with the Occupation Information Network (O*NET, 2014). Similar efforts to objectively code the occupational requirements for creativity has been done using older versions of O*NET information (Shalley, Gilson, & Blum, 2000). O*NET is a comprehensive system designed to use common descriptors for occupations (cf., Peterson et al., 2001). Researchers have calculated a composite score using O*NET descriptors to assesses many occupational conditions, such as occupational hazards (e.g., Ford & Tetrick, 2011), emotional labor (e.g., Grandey, Kern, & Frone, 2007), mental job demands (Fisher et al., 2014), and situational strength (Meyer, Dalal, & Bonaccio, 2009). Three (i.e., originality, thinking creatively, innovation) of the 277 descriptors were selected because the word *creative* is used in their O*NET definition. - is defined as “the ability to come up with unusual or clever ideas about a given topic or situation, or to develop *creative* ways to solve a problem.” *Thinking creatively* is defined as “developing, designing, or *creating* new applications, ideas, relationships, systems, or products, including artistic contributions.” *Innovation* is defined as “job requires *creativity* and alternative thinking to develop new ideas for and answers to work-related problems.”

O*NET includes 974 occupations that have ratings on the common descriptors. The O*NET occupations were selected using the self-report job titles, which were provided with other demographic information during Wave 1 data collection. Three raters independently coded the job titles to obtain an O*NET occupation title for each participant. All rater discrepancies were discussed until 100% agreement was met. If a self-report job title was determined too vague to code (e.g., business, self-employed, freelancer), the

participant's data were excluded. When raters agreed that there were two or more equally valid O*NET occupation titles, the O*NET employment data were used to select the most commonly held occupation. Within our sample, the three O*NET descriptors were strongly interrelated with correlations between .76 and .81. Following the steps taken by Grandey et al.'s (2007) analysis of O*NET descriptors, principal component analysis indicated that originality (.92), thinking creatively (.94), and innovation (.82) had high loadings onto a single component.

The occupational requirements for creativity were calculated by the average of the three descriptors. Each O*NET descriptor included a rating of importance for each occupation on a scale from 0 (*low*) to 100 (*high*). In our sample, example occupations with low occupational requirements for creativity were security guard (35.3), cashier (36.0), and secretary (42.7), whereas example occupations with high occupational requirements for creativity were interior designer (88.0), architect (80.7), and elementary school teacher (76.7). The alpha reliability for the occupational requirements for creativity was .91.

RESULTS AND DISCUSSION—STUDY 1

Descriptive statistics, correlations, and scale reliabilities were computed (Table 1) prior to hypothesis testing. Hierarchical regression with mean-centered predictors (Aiken & West, 1991) was used to test Hypotheses 1 and 2 (see Table 2). The control variables were added into the regression equation in steps.

Nonwork Creative Activity and State of Feeling Recovered at Work

Consistent with Hypothesis 1, nonwork creative activity during the weekend was positively associated with state of feeling recovered at work on Monday ($\beta = .28, p < .01, \Delta R^2 = .06$) after accounting for the control variables. In other words, regardless of how recovered workers felt at

work on Friday, workers who often engaged in nonwork creative activity during the weekend reported a greater state of feeling of recovered at work on Monday compared to workers who rarely engaged in non-work creative activity during the weekend.

Support was found for Hypothesis 2, which predicted that the occupational requirements for creativity would moderate the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. The interaction term (see Table 2) explained an additional 4% of the variance in state of feeling recovered at work on Monday ($\beta = -.19, p < .01, \Delta R^2 = .04$). Follow-up analyses for the significant interaction incorporated Aiken and West's (1991) method, which included a graphical display and simple slopes of the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday for high (+1 standard deviation) and low (-1 standard deviation) values of the occupational requirements for creativity. Follow-up analyses indicated that the moderating effect of the occupational requirements for creativity was in the expected direction (Figure 1). The relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday was positive for workers in occupations with low occupational requirements for creativity ($b = .43, p < .01$) and not significant for workers in occupations with high occupational requirements for creativity ($b = .09, p > .05$). In other words, workers in low creatively demanding occupations are more likely to benefit from non-work creative activities compared to workers in high creatively demanding occupations.

STUDY 2

Study 2 sought to replicate the findings and address several limitations from Study 1. A short-term longitudinal design was implemented to examine the effects of nonwork creative activity during the weekend on state of feeling recovered at work on Monday. The same variables from Study 1

TABLE 1
Descriptive statistics, reliabilities, and correlations for study 1 variables.

Variables	Mean	SD	1	2	3	4	5
State of Feeling Recovered at Work							
1 State of Feeling Recovered at Work—Monday	3.23	1.06	(.86)				
2 State of Feeling Recovered at Work—Friday	3.11	0.94	.54**	(.87)			
Disposition & Occupational Requirements							
3 Non-work Creative Activity in General	3.49	0.99	.34**	.43**	(.86)		
4 Occupational Requirements for Creativity	62.25	12.82	.12	.29**	.17*	(.91)	
Weekend Activity							
5 Non-work Creative Activity	3.30	1.14	.45**	.37**	.63**	.15	(.93)

Note. $N = 167$. Uncorrected correlations presented below the diagonal. Alpha reliabilities are presented on the diagonal in parentheses. * $p < .05$, ** $p < .01$.

TABLE 2

Study 1 regression analyses testing the interaction between the occupational requirements for creativity and non-work creative activity during the weekend when predicting state of feeling recovered at work on Monday.

Predictors	Step 1 β	Step 2 β	Step 3 β
Prior Recovery, Disposition, & Occupational Requirements			
State of Feeling Recovered at Work—Friday	.49**	.45**	.45**
Non-Work Creative Activity in General	.14	-.04	-.01
Occupational Requirements for Creativity (A)	-.04	-.05	-.07
Weekend Activity			
Non-work Creative Activity (B)		.32**	.28**
Interaction Effect			
Occupational Requirements X Non-work Creative Activity (A x B)			-.19**
$\Delta R^2 =$.25**	.06**	.04**
$\Delta F =$	23.83**	15.16**	9.53**

Note. $N = 167$. β = Standardized Regression Coefficients with all Variables Included. ΔR^2 = Unique Variance Explained by Each Set of Predictors. $\Delta F = F$ Change for Each Set of Predictors. All Predictors are Mean-centered. * $p < .05$, ** $p < .01$.

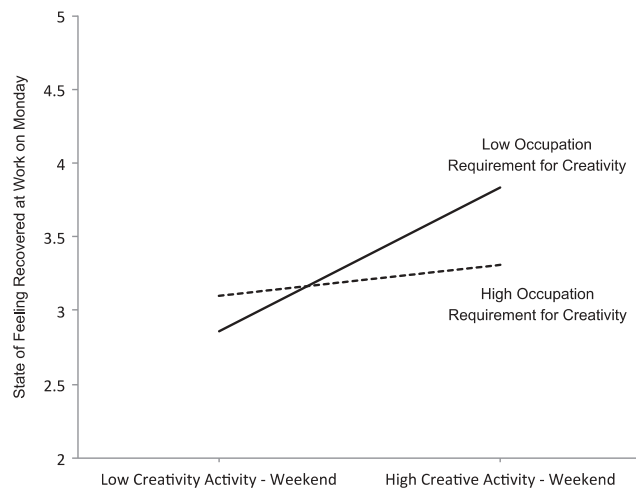


FIGURE 1 Study 1 graphical display of the significant interaction between the occupational requirements for creativity and non-work creative activity during the weekend while predicting state of feeling recovered at work on Monday.

were assessed in Study 2, but several additional control variables were included. In addition to controlling for non-work creative activity in general, openness to experience was assessed to account for one's disposition to be creative. Prior research on nonwork creative activity (Eschleman et al., 2014) has controlled for openness to experience because it is the strongest predictor of creativity among Big Five personality traits (Feist, 1998).

It is also important to account for other weekend activities to determine if the positive effect of nonwork creative activity is unique from how workers commonly spend their free time. Five common recovery activities that workers may engage in during their free time were assessed: work-related, household and child-care, social, low effort, and physical activities (Sonnetag, 2001). Similar to Study 1, nonwork creative activity during the

weekend relied upon subjective evaluations of broad statements rather than asking about underlying processes (e.g., shift in perspective) or example activities (e.g., painting, writing). However, participants also described their most common non-work creative activities during from the past weekend. Exploratory analyses were conducted on the open-ended descriptions to gain insight into the creative evaluations.

METHOD—STUDY 2

Sample and Procedure

The final sample for Study 2 included 222 adults, recruited through MTurk, who completed two waves of data collection. Three hundred and fifty participants completed a survey on Friday afternoon/evening (Wave 1). Participants were informed that there would be an additional short survey on Monday afternoon/evening (Wave 2). Each survey was available for 8 hr and participants were paid \$1.00 for each survey. The survey length was longer than Study 1 because several measures were added to the study design, but short scales were selected in effort to increase participation and minimize the intrusion into the participants' leisure and work time (average completion time = 5 min and 3 sec). Participants were required to work a minimum of 30 hr per week and not be formally required to work during the weekend. Data were excluded from participants who did not meet the work requirements ($n = 9$), failed to complete both waves of data collection ($n = 78$), provided a vague job title that could not be coded with O*NET (e.g., consultant, analyst; $n = 36$), or did not respond accurately to two attention checks included in each of the two surveys ($n = 5$; Meade & Craig, 2012). Recruitment was restricted to the United States to improve the validity of O*NET because O*NET is based on US occupations. The attrition rate (22%) is lower than Study 1 because only two waves of data collection were administered. The final sample was an average of 34 years old and 45% female.

Participants worked in a wide range of occupations (e.g., accountant, retail sales, office clerk, landscaper, veterinarian, photographer). The average hours worked was 40 hr per week and 0 hr during the weekend.

Measures

Dispositions

Openness to experience and nonwork creative activity were assessed during Wave 1. Openness to experience was assessed with two items from Gosling et al. (2003) brief Big Five Personality scale. Participants rated their agreement to which several personality traits applied to them on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Each item included two personality traits: *open to new experiences*, *complex* and *conventional, uncreative*. The Pearson correlation for openness to experience items was .47. Nonwork creative activity, in general, was assessed using the same instructions and questions from Study 1 and had a Pearson correlation for the items of .83.

Weekend Activity

Participants' weekend activity was assessed during Wave 2. Five common weekend recovery activities were also assessed using single item scales from Sonnentag (2001). Participants were instructed to rate the frequency they engaged in each activity during the weekend using a five-point scale from 1 (*almost never*) to 5 (*almost always*). Each activity included a specific example: work-related activities (e.g., preparing for work), household and childcare activities (e.g., cleaning), social activity (e.g., chatting with others), low effort activities (e.g., watching movies), and physical activities (e.g., playing sports). No alpha reliability is calculated for the single-item scales.

Nonwork creativity activity during the weekend was assessed with the same instructions and questions from Study 1. The Pearson correlation for nonwork creative activity items was .90. In addition, participants ($n = 180$) whom indicated they had engaged in nonwork creative activity during the weekend at least *rarely* (a score greater than 1) were asked to describe their most common nonwork creative activity from the prior weekend.

State of Feeling Recovered at Work

Participants rated their state of feeling recovered at work on Friday during Wave 1 and state of feeling recovered at work on Monday during Wave 2. The same instructions and questions were used as Study 1. The alpha reliabilities for state of feeling recovered at work on Friday and Monday were .85 and .91, respectively.

Occupational Requirements for Creativity

The occupational requirements for creativity were assessed objectively using a similar method as Study 1. To improve upon the coding from Study 1, participants provided both their job title

(e.g., sales) and a short description of the industry (e.g., retail). The industry description enabled the coders to more accurately select the O*NET occupation and avoid selecting the most commonly held occupation as a tiebreaker between two equally viable options. Within this sample, the three O*NET descriptors were strongly interrelated with correlations between .68 and .81. Principal component analysis indicated that originality (.92), thinking creatively (.92), and innovation (.87) had high loadings onto a single component. The alpha reliability for the occupational requirements for creativity was .87.

RESULTS & DISCUSSION—STUDY 2

Descriptive statistics, correlations, and scale reliabilities for Study 2 were computed (Table 3) prior to hypothesis testing. Similar to Study 1, hierarchical regression with mean-centered predictors (Aiken & West, 1991) was used to test Hypotheses 1 and 2 (Table 4). The control variables were added into the regression equation in steps.

Nonwork Creative Activity and State of Feeling Recovered at Work

The results of Study 1 were partially replicated in Study 2. Contrary to Hypothesis 1, nonwork creative activity during the weekend was not significantly associated with state of feeling recovered at work on Monday ($\beta = -.01, p > .05, \Delta R^2 = .00$) while accounting for the control variables. In other words, engaging in nonwork creative activity during the weekend had no effect on state of feeling recovered at work on Monday for the sample as a whole.

Support for Hypothesis 2, which predicted that the occupational requirements for creativity would moderate the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. The interaction term (see Table 4) explained an additional 3% of the variance in state of feeling recovered at work on Monday ($\beta = -.18, p < .01, \Delta R^2 = .03$). Follow-up analyses indicated that the moderating effect of the occupational requirements for creativity was in the expected direction (Figure 2). The relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday was positive for workers in occupations with low occupational requirements for creativity ($b = .23, p < .01$) and negative for workers in occupations with high occupational requirements for creativity ($b = -.24, p < .01$). In other words, workers in low creatively demanding occupations are more likely to benefit from nonwork creative activities compared to workers in high creatively demanding occupations.

Exploratory Analysis

Participants' open-ended descriptions of their most common nonwork creative activities from the prior weekend were coded to gain insight into how participants evaluated an activity as

TABLE 3
Descriptive statistics, reliabilities, and correlations for study 2 variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
State of Feeling Recovered at Work													
1 State of Feeling Recovered at Work—Monday	3.35	0.91	(.91)										
2 State of Feeling Recovered at Work—Friday	3.15	0.80	.47**	(.85)									
Dispositions & Occupational Requirements													
3 Openness to Experience	3.66	0.76	.03	.11	(.65)								
4 Non-work Creative Activity in General	2.64	0.79	-.04	.13	.43**	(.90)							
5 Occupational Requirements for Creativity	56.39	11.27	.08	.07	.12	-.03	(.87)						
Weekend Activity													
6 Work-related Activity	1.44	0.65	-.08	-.01	-.07	.18**	.03	—					
7 Household and Childcare Activity	3.09	0.99	.01	-.09	.10	-.08	.09	.12	—				
8 Social Activity	3.57	0.84	.19**	.19**	.37**	.08	.07	-.10	.20**	—			
9 Low Effort Activity	3.71	0.87	.28**	.09	-.08	-.19**	.07	-.03	-.11	.09	—		
10 Physical Activity	2.49	1.00	-.06	.00	.13	.14*	.07	.14*	.22**	.08	-.25**	—	
11 Non-work Creative Activity	2.37	0.87	-.02	.09	.18**	.35**	-.06	.16*	.04	.11	-.14*	.11	(.93)

Note. *N* = 222. **p* < .05, ***p* < .01.

TABLE 4
Study 2 regression analyses testing the interaction between the occupational requirements for creativity and non-work creative activity during the weekend when predicting state of feeling recovered at work on Monday.

Predictors	Step 1 β	Step 2 β	Step 3 β	Step 4 β
Prior Recovery, Dispositions, & Occupational Requirements				
State of Feeling Recovered at Work—Friday	.47**	.44**	.44**	.41**
Openness to Experience	.02	-.03	-.03	-.01
Non-Work Creative Activity in General	-.10	-.03	-.02	-.01
Occupational Requirements for Creativity (A)	.04	.03	.03	.05
Weekend Activity				
Work-related Activity		-.07	-.07	-.05
Household and Childcare Activity		.07	.07	.04
Social Activity		.08	.08	.11
Low Effort Activity		.23**	.23**	.24**
Physical Activity		-.01	-.01	.00
Non-work Creative Activity (B)			-.01	-.01
Interaction Effect				
Occupational Requirements X Non-work Creative Activity (A x B)				-.18**
Δ <i>R</i> ² =	.23**	.07**	.00	.03**
Δ <i>F</i> =	15.98**	3.89**	0.02	7.73**

Note. *N* = 222. β = Standardized Regression Coefficients with all Variables Included. Δ*R*² = Unique Variance Explained by Each Set of Predictors. Δ*F* = Change for Each Set of Predictors. All Predictors are Mean-centered. **p* < .05, ***p* < .01.

creative. Three potential themes based on prior definitions of creativity were identified: production, novelty, and heuristic processing (Amabile, 1983). Production indicates participants described making something (e.g., “wrote some songs”). Novelty indicates participants described making something new or behaved out of character (e.g., “came up with my own recipe). Heuristic processing indicates participants described a decision making process (e.g., “planned my thanksgiving menu”). Three raters coded descriptions, and discrepancies were discussed until 100% agreement was met. Descriptions could be coded as multiple themes. Within this sample, 70% were coded as production, 23% were coded as novelty, and 20%

were coded as heuristic processing. In addition, 17% of the descriptions were not coded as any of the three themes (e.g., “I played video games”). The results indicate that participants consistently interpret “creativity” as a product, which is inline with most common contemporary definitions of creativity (c.f., Amabile, 1983).

GENERAL DISCUSSION

Two longitudinal studies examined workers’ weekend activities and state of feeling recovered at work before (Friday)

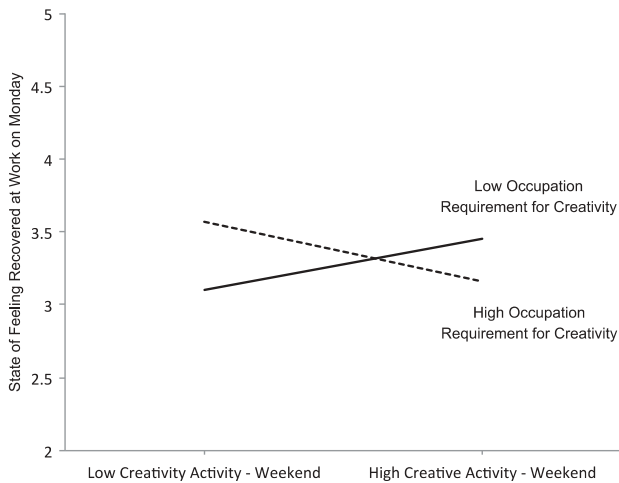


FIGURE 2 Study 2 graphical display of the significant interaction between the occupational requirements for creativity and non-work creative activity during the weekend while predicting state of feeling recovered at work on Monday.

and after (Monday) the weekend. These studies provide insight into the potential benefits of nonwork creative activities and the role of occupational requirements on worker recovery. Inconsistent results were found for Hypothesis 1, which predicted that nonwork creative activity during the weekend is positively associated with state of feeling recovered at work on Monday. Whereas a significant positive relationship was found in Study 1, nonwork creative activity during the weekend was not associated with state of feeling recovered at work on Monday in Study 2. Nonwork creative activity provides people with resource-laden experiences of mastery, control, and relaxation (Eschleman et al., 2014). In addition, creative activity is inherently tied to physical energy, concentration, freshness, and enthusiasm (Csikszentmihalyi, 1997). However, these results indicate that nonwork creative activities may not have a positive spillover into the workplace in all circumstances.

Support was found for Hypothesis 2, which predicted that the occupational requirements for creativity moderates the relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. Across both Study 1 and Study 2, as expected, workers in occupations that were objectively rated as *low* in the occupational requirements for creativity (e.g., cashier, security guard) had a strong positive relationship between nonwork creative activity during the weekend and state of feeling recovered at work on Monday. Conversely, there was either no relationship (Study 1) or a negative relationship (Study 2) between nonwork creative activity during the weekend and state of feeling recovered at work on Monday for workers in occupations objectively rated as *high* in the occupational requirements for creativity (e.g., interior designer, architect).

The findings for both hypotheses provide additional evidence for the importance of COR (Hobfoll, 1989) when

examining worker recovery. COR suggests that people strive to obtain, retain, and protect their resources. In general, acquiring resources will result in greater feelings of recovery. However, when resources are depleted or threatened from work tasks, it is crucial that a worker's nonwork recovery efforts do not further deplete the same resources (e.g., Sonnentag, 2001; Sonnentag et al., 2008; Sonnentag & Zijlstra, 2006). Our findings support the notion that the effectiveness of nonwork activities is dependent upon the resources required in one's occupation. That is, the moderating effect of the occupational requirements for creativity indicates that the activities used to acquire resources and recover from work should not overlap with the resources being diminished from the completion of work tasks.

Implications

An organization seeking a workforce that has rejuvenated energy, is fully rested, and feels both mentally and physically refreshed should educate their workers on the potential benefits of nonwork creative activities and develop a culture to promote nonwork creative activity. However, the workers most likely to benefit from this educational intervention are likely to be workers who have low occupational requirements for creativity. There are many critical occupations that do not afford creativity in the workplace, such as occupations that require adherence to safety protocols (e.g., nuclear equipment technician, commercial truck driver) or security monitoring (e.g., correctional officer, security guard). It is important for organizations to recognize that workers in occupations with low occupational requirements for creativity have the potential to feel equally or more recovered compared to their counterparts in occupations with high occupational requirements for creativity if they engage in nonwork creative activities.

There are several implications for organizations interested in educating workers on the benefits of nonwork creative activity. First, as indicated by the stability of nonwork creative activity (relationship between nonwork creative activity in general and nonwork creative activity during the weekend), workers may not change their recovery activities without recovery education provided by an organization, which has been found to be a motivator for behavioral change among workers (Hahn, Binnewies, Sonnentag, & Mojza, 2011). In addition to encouraging workers to engage in a nonwork creative activity that is intrinsically rewarding and challenging (c.f., Eschleman et al., 2014), organizations can encourage all workers to engage in nonwork creative activity regardless of their current state of feeling of recovered at work. The effects on workers' state of feeling recovered at work on Monday were present after controlling for state of feeling recovered at work on Friday.

The significant moderating effects of the occupational requirements for creativity also provide important broader

implications to recovery experience research. As indicated by several theorists (e.g., Sonnentag, 2001; Sonnentag et al., 2008; Sonnentag & Zijlstra, 2006), the type of recovery activity (or experience) should not further deplete the resources being used in one's job. This research, however, is the first to empirically test the interaction between the occupational requirements and a recovery strategy. Future research examining worker recovery in single occupation, samples should select recovery variables that compliment the resources being depleted within that occupation.

Limitations and Future Research

Several limitations of this study should be noted and addressed in future research. Although the occupational requirements for creativity was a significant moderator in our study, the moderating effects are likely attenuated because the O*NET coding involved error due to ambiguous job titles provided from the participants. Future research should ask participants to provide both the job title and industry or be presented with a drop down menu of O*NET occupation titles to select from. Using job titles to determine the occupational requirements for creativity is also limited because it does not account for day-to-day fluctuations with job tasks. For example, a teacher may strictly follow a premade curriculum on Monday, Wednesday, and Friday, but have the opportunity to develop new material for students on Tuesday and Thursday. There may also be differences in the occupational requirements for creativity between organizations within a single industry. For example, a bartender may have the opportunity create new drinks and provide recommendations to management in one restaurant whereas a bartender in a different restaurant may be expected to strictly follow the corporate menu. Future research should measure occupation (or today's task) requirement for creativity using diary studies or experience sampling to better account for the within person day-to-day variability.

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