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Helping Others Increases Meaningful Work: Evidence From Three Experiments

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The aim of the current research was to examine whether manipulating task significance increased the meaningfulness of work among students (Study 1), an online sample of working adults (Study 2), and public university employees (Study 3). In Study 1, students completed a typing task for the benefit of themselves, a charity, or someone they knew would directly benefit from their work. People who worked to benefit someone else, rather than themselves, reported greater task meaningfulness. In Study 2, a representative, online sample of employees reflected on a time when they worked to benefit themselves or someone else at work. Results revealed that people who reflected on working to benefit someone else, rather than themselves, reported greater work meaningfulness. In Study 3, public university employees participated in a community intervention by working as they normally would, finding new ways to help people each day, or finding several new ways to help others on a single day. People who helped others many times in a single day experienced greater gains in work meaningfulness over time. Across 3 experimental studies, we found that people who perceived their work as helping others experienced more meaningfulness in their work. This highlights the potential mechanisms practitioners, employers, and other parties can use to increase the meaningfulness of work, which has implications for workers' well-being and productivity.

Public Significance Statement

This research found that people who perceive their work as benefitting others experienced more meaningfulness in their work. This helps explain how individuals and employers can increase the meaningfulness of work for the benefit of general well-being and productivity.

Keywords: meaningful work, task significance, task meaningfulness, Job Characteristics Model

Vocational and counseling psychologists have a long history of focusing on optimal human functioning (Super, 1955), and a key variable related to well-being in one's vocation is having meaningful work: work that is worthwhile, purposeful, or valuable to oneself or others (Pratt & Ashforth, 2003). Besides being a worthy end in and of itself, meaningful work relates to a host of well-being and productivity variables (Allan, Duffy, & Douglass, 2015; Harris, Kacmar, & Zivnuska, 2007; Steger, Dik, & Duffy, 2012) and, therefore, represents an important target for research. However, little if any experimental research has determined what *causes*

work to be meaningful. Despite this, theory (e.g., Lips-Wiersma & Morris, 2009; Rosso, Dekas, & Wrzesniewski, 2010) and empirical research (e.g., Allan, Autin, & Duffy, 2014) suggest that a key driver of meaningful work is perceiving one's work as helping others. Therefore, the goal of the present research was to experimentally test the relation between helping others and the experience of meaningful work across three studies.

Theoretical Framework

Counseling psychologists have investigated meaningful work as an important vocational construct (see Dik, Duffy, & Eldridge, 2009) but have yet to advance a comprehensive theory of meaningful work. However, several theories within industrial/organizational psychology include the hypothesis that benefitting others leads to more meaningful work. First, the Job Characteristics Model (JCM; Hackman & Oldham, 1976) identifies the conditions necessary for people to become intrinsically motivated and have high performance at work. The model suggests that five job dimensions (skill variety, task identity, task significance, autonomy, and feedback) lead to three critical psychological states (meaningfulness, responsibility, and knowledge of results), which

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then lead to positive outcomes. Of most relevance to the present study is *task significance*, the degree to which employees perceive their work as significantly impacting other people within or outside of the organization. However, the JCM specifies that only when workers have a sense that their work *positively* impacts the well-being of other people will they have greater meaningfulness. In the context of the current study, we therefore define *helping others* as perceiving or experiencing one's work as positively benefiting or impacting other people.

The claims of the JCM have largely been supported in cross-sectional and meta-analytic studies (Fried & Ferris, 1987; Humphrey, Nahrgang, & Morgeson, 2007). For example, meaningfulness relates more strongly to skill variety and task significance than other job dimensions (Fried & Ferris, 1987), and meaningfulness shows strong and consistent relations to job satisfaction and intrinsic work motivation (Fried & Ferris, 1987; Humphrey et al., 2007). Task significance is also a significant predictor of work meaningfulness above and beyond other personal and organizational variables (Schnell, Höge, & Pollet, 2013), and meaningfulness mediates the relation between task significance and outcomes such as organizational commitment, internal motivation, self-rated performance, and job satisfaction (Allan, Duffy, & Collisson, in press; Liden, Wayne, & Sparrowe, 2000; Renn & Vandenberg, 1995). Grant (2007) expanded on these relations between task significance and various outcomes by proposing the Job Impact Framework. Grant's (2007) key addition was that, beyond the size and scope of job impact, workers will have greater task significance when they have contact with the people they benefit. Grant's (2007, 2008) experimental studies following from this framework have shown that manipulations of beneficiary contact increase task significance and job performance.

Rosso et al. (2010) also proposed a theory of meaningful work including a role for helping others in promoting meaningful work. The authors asserted that the pathways to meaningful work can be understood by the intersection of two dimensions: the self-other dimension and the agency-communion dimensions. The self-other dimension refers to whether work activities are directed toward the self or other people, and the agency-communion dimension refers to efforts to separate and expand the self or to connect and unite the self. These dimensions create four quadrants, which represent different pathways to meaningfulness at work: self-connection, individuation, unification, and contribution. The contribution quadrant refers to the extent to which people perceive that they are making a significant impact on others. In essence, contribution is similar to task significance. Moreover, a study asking participants what makes their work meaningful found that by far the largest category of responses reflected themes of helping others directly or contributing to the greater good (Allan et al., 2014). This result suggests that contribution may be particularly important for establishing a sense of meaningful work. In sum, several overarching theories and associated research suggest that meaningful work may be fostered through helping others (e.g., Rosso et al., 2010).

Meaningful Work and Positive Outcomes

Having a sense of meaningfulness is a fundamental component of human well-being that links to other psychological and physical health variables (King & Napa, 1998; Ryff & Singer, 1998). Virtually all holistic conceptualizations of human flourishing,

and happiness include a sense of meaning in life (Ryff & Singer, 1998). Although definitions of human flourishing have not necessarily included *work* meaning, obtaining a sense of meaning at work may be critical for establishing a sense of overall life meaning and general well-being (Allan, Duffy, & Douglass, 2015; De Vogler & Ebersole, 1981; Steger, Dik, & Duffy, 2012). For example, people who say their work is meaningful report greater life satisfaction, positive affect, self-determination, and life meaning as well as lower anxiety, hostility, work stress, and depression (Allan, Autin, & Duffy, 2016; Allan, Douglass, Duffy, & McCarty, 2016; Steger et al., 2012). In the work domain, they also report higher job satisfaction and are more likely to report feeling and living a calling (Duffy, Allan, Autin, & Douglass, 2014; Steger et al., 2012). Therefore, meaningful work is related to well-being and functioning in daily life.

Researchers have also consistently linked work meaningfulness to career variables that reflect dedication to one's career and a willingness to put in extra effort. For example, meaningful work positively correlates with career and organizational commitment (Duffy, Dik, & Steger, 2011) as well as intrinsic work motivation (Steger et al., 2012). People who report having meaningful work are more likely to sacrifice time and pay for their careers, and they hold their organizations to higher standards (Bunderson & Thompson, 2009). They also have lower withdrawal intentions, rates of absenteeism (Bunderson & Thompson, 2009; Steger et al., 2012), and higher levels of subjective and objective job performance (Ariely, Kamenica, & Prelec, 2008; Harris et al., 2007). In short, meaningful work appears to be relevant for both personal well-being and variables related to job performance.

The Present Studies

Despite several theories suggesting that helping others leads to more meaningful work, few, if any, experimental studies have tested this claim. Therefore, building from existing theory and research, the goal of the current research was to test if prosocial work interventions increase meaningful work. We did so in three studies: In Study 1, we experimentally manipulated task significance in a sample of college students using a computer-based clicking task and assessed differences in perceived task meaningfulness. In Study 2, using a diverse, online sample of working adults we tested if reflecting on helping others at work increased the meaningfulness of work relative to a control group. Finally, in Study 3, we conducted a community-based intervention examining if people using different schedules of helping behaviors reported differences in meaningful work relative to a control condition.

Study 1

Study 1 experimentally manipulated a typing task in three conditions where participants earned money: for themselves (personal condition), for a charity (significance condition), or for a charity after learning about a person who directly benefitted from that charity (beneficiary contact condition; Grant, 2008). The significance condition manipulated only task significance: in other words, whether or not the task positively impacted other people through raising money for a charity. Following from the Job Impact Framework (Grant, 2007), the beneficiary contact condition manipulated whether or not participants saw a person who

benefitted from the charity. According to Grant (2007), this should create an additional boost in task significance, and, therefore, also increase meaningfulness. Therefore, we hypothesized that participants in the beneficiary contact condition would report greater task meaningfulness and task significance than those in the significance condition, and participants in the significance condition would report greater task meaningfulness and task significance than those in the personal condition. We also hypothesized that task significance would mediate the relation between experimental condition and task meaningfulness.

Method

Participants. The sample consisted of 284 undergraduate students ranging in age from 17 to 53 ($M = 19.42$, $SD = 2.93$). In total, 79% ($N = 223$) identified as female and 21% ($N = 60$) identified as male. In terms of race/ethnicity, 57% ($N = 162$) identified as White, 20% ($N = 57$) as Hispanic/Latino/a American, 10% ($N = 27$) as African/African American/Black, 9% ($N = 24$) as Asian/Asian American, 2% ($N = 5$) as Arab American/Middle Eastern, 1% ($N = 3$) as Indian/Indian American, and 1% ($N = 3$) as Other. Additionally, 3% ($N = 8$) selected more than one race/ethnicity category.

Instruments. Task meaningfulness was measured with an adapted version of May, Gilson, and Harter's (2004) Meaningfulness Scale. We adapted items to reflect meaningfulness of the specific research task, rather than one's work in general. The scale consists of six items measured on a five-point Likert scale from *strongly disagree* to *strongly agree*. A sample item from the scale is, "My performance on the research task was important to me." May et al. (2004) found the scale to positively correlate with work engagement, the core JCM job dimensions, and person-environment fit. They also reported an estimated internal consistency of $\alpha = .90$. The estimated internal consistency for the scale in the present study was $\alpha = .92$.

Task significance was measured with an adapted version of the task significance subscale in Morgeson and Humphrey's (2006) Work Design Questionnaire. We adapted questions to reflect the significance of the research task, rather than one's work in general. The scale consists of four items measured on a five-point Likert scale from *strongly disagree* to *strongly agree*. A sample item from the scale is, "The research task is likely to significantly affect the lives of other people." Morgeson and Humphrey (2006) found their scale to correlate positively with other task characteristics and task satisfaction. The original authors also reported an estimated internal consistency of $\alpha = .87$. The estimated internal consistency for the scale in the present study was $\alpha = .92$.

Procedure. After we obtained Institutional Review Board (IRB) approval, we recruited participants from a university's undergraduate psychology participant pool and awarded course credit for participation. When students arrived at the study, a research assistant provided them with informed consent and randomly assigned them to one of the three experimental conditions using a random number generator. The personal condition acted as a control group and simulated work without prosocial impact. Participants in this condition performed the task to earn money for themselves. In the significance condition, participants earned money for the American Red Cross. Ariely, Bracha, and Meier (2009) found that a majority of students in the United States rated

the American Red Cross positively and were willing to work hard to generate money for its cause. In the beneficiary contact condition, participants also earned money for the American Red Cross. However, in this condition, they first watched a short video about a person who had personally benefitted from the American Red Cross's efforts. The video depicted a middle aged man telling a story about how the American Red Cross helped him and his family after their house burned down. To control for extraneous effects of watching the video, people in the personal condition watched the same video as people in the beneficiary contact condition. Participants in the significance condition also watched this video, but all references to the American Red Cross were removed, leaving only the man telling the story of his house burning down. Therefore, participants in the significance condition had no connection between the video they watched and the charity for which they were raising money.

Afterward, participants entered the alternating letters of X and Z on a computer keypad as many times as possible within 5 min. After finishing the task, students completed a demographic survey and the study questionnaires. All participants were debriefed and received course credit for participating. Only participants in the personal condition earned money, and the money raised in the other conditions was donated to the American Red Cross.

The initial recruitment yielded 301 participants. However, five participants were removed for violating study protocol (i.e., typing "xy" pairs, typing "xc" pairs, putting spaces between pairs, and typing "xxyy" instead of "xy"). Additionally, the data was inspected for outliers. Nine participants had a total number of XZ pairs that was greatly outside the normal range (i.e., greater than 3.25 standard deviations from the mean) and appeared as outliers upon visual inspection of histograms and box plots. These cases were removed because they likely indicated violations of protocol. Finally, only three of the remaining participants were missing data on the three main study variables. Therefore, these cases were deleted listwise. This resulted in the final sample of 284 participants with 86 people in the personal condition, 102 in the significance condition, and 96 in the beneficiary contact condition.

Results

Preliminary analyses. None of the study variables had skewness or kurtosis values greater than 1, and all variables appeared normally distributed on visually inspected histograms and box plots. To ensure that random assignment was successful, we conducted a series of one-way analyses of variance (ANOVA) with condition predicting each demographic variable. The omnibus F tests for age, $F(2, 278) = .82$, $p > .250$, grade point average, $F(2, 233) = 1.26$, $p > .250$, parental income, $F(2, 250) = 2.57$, $p = .079$, mother's education, $F(2, 281) = .09$, $p > .250$, and father's education, $F(2, 281) = 1.00$, $p > .250$, were not significant. We also conducted a chi-square analysis revealing that gender did not vary by condition, $\chi^2(2) = .10$, $p > .250$. Therefore, the different study conditions did not significantly differ on any measured demographic variable.

Task significance ($M = 3.01$, $SD = .96$) and task meaningfulness ($M = 3.24$, $SD = .85$) had a large positive correlation, $r = .65$, $p < .001$. Given this large correlation, we conducted a confirmatory factor analysis (CFA) to assess if these variables were better represented as a single construct. Specifically, we

tested a two-factor model with the task significance and task meaningfulness loading on their appropriate factors against a single factor model with all items loading on a single factor. We used several indices of fit: the chi-square test (χ^2), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root-mean-residual (SRMR). A significant χ^2 can indicate a poor fitting model, but this test is not reliable in larger samples. Criteria for the CFI and RMSEA have ranged from less conservative (CFI \geq .90; RMSEA \leq .10, SRMR \leq .10) to more conservative (CFI \geq .95; RMSEA \leq .08; SRMR \leq .06; Hu & Bentler, 1999). The two-factor model had acceptable fit to the data, $\chi^2(34) = 165.59, p < .001, CFI = .94, RMSEA = .12, 90\% CI [.10, .14],$ and SRMR = .05, but the single factor model had poorer fit, $\chi^2(35) = 567.27, p < .001, CFI = .76, RMSEA = .232, 90\% CI [.22, .25],$ and SRMR = .10, $\chi^2(1) = 401.68, p < .001.$ Therefore, we retained task significance and task meaningfulness and separate constructs.

Manipulation check. We conducted a one-way ANOVA to check that the manipulation affected task significance. Levene's test of homogeneity of variance was not significant, $F(2, 281) = 1.74, ns,$ indicating that the variances between groups were not significantly different. The omnibus F test was significant, $F(2, 281) = 12.00, p < .001, \eta^2 = .08.$ Planned contrasts revealed that task significance in the personal condition ($M = 2.65, SD = .93$) was significantly less than the significance condition ($M = 3.01, SD = .86$) and beneficiary contact condition ($M = 3.32, SD = .99$) combined, $t(281) = 4.34, p < .001, d = .52.$ Task significance was also significantly greater in the beneficiary contact condition than the significance condition, $t(281) = 2.34, p = .010, d = .28.$

Task meaningfulness. We conducted a one-way ANOVA to address the first hypothesis that the task significance manipulation would increase task meaningfulness. Levene's test of homogeneity of variance was not significant, $F(2, 281) = .10, p > .250,$ indicating that the variances between groups were not significantly different. The omnibus F test was significant, $F(2, 281) = 13.22, p < .001, f = .25.$ As with task significance above, two planned contrasts were conducted. Supporting the study's hypotheses, task meaningfulness in the personal condition ($M = 2.92, SD = .80$) was significantly less than the significance condition ($M = 3.23, SD = .77$) and beneficiary contact condition ($M = 3.55, SD = .88$) combined, $t(281) = 4.39, p < .001, d = .52.$ Task meaningfulness in the beneficiary contact condition was also significantly greater than the significance condition, $t(281) = 2.75, p = .003, d = .33.$ Figure 1 displays the task meaningfulness means and 95% confidence intervals for the three experimental groups.

Mediation. A mediation analysis was conducted to test the third hypothesis that task significance would mediate the relation between experimental condition and task meaningfulness. Using Hayes and Preacher's (2014) mediation syntax for Statistical Package for the Social Sciences (SPSS), we generated tests of the indirect effects with 5,000 bootstrapped samples and 95% confidence intervals. We created dummy codes for the personal and beneficiary contact experimental conditions, which both used the significance condition as a reference and entered these dummy codes into a single mediation as two independent variables. As predicted, the indirect effects for the personal condition ($c' = -.11, SE = .04, 95\% CI [-.19, -.03]$) and beneficiary contact condition ($c' = .09, SE = .04, 95\% CI [.01, .18]$) were

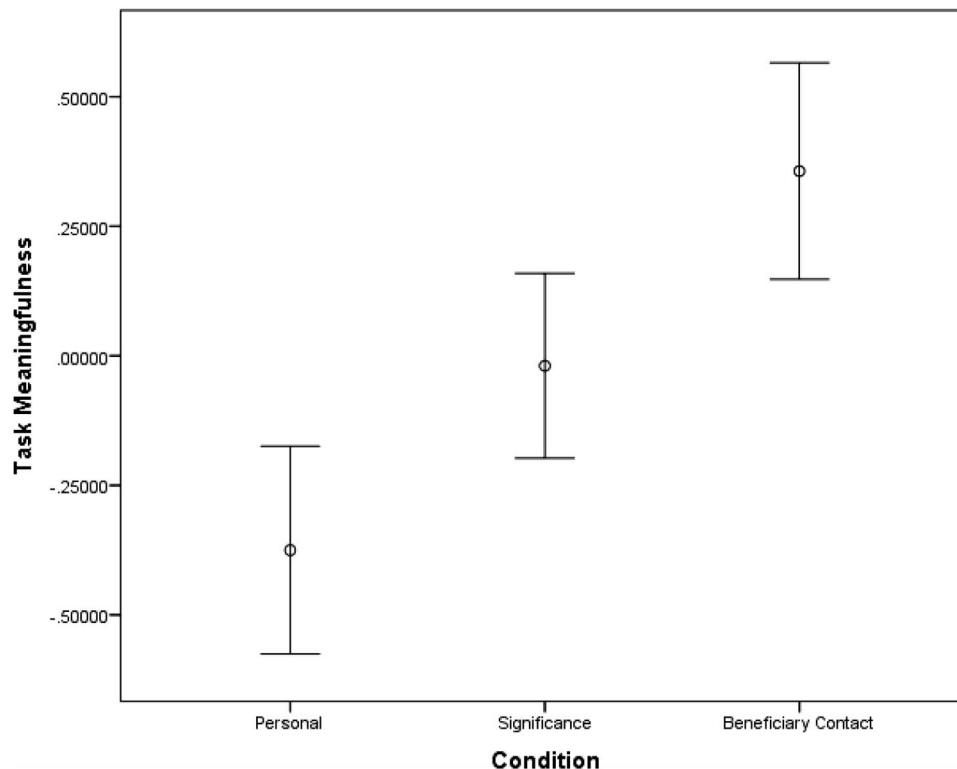


Figure 1. Task meaningfulness in Study 1 experimental groups. Task meaningfulness is in z scores, and error bars represent 95% confidence intervals.

significant, suggesting that task significance mediated the relation between experimental condition and work meaningfulness.

Study 2

Participants in Study 1 were limited to college students, and rapidly typing alternating letters on a keyboard does not mirror most people's work. We sought to overcome these limitations in Study 2 by replicating and extending the results from Study 1 using a more diverse population of working adults. With an online platform, we randomly assigned participants to recall and write about a task that benefitted themselves (personal condition) or someone else (significance condition). Given theoretical predictions (e.g., Grant, 2007; Hackman & Oldham, 1976; Rosso et al., 2010) and the results of Study 1, we predicted that people in the significance condition, as compared with the control condition, would report higher levels of meaningful work.

Method

Participants. The sample consisted of 99 adults ranging in age from 18 to 69 ($M = 35.56$, $SD = 11.11$). In terms of gender, 43.4% ($N = 43$) identified as female and 56.6% ($N = 56$) identified as male. In terms of race/ethnicity, most participants identified as White/Caucasian ($N = 72$, 72.7%) followed by Hispanic/Latino/a American ($N = 10$, 10.1%), African/African American ($N = 9$, 9.1%), Asian/Asian American ($N = 6$, 6.0%), and Multiracial ($N = 2$, 2.0%). In terms of educational attainment, 19.2% ($N = 19$) of the sample had a high school diploma, 8.1% ($N = 8$) had trade or vocational school diplomas, 18.2% ($N = 18$) had some college, 39.4% ($N = 39$) had a college degree, and 15.2% ($N = 15$) had a professional degree. The sample captured 79 unique job titles with some of the most frequent job titles being manager ($N = 9$, 9.1%), teacher ($N = 5$, 5.1%), chief executive officer ($N = 3$, 3.0%), and supervisor ($N = 3$, 3.0%).

Instruments. We measured meaningful work in two ways. First, participants completed the 10-item Work as Meaning Inventory (WAMI; Steger et al., 2012). Participants responded on a seven-point Likert scale ranging from *strongly disagree* to *strongly agree*. Sample items for the WAMI include, "I have a good sense of what makes my job meaningful," "My work helps me make sense of the world around me," and "The world I do serves a great purpose." Steger et al. (2012) found the WAMI to positively correlate with job satisfaction, career commitment, and presence of life meaning. In the instrument development study, the WAMI subscales had a high estimated internal consistency of $\alpha = .93$. In the present study, the estimated internal consistency was $\alpha = .90$.

Second, we measured meaningfulness with the unadapted version of May, Gilson, and Harter's (2004) Meaningfulness Scale from Study 1. A sample original item from the scale is, "The work I do on this job is very important to me." The estimated internal consistency for the scale in the present study was $\alpha = .91$.

Procedure. We obtained IRB approval and worked with a participant recruitment company to obtain a diverse sample of working adults within the United States that would be representative of the United States labor force based on the Bureau of Labor Statistics. The recruitment company e-mailed eligible participants a link to the survey with the inclusion criteria, which were (a) over the age of 18, (b) residing within the United States, and (c)

employed at least part-time. When opting to participate, participants were randomly assigned to one of two groups. Participants in the control group read the instructions, "Please describe a task you performed at your job in the last week. Think carefully and choose a memorable experience. In your description, detail information like the nature of the task and what it was like for you to perform it. You might remember sights, sounds, feelings, or other qualities of the experience. Please write at least a small paragraph about the experience."

Participants in the significance condition read the instructions, "Please describe a task you performed at work in the past week that positively impacted and/or improved the welfare of another person. The other person you helped can be a coworker, client, customer, or other person. Think carefully and choose a memorable experience. In your description, detail information like the nature of the task, who you helped, and what it was like for you to help them. You might remember sights, sounds, feelings, or other qualities of the experience. Please write at least a small paragraph about the experience." After completing the intervention, participants in both groups completed the meaningful work questionnaires. Participants in both groups received \$3.25 for participating.

The initial sample consisted of 162 people. However, 12 participants were not employed, 13 only provided demographic information, 5 provided invalid responses to the manipulation (e.g., typed random characters), 32 did not respond correctly to three embedded validity items (e.g., "Please select 'strongly agree' for this statement"), and 1 case was an outlier. These cases were removed and resulted in the final sample size of 99 (Control = 53; Significance = 46).

Results

Preliminary analyses. We removed one case that had a WAMI score greater than 3.25 standard deviations from the mean. No other scores appeared as outliers. None of the study variables had skewness or kurtosis values greater than 1, and all variables appeared normally distributed on visually inspected histograms and box plots. There was no missing data. To ensure that random assignment was successful, we conducted a series of independent samples t tests comparing the conditions on age, social class, and education. The t tests for age, $t(97) = -.22$, $p > .250$, social class, $t(97) = -.24$, $p > .250$, and education, $t(97) = -.20$, $p > .250$ were not significant. We also conducted a chi-square analysis revealing that gender varied by condition, $\chi^2(1) = 5.91$, $p = .02$. Therefore, we included gender as a covariate in the analyses.

Finally, the WAMI was highly related to the Meaningfulness Scale, $r = .83$, $p < .001$, and task significance, $r = .75$, $p < .001$. The Meaningfulness Scale and task significance were also highly related but less so, $r = .69$, $p < .001$. Given this, we conducted two CFA analyses to distinguish the meaningful work variables from task significance. For the WAMI, the two factor model had poor fit, $\chi^2(76) = 203.34$, $p < .001$, CFI = .88, RMSEA = .13, 90% CI [.11, .15], and SRMR = .07, even though it was better than the single factor model, $\chi^2(77) = 253.35$, $p < .001$, CFI = .84, RMSEA = .15, 90% CI [.13, .17], and SRMR = .08, $\chi^2(1) = 50.01$, $p < .001$. We suspected this was due to the three-item Greater Good subscale in the WAMI, which has similar content to the task significance measure, although the items are positively valenced. When these three items were removed, the two factor

model, $\chi^2(43) = 89.34, p < .001, CFI = .95, RMSEA = .11, 90\% CI [.07, .14]$, and $SRMR = .05$, had better fit than the single factor model, $\chi^2(44) = 129.17, p < .001, CFI = .87, RMSEA = .17, 90\% CI [.14, .20]$, and $SRMR = .08, \chi^2(1) = 39.83, p < .001$. Therefore, we removed these items from the WAMI scoring. For the Meaningfulness Scale, the two factor model, $\chi^2(34) = 63.33, p < .001, CFI = .95, RMSEA = .09, 90\% CI [.06, .13]$, and $SRMR = .05$, had better fit than the single factor model, $\chi^2(35) = 119.95, p < .001, CFI = .87, RMSEA = .16, 90\% CI [.13, .19]$, and $SRMR = .07, \chi^2(1) = 56.65, p < .001$.

Main analyses. Given our directional hypotheses, we conducted one-tailed independent samples *t* tests to evaluate if the manipulation affected meaningful work. Levene's test of homogeneity of variance was not significant for the WAMI, $F(1, 97) = 1.86, p > .05$, or the Meaningfulness Scale, $F(1, 97) = 2.66, p > .05$. Controlling for gender, the *t* test for the WAMI was significant $t(97) = 1.73, p < .05, d = .35$, indicating that the significance condition mean ($M = 40.54, SD = 7.69$) was significantly greater than the control condition mean ($M = 37.72, SD = 8.60$). Controlling for gender, the *t* test for the Meaningfulness Scale was also significant $t(97) = 1.70, p < .05, d = .35$, indicating that the significance condition mean ($M = 26.07, SD = 3.84$) was significantly greater than the control condition mean ($M = 24.25, SD = 4.88$). Figure 2 depicts this outcome.

Study 3

In Study 3, we further extended the results from Study 1 and 2 by conducting a community-based, daily diary experiment. We

designed and implemented the experiment based on acts of kindness interventions, which ask participants to perform acts of kindness for other people over a period of time (Lyubomirsky, Sheldon, & Schkade, 2005). For example, Lyubomirsky et al. (2005) had participants perform five acts of kindness during one week and instructed them to complete them all in one day or spread over the week. Only participants who completed acts of kindness all in one day reported greater happiness. We extended this experiment by recruiting public university employees and randomly assigned them to one of three conditions. In the control condition, participants simply detailed a task that they did at work each day. Participants in the spread condition did a new action each day that helped another person at work. Participants in the chunk condition did five new actions to help others all on one day during the week.

Applying the Job Impact Framework (Grant, 2007), our intervention altered the pattern of employees' interactions with their colleagues or the benefactors of their work, which also directly manipulated task significance. Specifically, both the spread and chunk conditions increased the frequency of beneficiary contact and increased the positive impact they had at work. However, the spread condition was diffuse, with the beneficiary contact likely indistinguishable from people's regular helping behaviors. In contrast, the chunk condition increased the frequency and also the duration and salience of beneficiary contact and, presumably, beneficial impact (Grant, 2007). Therefore, we predicted that only participants in the chunk conditions would experience increased work meaningfulness across the duration of the study.

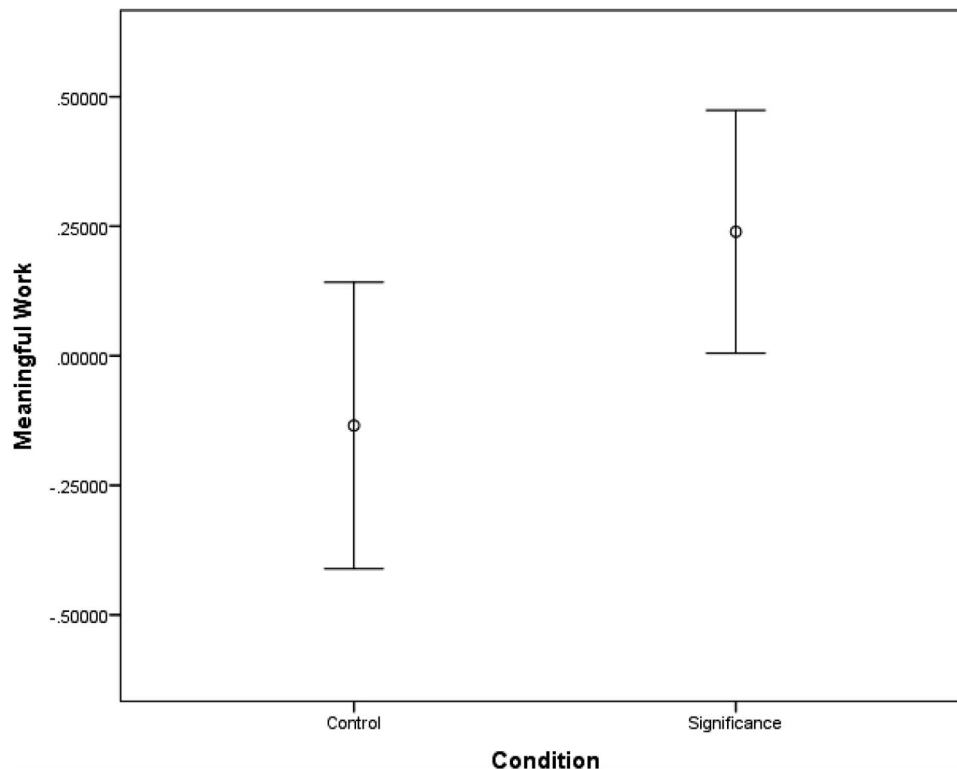


Figure 2. Meaningful work in Study 2 experimental groups. Task meaningfulness is in *z* scores, and error bars represent 95% confidence intervals.

Method

Participants. The sample consisted of 108 working adults ranging in age from 21 to 72 ($M = 42.16$, $SD = 12.33$). In terms of gender, 67.6% ($N = 73$) identified as female, 18.5% ($N = 20$) identified as male, and 13.9% ($N = 15$) were missing. In terms of race/ethnicity, most participants identified as White/Caucasian ($N = 73$, 80.2%) followed by Hispanic/Latino/a American ($N = 7$, 7.7%), African/African American ($N = 4$, 4.4%), Multiracial ($N = 3$, 3.3%), Asian/Asian American ($N = 2$, 2.2%), and Arab American/Middle Eastern ($N = 1$, 1.1%), and Other ($N = 1$, 1.1%). In terms of educational attainment, 4.4% ($N = 4$) of the sample had a high school diploma, 6.6% ($N = 6$) had trade or vocational school diplomas, 18.7% ($N = 17$) had some college, 41.8% ($N = 38$) had a college degree, and 28.6% ($N = 26$) had a professional degree. The sample captured 58 unique job titles with some of the most frequent job titles being program assistant ($N = 13$, 12.3%), assistant director ($N = 5$, 4.7%), business administration specialist ($N = 3$, 2.8%), and office assistant ($N = 3$, 2.8%).

Instruments. To assess meaningful work, we adapted the WAMI (Steger et al., 2012) for a daily diary design by selecting one key item from each WAMI subscale. We also changed the wording to refer to the specific day the participants were taking the survey. The three items were “Today my work had a satisfying purpose,” “Today my work contributed to my personal growth,” and “Today my work made a positive difference in the world.” Participants responded on a seven-point Likert scale ranging from *strongly disagree* to *strongly agree*. In the present study, the estimated internal consistency of the measure across time points was $\alpha = .86$.

Procedure. After obtaining IRB approval, we recruited participants from a large public university in the southeastern United States. Participants had to be 18 years of age or older, currently working 30+ hours/week at least once a day Monday through Friday, and living in the local county. The study was a 2-week daily diary design where participants completed surveys at the end of each business day. The study’s research coordinator obtained e-mails for the staff of different departments from their websites. She then emailed them an invitation for the study. She did not e-mail faculty and students. When people replied to the invitation to express their interest, the coordinator randomly assigned the participant to one of three experimental conditions. The first group completed surveys with no active intervention (control condition). The second group did something new each day to help someone else at work (spread condition). Finally, the third group did five new things to help other people at work on each Tuesday of the study (chunk condition). Research assistants for each condition e-mailed instructions to participants a few days before they began the study. When participants began the study, research assistants sent surveys at 4:00 p.m. each business day. Participants received \$10.00 in compensation.

The initial sample consisted of 114 participants and 830 cases. Cases here refers to individual days that participants provided data. However, 6 participants and 88 cases were removed for violating protocol (e.g., not completing the intervention, etc.). We also removed 6 cases for having daily scores for meaningful work greater than 3.25 standard deviations from the mean. This left a final sample size of 108 participants and 736 cases.

Results

Preliminary analyses. Meaningful work did not have absolute skewness or kurtosis values greater than 1, and the variable appeared normally distributed on a visually inspected histogram and box plot. To ensure that random assignment was successful, we conducted a series of ANOVAs comparing the conditions on age, social class, and education. The omnibus F tests for age, $F(2, 38) = 1.07$, $p > .250$, social class, $F(2, 29) = .92$, $p > .250$, and education, $F(2, 29) = 2.57$, $p = .09$, were not significant. We also conducted a chi-square analysis revealing that gender varied by condition, $\chi^2(2) = 16.11$, $p < .001$. Upon examination, there were more women in the control group and less women in the spread group. However, when included in the main analyses, gender was not related to meaningful work and did not change the pattern of results. Therefore, we did not include it in the models. On average, participants submitted 4.61 ($SD = 2.61$) valid surveys out of 10 possible. We used the Maximum Likelihood method to calculate estimates for missing data. ML maintains power without biasing estimates and typically outperforms traditional solutions to missing data, such as listwise deletion and mean substitution (Schafer & Graham, 2002).

Main analyses. We analyzed the data with multilevel modeling analysis in SPSS 22 with Maximum Likelihood estimation. This is a common approach that provides advantages over repeated-measures ANOVA, such as not requiring complete data and allowing for the separation of within- and between-person effects (Tabachnick & Fidell, 2012). As an outcome, we used the daily within-person fluctuations in participants’ meaningful work scores. Any score in a longitudinal dataset contains two sources of variance: between-person and within-person. Between-person meaningful work is represented by participants’ mean meaningful work score across all time points. This variable reflects differences in people’s “trait” level of meaningful work, which contains bias such as effects of different job characteristics on meaningful work (Grant, 2007). Within-person meaningful work is participants’ deviations from their personal mean on any given day of the study. We used within-person meaningful work as the outcome, because our goal was to assess how the intervention *changed* people’s existing level of meaningful work. We calculated within-person meaningful work by subtracting each participants’ personal meaningful work mean from their daily raw meaningful work score. However, we also controlled for between-person effects in the model to get accurate estimates of participants’ within-person effects (Hoffman & Stawski, 2009). To include the effects of experimental condition in the analyses, we calculated dummy codes for the spread and chunk groups with the control condition as a referent.

We conducted nested model comparisons to test whether variables added to the model added explanatory power and fit to the data. This is detected through a change in the deviance statistic and tested with a chi-square distribution (Tabachnick & Fidell, 2012). Multilevel modeling tests both fixed and random effects. Fixed effects are simple relations between two variables that apply across participants (e.g., X is positively related to Y for everyone). Random effects, however, indicate if there is significant variance in the slope of a given fixed effect from person to person. If there is a significant random effect, this means that X does not relate to Y in the same way for each participant. To test differences in nested models, we entered terms hierarchically as follows: fixed and random effects

for the influence of time over the duration of the study (Model A), fixed and random effects of between-person meaningful work (Model B), fixed and random effects for the effect of the spread and chunk dummy codes (Model C), and fixed and random effects for effects of the condition by time interactions (Model D). Therefore, Model A is the unconditional growth model, Model B tests the relation of mean levels of meaningful work to daily variations in meaningful work, Model C tests main effect differences in conditions, and Model D tests interaction effects.

Table 1 displays the results of the multilevel nested models. Model A revealed a significant positive slope for time, indicating that meaningful work increased across conditions. The significant residual variance indicates that there was significant unexplained within-person variance. The intercept variance is nonsignificant, because each person's intercept is zero as a function of variable design. Model B did not significantly improve fit, $\chi^2(2) = 0.31$, $p > .250$, and between-person meaningful work did not predict within-person meaningful work. Model C also did not significantly improve fit, $\chi^2(4) = 1.55$, $p > .250$, and both condition dummy codes were nonsignificant. This suggests there were no significant main effects. Model D significantly improved fit, $\chi^2(4) = 20.84$, $p < .001$, and only the chunk by time interaction had significant fixed and random effects. Figure 3 depicts the interaction. The control group had a relatively flat, but slightly negative, linear curve over the course of the study. Although the spread condition had a positive linear trend, it was not significantly different from the control group. Finally, the chunk condition had a positive linear curve that was significantly different from the control. This suggests that people in the chunk condition had increased meaningful work over the course of the study, relative to their own meaningful work average.

To obtain a pseudo- R^2 effect size, we calculated the squared correlation between the final model's predicted values and the original values of meaningful work (Singer & Willett, 2003).

The resulting statistic was .14, which means 14% of the variance in the original scores was explained by the predictors.

General Discussion

In three studies, we tested the link between task significance and meaningful work. In each study, we manipulated task significance by having participants help themselves or help others. In Study 1, students worked to benefit themselves, a charity, or someone who had benefited from the charity for which they were working. In Study 2, an online sample of workers recalled a time when their work benefited themselves or someone else. In Study 3, a community sample of employees helped others: as they normally would, as a spread effort over an entire week, or all in a single day. Across each study, we found that helping others caused people to experience their work as more meaningful.

Obtaining meaningful work can be seen as an end in itself (Ryff & Singer, 1998) and as a precursor to more productive work (Allan, Duffy, et al., in press; Harris et al., 2007; Humphrey et al., 2007). Therefore, the current experimental studies are an important and necessary extension to cross-sectional studies linking meaningful work to task significance (e.g., Allan et al., 2014). They are the first to assess the causal effect of working for the benefit of others on meaningful work, and by establishing this causal link, they advance and bolster theories of work meaningfulness (e.g., Rosso et al., 2010). This research also adds to previous work demonstrating that task significance interventions can have an impact on performance (Grant, 2007, 2008), which may occur via meaningful work (Hackman & Oldham, 1976). Regardless, task significance interventions appear to be valuable for both individuals and organizations.

In Study 1, participants who engaged in more significant tasks found them more meaningful. This finding is important when considering that the experimental task—hitting alternating letters

Table 1
Multi-Level Nested Models for the Prediction of Daily Meaningful Work

Variable	Model A	Model B	Model C	Model D
Fixed effects				
Intercept	-.44** (.14)	-.26 (.36)	-.10 (.38)	-.20 (.38)
Time	.11** (.03)	-.11** (.03)	.11** (.03)	.11** (.03)
Between-person MW		-.01 (.02)	-.01 (.02)	.01 (.02)
Spread dummy			-.19 (.18)	-.14 (.17)
Chunk dummy			-.22 (.19)	-.19 (.19)
Spread × Time				.17* (.10)
Chunk × Time				.32** (.11)
Random effects				
Residual	3.53** (.20)	3.53** (.18)	3.52** (.18)	3.27** (.18)
Intercept	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Time	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Between-person MW		.00 (.00)	.00 (.00)	.00 (.00)
Spread dummy			.00 (.00)	.00 (.00)
Chunk dummy			.00 (.00)	.00 (.00)
Spread × Time				.00 (.00)
Chunk × Time				.20* (.10)
Fit statistics				
Deviance	2,997.28	2,996.97	2,995.42	2,974.58
ΔDeviance		.31	1.55	20.84

Note. Standard errors are in brackets. MW = meaningful work.

* $p < .05$. ** $p < .01$.

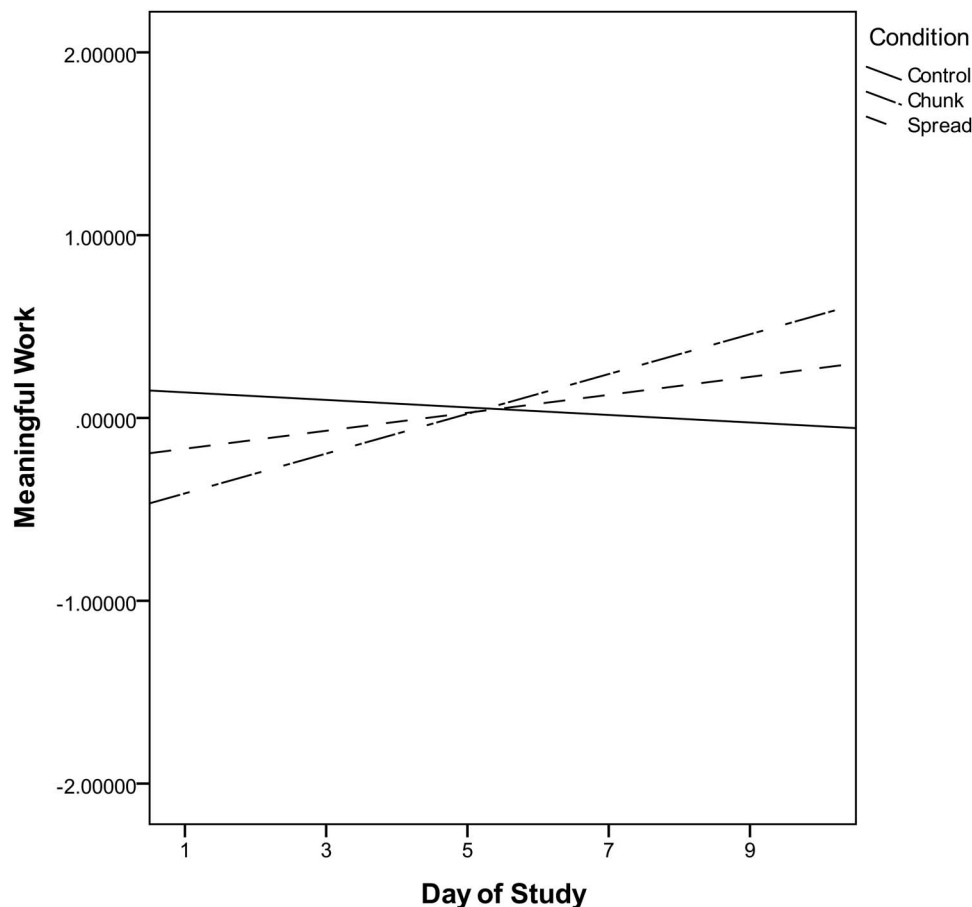


Figure 3. Experimental group moderating the relation between time and daily meaningful work. Meaningful work is in z scores.

on a keyboard as many times as possible—was devoid of meaning in and of itself. Therefore, the experiment allowed for an examination of how a *description of the task* (benefitting oneself or others) affected task meaningfulness. Our findings indicate that even the most meaningless task can be imbued with meaning when it is attached to a significant, prosocial cause. Future research and interventions that help employees connect their work to a greater, prosocial cause may allow employees to feel a greater sense of meaningfulness, and in turn promote work-related and general well-being. In Study 2, we replicated and extended the results of Study 1 using a more representative, online sample of workers. The online sample of employees reflected on a real-world task they completed for the benefit of themselves or others. Again, we found that reflecting on tasks that helped others caused people to experience their work as more meaningful. These results suggest that simply recalling prosocial aspects of one's current job is sufficient to increase feelings of meaningful work.

Finally, in Study 3, we implemented a community intervention among employees at a public university. We asked employees to either: help others as they normally would, spread their helping out over a week, or help others in a single day. Supporting our hypotheses, the greatest gains in meaningful work over time belonged to those who made a concerted effort to help others five

times in a single day. Although participants who spread out their helping over the weeks of the study had a trend toward greater meaningfulness, this was not significant. This pattern of results is consistent with similar interventions (Lyubomirsky et al., 2005) and suggests that helping others in a single day may be effective because it increases the frequency, intensity, and salience of participants' helping behaviors (Grant, 2007). In effect, grouping one's helping may alter one's prosocial interactions for a day whereas spreading out one's helping may blend into people's regular activities. In summary, the results show that the effect of helping others on meaningful work is a robust phenomenon that can be realized in real-world contexts over a relatively short time period.

Practical Implications

The current study adds to the growing body of literature informing interventions to increase meaningful work. Although finding meaningful work is a key goal of career counseling (Allan, Owens, & Duffy, in press), little experimental research exists to guide interventions. However, experts in vocational psychology have made several recommendations for promoting meaningful work, including connecting meaning in work and academics to meaning

in life and encouraging meaning-making behaviors (Dik et al., 2009). The results from the current studies suggest several more techniques for advancing this goal. For example, clients who are struggling to find meaningfulness in their work might discuss how their work helps others or contributes to the greater good. They could also set aside a day each week to do at least five things to help others at work or detail a memory of when they were helpful to another person. Despite this, several studies suggest that, although most people view helping others as the primary source of meaning in their work, people with less access to resources report less meaningful work (Allan et al., 2014). Scholars have asserted that this is partly due to a lack of career choice privilege (Allan et al., 2014). Therefore, although helping clients identify the value of their work in terms of helping others has potential to increase meaningfulness, counselors should be mindful of their clients' level of career choice.

Limitations and Future Directions

The current research has several limitations. First, the studies were limited in their generalizability. For example, Study 1's sample of college students may have differed from older participants with greater work experience (McAdams, de St Aubin, & Logan, 1993). Although Study 2 and 3 replicated the findings among older samples, the results of each study may, nonetheless, be limited to the sample in which they were recruited. Second, the studies may not be ecologically valid. For instance, the alternating letters task in Study 1 differed from many real world jobs because it did not create a product of worth in society. Furthermore, the task was unique in its payout structure: real-world employees often earn more money for extra work (i.e., overtime rates). Again, we sought to address these limitations by having an online sample of employees recall actual work tasks (Study 2) and public university employees change their actual work behavior (Study 3), but the ecological validity of each study may, nonetheless, be limited by the way in which each study was designed. Finally, each study was limited by other factors, such as missing data and the method of recruitment. Many of the participants in Study 3 did not complete all waves or dropped out before completion, which may have influenced results.

Future research may further address generalizability and ecological validity by studying meaningful work theories, such as the Job Characteristics Model, within other cultures, populations, and work tasks. We also recommend future research continue to extend theories of task significance, meaningful work, and performance by identifying causal links between these variables. In short, although the current experiments have limitations, they offer the first experimental evidence that manipulating task significance increases meaningful work. This supports theory in the area of meaningful work, opens the door to continued scientific study of the construct within vocational and counseling psychology, and offers potential avenues for intervention.

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