



Cyberslacking, engagement, and personality in distributed work environments



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ABSTRACT

The modern workplace is becoming increasingly reliant on distributed work arrangements, in which employees work part- or full-time from home, coffee shops, satellite offices, and elsewhere rather than at a centralized location. There are questions about the role of personality in shaping work behavior during distributed work, particularly with respect to cyberslacking and work engagement as indicators of distributed work effectiveness. Cyberslacking can be viewed as an extension of typical counterproductive workplace behavior, and it involves distraction and putting off work to “surf the Internet.” Engagement can be viewed as the intensity of physical, cognitive, and emotional involvement with work activities. We found that non-Big Five personality traits, Honesty and Procrastination, were important predictors of these outcomes. Moreover, we developed three sets of intermediary behaviors linking personality to distributed work effectiveness: regular upward communication, self-management tactics, and conscious socialization efforts. Finally, personality profiles were identified with latent profile analyses in order to determine which “types” of people are more successful than others in distributed work.

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1. Introduction

Telework, mobile work, flex work, virtual work, remote work, and other terms have been used to describe the work arrangements in which employees spend at least some regular time working outside of the conventional workplace. We refer to this as “distributed work,” as employees could work from any place at any time while keeping in regular contact with colleagues and remotely accessing organizational resources (e.g., Chattopadhyay, George, & Shulman, 2008). This new form of work has been made possible by the rapid uptake and widespread use of electronic communications in organizations, such as video calling, text messaging, teleconferencing, and e-mail. Indeed, estimates from the U.S. Census Current Population Survey indicate that 32–35% of employees with a college education or in managerial/professional positions engage in at least part-time distributed work (see Noonan & Glass, 2012). Concurrently, there has been a rising acknowledgment of harmful Internet use, addiction, and distraction potential in recent research (e.g., Bozoglan, Demirer, & Sahin, 2014; Lim, 2002), and the confluence of these issues is of central interest in the current study.

The rise of distributed work in modern organizations has been linked to benefits, such as productivity, performance, retention, and commitment (Martin & MacDonnell, 2012). Elsewhere, however, it has been noted that distributed work provides an environment ripe for cyberslacking, a phenomenon in which employees are distracted by non-work Internet browsing when they should be accomplishing work tasks (O'Neill, Hambley, & Bercovich, 2014). Cyberslacking has been considered mainly in office environments (Pee, Woon, & Kankanhalli, 2008), where it has been associated with valuable periods of respite as well as stress reduction (Coker, 2013; Lim & Chen, 2012) by allowing individuals to address non-work tasks such as planning vacations, online shopping, and non-work e-mailing (Blanchard & Henle, 2008). Our treatment of cyberslacking adopts O'Neill et al.'s (2014) view that it involves undesirable online distraction that interferes with work goal accomplishment, which may be particularly relevant during distributed work in which supervisors and peers cannot easily monitor employee behavior. Distributed work also introduces the possibility that employees will feel less engaged with their jobs by virtue of being removed from the physical work environment, office structure, and social atmosphere (O'Neill, Hambley, Greidanus, MacDonnell, & Kline, 2009). Engagement involves physical, cognitive, and emotional energy and connection with work activities (Kahn, 1990), and it is a means through which modern organizations seek to leverage a competitive advantage (Corporate Leadership Council, 2006). In the current research we treat both

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cyberslacking and engagement as indicators of distributed work effectiveness, given that these are top-of-mind issues for employees and their managers in distributed contexts. Moreover, this suggests that advancing knowledge of the antecedents of distributed work effectiveness could be valuable for theory building and practical application.

In our view, personality could be an important psychological factor influencing cyberslacking and engagement in distributed work arrangements (cf. Hertel, Konradt, & Voss, 2006). Theoretically, frameworks of person-job fit (Kristof, 1996) and trait activation theory (Tett & Burnett, 2003) can be invoked to suggest that effectiveness levels will be favorable if there is a strong fit between the employee's personality and the behaviors needed to work effectively. Specifically, person-job fit theory posits that employee attributes need to match the job environment to create high effectiveness levels, and distributed work may contain unique conditions that affect personality-job fit levels. Trait activation theory organizes the work environment features into *job demands*, *distracters*, and *facilitators* with respect to how they give rise to job-relevant trait behavior. These theories form the basis of the current research, as we investigated personality factors related to cyberslacking and engagement in a sample of distributed workers. In addition, we identified novel intermediary variables that shed light on how certain traits impact distributed work effectiveness.

1.1. Hypothesis development

In the hypotheses advanced below our focus is on identifying traits that relate directly and indirectly to indicators of distributed work effectiveness, namely, cyberslacking and engagement. In this vein, we attend to the unique prediction of personality rather than simple bivariate relations in order to assess the incremental prediction of traits relative to each other (cf. O'Neill, McLarnon, Schneider, & Gardner, 2014).

Much workplace personality research deals with the Big Five factors of personality and this work is beginning to emphasize cyberslacking. Jia, Jia, and Karau (2013) reported that Agreeableness, Conscientiousness, and Emotional Stability (i.e., the opposite pole of Neuroticism) were negatively related to cyberslacking, and O'Neill et al. (2014) found comparable results for Conscientiousness and Agreeableness. With respect to engagement, Langelan, Bakker, Van Doornen, and Schaufeli (2006) found that Extraversion and Emotional Stability exhibited positive relations (see also Kim, Shin, & Swanger, 2009), whereas Inceoglu and Warr (2011) found support for these traits as well as Conscientiousness as positive predictors. Thus, it seems likely that the Big Five factors of personality could play a role in predicting distributive work behaviors related to cyberslacking and engagement. Although we examined this, we focus on Honesty and Procrastination in particular as they have been shown to be the most important personality traits for distributed work effectiveness (O'Neill et al., 2014).

1.1.1. Honesty, Procrastination, and distributed work effectiveness

It is often the case that traits other than the Big Five can provide additional prediction and understanding (e.g., O'Neill and Hastings, 2011). Indeed, recent research indicates that Honesty and Procrastination are important predictors of distributed work effectiveness when compared with Conscientiousness, Neuroticism, and Agreeableness (e.g., O'Neill et al., 2014). Invoking Tett and Burnett (2003) trait activation theory, the former traits are particularly susceptible to facilitators and distracters of the distributed work environment, respectively. Specifically, dishonest employees are known to engage in counterproductive work behaviors and shirk duties when possible (Ashton & Lee, 2008). Given that a lack of supervision and coworker proximity during distributed work may function as facilitators of these traits,

insincerity and dishonesty would likely be even more important for predicting cyberslacking and reduced engagement.

Procrastination would appear to have a strong connection to the likelihood of distractions related to non-work Internet activity and reductions in engagement with work tasks given that these individuals are predisposed to avoid or delay work (Steel, 2007). Procrastination could be activated by distracters such as unimportant e-mails, Internet ads, and other online activities that have the potential to promote more sidetracking and challenges for engagement during distributive work than when working in the office. In the office, individuals could feel a stronger sense that they are in a place of work and that distractions need to be managed more than when employees are at home. At home, employees may feel that it is not inappropriate to participate in non-work related online pursuits because work can always be completed by making up time in the evening, though that might not ultimately occur.

Whereas O'Neill et al. (2014) found that Honesty and Procrastination were important, they did not evaluate the importance of these traits against the entire Big Five. This can be viewed as a shortcoming of that study given that Extraversion predicted engagement in Inceoglu and Warr (2011) research. Further, Openness to Experience was related to involvement and attachment to team members in a virtual environment (MacDonnell, O'Neill, Kline, & Hambley, 2009), which suggests that it might be related to increased acceptance of this relatively novel work arrangement, greater engagement, and reduced cyberslacking. Thus, examining Honesty and Procrastination in addition to the entire Big Five provides a more complete view of the interplay involving personality and distributive work behavior. Also worth noting is that O'Neill, Hambley et al. employed a convenience sampling procedure involving only two organizations, whereas the current research sample is more representative of U.S. industries, occupations, and positions in which employees currently participate in distributed work.

H₁. Honesty and Procrastination will account for variance in both cyberslacking (H_{1a}) and engagement (H_{1b}), beyond the Big Five.

1.1.2. Regular upward communication as a linkage variable

One intermediary variable linking personality and distributed work effectiveness is regular upward communication, which we define as "keeping one's superior informed of work progress and issues." In the context of distributed work, keeping one's superior informed and abreast of current developments while working from a distance would likely be associated with minimal cyberslacking and deeper engagement. This is because employees are aware of the strong likelihood that superiors will follow-up with, and be cognizant of, the particular milestones that were discussed and therefore expected. Thus, regular upward communication should reduce the likelihood of cyberslacking and promote job engagement during distributive work.

Personality-related antecedents of regular upward communication include Honesty and Conscientiousness. Honest employees who are sincere, virtuous, and forthright would likely feel an ethical and moral obligation to keep their supervisors informed while working from a distance, given that they value truthfulness, loyalty, and transparency (Ashton & Lee, 2007). Furthermore, Conscientious employees who are dutiful, achievement-focused, and responsible would also likely feel a need to update, communicate with, and be noticed by their superiors (O'Neill et al., 2009). Under trait activation theory (Tett & Burnett, 2003), the need for regular upward communication during distributed work may be viewed as a *job demand*, as special effort to communicate through technology and overcome barriers of distance and synchronization is required during distributed work (Hambley, O'Neill, & Kline, 2007). In addition, distributed work offers substantial opportunity

for variability in upward communication behavior, because some employees will naturally see it as important whereas others may see it as an opportunity to evade or avoid communications with supervisors. This variability is likely to be explained by the relevant and activated traits of Honesty and Conscientiousness.

H₂. Honesty will be indirectly related to cyberslacking (H_{2a}) and engagement (H_{2b}) through unique prediction of regular upward communication.

H₃. Conscientiousness will be indirectly related to cyberslacking (H_{3a}) and engagement (H_{3b}) through unique prediction of regular upward communication.

1.1.3. Self-management tactics as a linkage variable

A second intermediary variable involves self-management tactics. We drew this from the behavioral medicine literature linking self-management to treatment adherence and better clinical outcomes when medical personnel cannot directly oversee patients (see Lorig & Holman, 2003). We posit that effective self-management in the distributed work environment involves setting start, break, and quitting times, planning work activities and objectives, deciding the order and timing of duties in advance, and other scheduling and self-monitoring behaviors. Using self-management tactics would make potential distractions and deviations from pre-planned activities salient and more likely to be addressed by renewing focus rather than reducing engagement and allowing cyberslacking to creep in. Indeed, self-management likely increases role clarity and feelings of control, which have been connected to decreased cyberslacking (Henle & Blanchard, 2008) and increased engagement (Mauno, Kinnunen, & Ruokolainen, 2007).

Both Procrastination and Conscientiousness were expected to influence self-management behavior. Procrastinators often miss deadlines and put off tasks. As such, they may be unlikely to make effective use of advanced planning, self-imposed structure, and organization tactics (van Eerde, 2003). In contrast, Conscientiousness has been positively related to planning and task execution in various realms of work and non-work life (e.g., Prenda & Lachman, 2001). In trait activation terms, the need for self-imposed structure to address the relatively ambiguous and uncertain environment is a *job demand* of distributed work (Workman, Kahnweiler, & Bommer, 2003) that should implicate the traits of Procrastination and Conscientiousness, such that variance in these traits will have implications for self-management tactics (see Tett & Burnett, 2003).

H₄. Procrastination will be indirectly related to cyberslacking (H_{4a}) and engagement (H_{4b}) through unique prediction of self-management tactics.

H₅. Conscientiousness will be indirectly related to cyberslacking (H_{5a}) and engagement (H_{5b}) through unique prediction of self-management tactics.

1.1.4. Conscious socialization efforts as a linkage variable

A third intermediary variable we considered was conscious socialization efforts. The distributed work environment is widely understood to be isolating, detached, and less socially interactive than is the office (Hambley, O'Neill, & Kline, 2007). Arguably, cyberslacking and lowering one's engagement with task activities might be used to cope with feelings of isolation, detachment from the workplace, and less meaningfulness and sense of purpose (Lim & Teo, 2000). Employees who make efforts to socialize and satisfy

their interpersonal needs during distributed work might be better equipped to minimize cyberslacking and maintain healthy engagement levels, which should mitigate the isolating and interpersonally impoverished work environment. Thus, employees who are able to successfully address social issues, such as by making a point of leaving home to connect with others (e.g., through networking meetings) or finding ways to socialize electronically (e.g., taking a "Skype lunch" with a colleague), may be less hindered by unmet social needs and less likely to cyberslack.

We surmised that Extraversion would lead to increases in conscious socialization efforts given the interpersonal needs and orientation of such individuals and the ease and comfort they have with reaching out and making social contact (Lee & Ashton, 2012). Furthermore, Agreeableness was expected to play a role because cooperative, helpful, and altruistic individuals can more readily maintain reciprocal and satisfying long-term relationships (Ashton & Lee, 2007), thereby offering them more connections with whom to engage in social activities. With respect to trait activation theory, situational features of distributive work involving the detached and isolated environment may be viewed as facilitators, because individuals high on Extraversion and Agreeableness should be particularly sensitive to opportunities to address isolation during distributed work. Dealing with isolation by using conscious socialization tactics could help reduce cyberslacking, as employees might be more prepared and willing to face their work tasks as long as their social and affiliation needs do not go unmet. Similarly, addressing isolation adaptively by using conscious socialization tactics could lead to increased engagement because positive and rewarding social interactions should make work more meaningful and help employees feel more connected to a broader purpose.

H₆. Extraversion will be indirectly related to cyberslacking (H_{6a}) and engagement (H_{6b}) through unique prediction of conscious socialization efforts.

H₇. Agreeableness will be indirectly related to cyberslacking (H_{7a}) and engagement (H_{7b}) through unique prediction of conscious socialization efforts.

1.2. The person-centric perspective, personality profiles, and distributed work behavior

Above we advanced arguments for direct and indirect effects of personality traits on distributed work effectiveness. However, traits do not exist in isolation, and therefore examining combinations of traits may be valuable for shedding light on more complex effects involving personality and distributed work. Indeed, research has recently investigated person-centric approaches to personality, which use latent profile analysis (LPA) to identify types of individuals given multiple personality traits (Marsh, Lüdtke, Trautwein, & Morin, 2009; McLarnon, Carswell, & Schneider, in press). Although many combinations of personality traits are possible, we considered profiles when a given intermediary or effectiveness variable had multiple, a priori predictor traits (see above hypotheses).

1.2.1. Profiles of Honesty and Procrastination

Consider an employee who is high on Honesty and low on Procrastination. In light of our earlier theorizing, a person of this nature may be particularly unlikely to cyberslack or experience lower engagement while working away from the office. On the other hand, an employee low on Honesty and high on Procrastination may be particularly likely to suffer from cyberslacking and a lack of engagement in distributed work. Another profile, which may

contain moderate levels of both Honesty and Procrastination, may be related to an intermediate amount of cyberslacking and engagement. Importantly, the benefit of the profile approach is that it accounts for non-additive influence of combinations of traits on effectiveness, such that profiles could be associated with markedly different levels of distributed work effectiveness compared to what would be expected by simply summing the traits (e.g., in multiple regression). Moreover, a multiple regression interaction is also not ideal, because it assumes high and low levels of all possible combinations of traits involved, some of which may rarely or never exist simultaneously in individuals. LPA reveals types of people with respect to characteristic patterns of the traits involved and whether different types of people vary in their distributed work experiences. Thus, we considered distributed work effectiveness across profiles involving Honesty and Procrastination.

H₈. Profiles involving Honesty and Procrastination identified with LPA will be associated with different levels of cyberslacking (H_{8a}) and engagement (H_{8b}).

1.2.2. Profiles of Honesty and Conscientiousness

As these traits were both expected to influence regular upward communication, we considered the possibility that this intermediary variable would be affected by different trait profiles. For example, an employee could be dishonest and highly conscientious; in fact, these may be the Machiavellian “types” who tend to manipulate and manage impressions for personal gain (Lee & Ashton, 2012). Accordingly, we sought to examine levels of regular upward communication across Honesty and Conscientiousness profiles.

H₉. Profiles involving Honesty and Conscientiousness identified with LPA will be associated with different levels of regular upward communication.

1.2.3. Profiles of Procrastination and Conscientiousness

A second intermediary variable with multiple traits in common as predictors involved self-management tactics. Given the playful nature of employees high on Conscientiousness and procrastinators' challenges with sticking to a clear course of action, we expected that particular combinations of Procrastination and Conscientiousness could be especially helpful or harmful for self-management tactics. For example, an individual high on Procrastination and low on Conscientiousness would likely employ very few self-management tactics. As such, we considered the following:

H₁₀. Profiles involving Procrastination and Conscientiousness identified with LPA will be associated with different levels of self-management tactics.

1.2.4. Profiles of Extraversion and Agreeableness

A final variable with multiple traits in common as predictors involved conscious socialization efforts. We expected that individuals high in both Extraversion and Agreeableness would engage in the strongest socialization efforts given their drive to make connections (Extraversion) and their ability to sustain reciprocal and altruistic relationships (Agreeableness; Ashton & Lee, 2007). Thus, employees high on only one of these personality factors would likely make fewer socialization efforts, followed by the weakest effort from individuals low on both factors.

H₁₁. Profiles involving Extraversion and Agreeableness identified with LPA will be associated with different levels of conscious socialization efforts.

2. Method

2.1. Participants and procedure

A sample of 148 US working adults participating in distributed work for at least one day per week completed the online study survey in return for \$7. Participants were recruited through Survey Monkey's database of individuals who have agreed to be contacted for research purposes.

2.2. Measures

2.2.1. Personality

Traits were measured with 6-item scales for Agreeableness, Extraversion, Neuroticism, and Openness, 5 items for Conscientiousness and Procrastination, and 7 items for Honesty. Items were taken from Goldberg's (1999) International Personality Item Pool. Response options ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

2.2.2. Intermediary variables

Table 1 contains items written for regular upward communication, self-management tactics, and conscious socialization efforts. Given that these were new items, we conducted exploratory factor analysis using oblimin rotation to allow factor correlations. Inspection of the Scree plot indicated a three-factor solution, which was supported by parallel analysis. Parallel analysis is a bootstrapping procedure that compares the observed eigenvalues to the upper 95th percentile of eigenvalues formed from a bootstrapped distribution and is highly supported in simulation research (see Hayton, Allen, & Scarpello, 2004). Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

2.2.3. Criteria

Cyberslacking was measured with three items adapted from O'Neill et al. (2014), and engagement was measured using three items from each of the three scales (physical, emotional, and cognitive) provided by Rich, Lepine, and Crawford (2010). Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

3. Results

Table 2 contains variable means, standard deviations, correlations, and reliabilities. All reliabilities were in the acceptable range. Cyberslacking and engagement were correlated at $-.51, p < .05$, which suggests significant overlap but sufficient distinctiveness to treat these variables as separate indicators of distributed work effectiveness.

3.1. Tests of incremental prediction and relative importance

H_{1a} and H_{1b} suggested that Honesty and Procrastination would account for variance in cyberslacking and engagement, respectively, beyond the Big Five. The Big Five were entered in Block 1 of a multiple regression followed by Honesty and Procrastination in Block 2 (see Table 3). In both cases the incremental prediction was significant, thereby supporting H_{1a} and H_{1b}. For comparison purposes, Table 3 contains results for the intermediary variables as criteria, for which Honesty and Procrastination did not contribute significant prediction.

Relative importance analysis (RIA) was implemented to evaluate the importance of each personality trait in the prediction of distributed work effectiveness and intermediary variables (Johnson, 2000). The RIA improves on multiple regression by avoiding interpretational difficulties due to predictor multicollinearity. With

Table 1
Items and factor loadings for regular upward communication, self-management tactics, and conscious socialization efforts.

| Item | Scale | | |
|--|-------------------------|---------------------------------|------------------------------|
| | Self-management tactics | Conscious socialization efforts | Regular upward communication |
| I stick to my pre-planned, scheduled breaks | .86 | | |
| I plan my day/work activities and follow through accordingly | .83 | | |
| I adhere to my pre-planned work times | .80 | | |
| I have start and finish times for working | .78 | | |
| I manage myself to ensure I achieve my daily goals | .70 | | |
| I make an effort to seek out human contact | | .94 | |
| I make a point of leaving my home to connect with others (e.g., networking meetings, seminars, etc.) | | .92 | |
| I find ways to socialize (e.g., Skype, coffee/lunch meetings) | | .91 | |
| I keep in regular contact with coworkers when I am working remotely | | .64 | |
| I make a point of updating my supervisor regularly | | | .95 |
| I keep my supervisor up-to-date with my progress and accomplishments | | | .95 |
| I often ask for feedback and guidance to keep my supervisor aware of my current work accomplishments | | | .80 |

Note: n = 148.

Table 2
Means, standard deviations, and correlations.

| | M | SD | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. |
|---|------|------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. Age | 2.98 | 1.32 | | | | | | | | | | | | | | | | | | |
| 2. Gender | .48 | .50 | .17* | | | | | | | | | | | | | | | | | |
| 3. Time with employer | 6.67 | 7.11 | .37* | .14 | | | | | | | | | | | | | | | | |
| 4. Time in position | 6.13 | 6.86 | .46* | .10 | .71* | | | | | | | | | | | | | | | |
| 5. Experience with distributed work | 3.22 | .86 | .08 | -.03 | .09 | .12 | | | | | | | | | | | | | | |
| 6. Days per week working from distributed locations | 5.28 | 1.63 | .24* | .09 | -.00 | -.04 | .01 | | | | | | | | | | | | | |
| 7. Agreeableness | 3.65 | .52 | -.05 | -.02 | -.10 | -.19* | -.10 | .10 | (.60) | | | | | | | | | | | |
| 8. Conscientiousness | 3.97 | .56 | -.02 | -.14 | .01 | -.03 | .03 | .09 | .43* | (.78) | | | | | | | | | | |
| 9. Neuroticism | 3.47 | .70 | -.17* | -.16 | .02 | .03 | -.01 | -.10 | -.44* | -.33* | (.78) | | | | | | | | | |
| 10. Extraversion | 3.39 | .74 | -.02 | -.03 | .06 | .03 | .08 | -.05 | .28* | .42* | -.39* | (.84) | | | | | | | | |
| 11. Openness to Experience | 3.70 | .52 | .00 | -.06 | -.07 | -.01 | -.03 | .21* | .28* | .26* | -.33* | .44* | (.66) | | | | | | | |
| 12. Honesty | 4.17 | .59 | .19* | -.11 | .07 | .08 | .03 | .14 | .57* | .52* | -.34* | .25* | .35* | (.76) | | | | | | |
| 13. Procrastination | 2.36 | .68 | -.15 | .06 | .03 | .01 | -.04 | -.14 | -.29* | -.64* | .42* | -.30* | -.25* | -.49* | (.80) | | | | | |
| 14. Regular upward communication | 5.51 | 1.28 | -.05 | -.06 | -.02 | -.11 | .07 | -.07 | .31* | .46* | -.17* | .19* | .08 | .34* | -.35* | (.91) | | | | |
| 15. Self-management tactics | 5.21 | 1.19 | -.06 | -.10 | -.02 | -.01 | .03 | .02 | .27* | .53* | -.21* | .21* | .15 | .31* | -.43* | .59* | (.86) | | | |
| 16. Conscious socialization efforts | 4.77 | 1.37 | -.20* | -.07 | .04 | .02 | .05 | -.07 | .35* | .31* | -.19* | .45* | .26* | .18* | -.17* | .46* | .33* | (.89) | | |
| 17. Cyberslacking | 3.52 | 1.78 | -.21* | -.04 | -.11 | -.10 | -.09 | -.08 | -.16* | -.24* | .38* | -.24* | -.26* | -.37* | .46* | -.29* | -.32* | -.05 | (.95) | |
| 18. Engagement | 5.85 | .95 | .17* | .06 | .14 | .16 | .26* | .18* | .20* | .42* | -.25* | .27* | .25* | .45* | -.47* | .40* | .41* | .26* | -.51* | (.95) |

Note: n = 148. Age was indicated with age range response options, 1 = 18–24, 2 = 25–34, 3 = 35–44, 4 = 45–54, 5 = 55–64, 6 = >65. Gender was coded 0 = female, 1 = male. Time with employer and position were entered in years. Experience with distributed work was measured on a 4 point scale, 1 = not experienced at all to 4 = highly experienced. Values on the diagonal are Cronbach's alpha reliabilities.

* p < .05.

Table 3
Betas, relative importance weights, and R² for personality in the prediction of distributive work outcomes.

| | CS (R ² = .30 [*]) | | | ENG (R ² = .32 [*]) | | | RUC (R ² = .25 [*]) | | | SMT (R ² = .29 [*]) | | | CSE (R ² = .27 [*]) | | |
|-----------------------|---|-----|-----------------------|--|-----|-----------------------|--|-----|-----------------------|--|-----|-----------------------|--|-----|-----------------------|
| | β | RW | RW as% R ² | β | RW | RW as% R ² | β | RW | RW as% R ² | β | RW | RW as% R ² | β | RW | RW as% R ² |
| R² | .18[*] | | | .21[*] | | | .24[*] | | | .28[*] | | | .26[*] | | |
| A | .04 | .01 | 3 | -.02 | .01 | 3 | .13 | .04 | 15 | .06 | .02 | 8 | .28 [*] | .06 | 24 |
| C | .07 | .02 | 6 | .11 | .06 | 19 | .33 [*] | .11 | 43 | .41 [*] | .15 | 50 | .12 | .03 | 12 |
| E | -.06 | .02 | 5 | .04 | .02 | 7 | .02 | .01 | 4 | -.02 | .01 | 4 | .36 [*] | .12 | 46 |
| N | .22 [*] | .07 | 20 | -.02 | .01 | 5 | .05 | .01 | 2 | .01 | .01 | 3 | .08 | .01 | 3 |
| O | -.07 | .02 | 7 | .04 | .02 | 5 | -.09 | .00 | 1 | .01 | .00 | 2 | .07 | .03 | 9 |
| R²Δ | .13[*] | | | .11[*] | | | .01 | | | .01 | | | .01 | | |
| H | -.24 [*] | .06 | 22 | .32 [*] | .10 | 31 | .09 | .04 | 16 | -.01 | .02 | 8 | -.11 | .01 | 3 |
| P | .36 [*] | .11 | 37 | -.24 [*] | .10 | 30 | -.09 | .05 | 19 | -.16 | .07 | 26 | .03 | .01 | 2 |

Note: n = 148. Boldface values are associated with Block 1 and Block 2 R² and R²Δ, respectively. CS = cyberslacking; ENG = engagement; RUC = regular upward communication; SMT = self-management tactics; CSE = conscious socialization efforts; β = the standardized beta from multiple regression; RW = the relative weight from the relative importance analysis; and RW as% of R² indicates the importance of the proportion of R² attributable to each predictor.

* p < .05.

respect to the relative importance of personality variable predictors, Honesty and Procrastination both accounted for the bulk of the variance in engagement. For cyberslacking, Procrastination

was most important, followed by Honesty and Neuroticism, which were both equally important. Finally, both regular upward communication and self-management tactics were predicted largely

Table 4
Results of bootstrapped indirect effects tests.

| Model | <i>a</i> path | <i>b</i> path | <i>c</i> ' path | <i>a</i> ' <i>b</i> |
|---------------------------------|---------------|---------------|-----------------|---------------------|
| H _{2a} : H → RUC → CS | .20 | -.28* | -.68* | -.06 |
| H _{2b} : H → RUC → ENG | .20 | .17* | .48* | .03 |
| H _{3a} : C → RUC → CS | .76* | -.28* | .74* | -.21* |
| H _{3b} : C → RUC → ENG | .76* | .17* | .07 | .13* |
| H _{4a} : P → SMT → CS | -.27 | -.32* | .85* | .09 |
| H _{4b} : P → SMT → ENG | -.27 | .19 | -.29* | -.05 |
| H _{5a} : C → SMT → CS | .88* | -.32* | .82* | -.28* |
| H _{5b} : C → SMT → ENG | .88* | .19* | .03 | .16* |
| H _{6a} : E → CSE → CS | .65* | .08 | -.20 | .05 |
| H _{6b} : E → CSE → ENG | .65* | .12* | .03 | .08* |
| H _{7a} : A → CSE → CS | .73* | .08 | .41 | .06 |
| H _{7b} : A → CSE → ENG | .73* | .12* | .36* | .09* |

Note: *n* = 148.

* *p* < .05.

by Conscientiousness, and conscious socialization tactics were predicted by Agreeableness and Extraversion.

3.2. Tests of intermediary hypotheses

The significance of intermediary variables as linkages between personality and distributed work effectiveness involved testing the indirect effect. The PROCESS program provided by Hayes (2013) provides significance tests of the *a* coefficient (i.e., personality-intermediary path), *b* coefficient (i.e., intermediary-outcome path), and *c*' coefficient (i.e., personality-outcome direct effect). The *a* * *b* indirect effect is tested for significance against confidence intervals generated from a 1000-sample bootstrapped distribution.

Table 4 contains the results for tests of the proposed linkage variables connecting personality and distributed work effectiveness. H₂ and H₃ proposed that regular upward communication would be an intermediary between Honesty and Conscientiousness in the prediction of cyberslacking (H_{2a} and H_{3a}, respectively) and engagement (H_{2b} and H_{3b}, respectively). Whereas the indirect effects involving Honesty were not significant, both indirect effects for Conscientiousness were significant. Thus, H_{2a} and H_{2b} were not supported but support was obtained for H_{3a} and H_{3b}.

H₄ and H₅ predicted that self-management tactics would be an intermediary between Procrastination and Conscientiousness in the prediction of cyberslacking (H_{4a} and H_{5a}, respectively) and engagement (H_{4b} and H_{5b}, respectively). The indirect effect involving both Procrastination and cyberslacking and Procrastination and engagement were not significant. However, the indirect effect involving both Conscientiousness and cyberslacking and Conscientiousness and engagement were significant, which supports H_{5a} and H_{5b}.

H₆ and H₇ posited that conscious socialization efforts would be an intermediary between Extraversion and Agreeableness in the prediction of cyberslacking (H_{6a} and H_{7a}, respectively) and engagement (H_{6b} and H_{7b}, respectively). The indirect effect involving Extraversion and cyberslacking was not significant, whereas the indirect effect involving Extraversion and engagement did reach significance. Similarly, the indirect effect involving Agreeableness and cyberslacking was not significant, whereas the indirect effect involving Extraversion and engagement did reach significance. These analyses provide support for H_{6b} and H_{7b}, but not H_{6a} or H_{7a}.

3.3. Tests of personality profile hypotheses

For each profile hypothesis we first established the latent profile by evaluating model-data fit and entropy values within LPA. Model-data fit is estimated with increasingly complex models, beginning with a single profile solution and adding profiles until the Bayesian

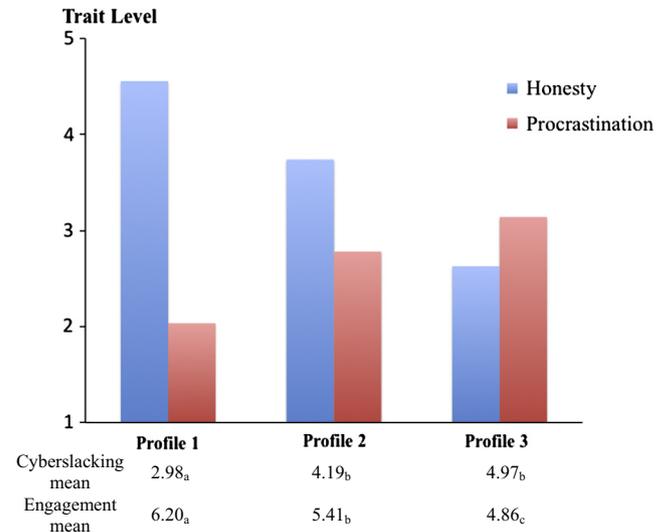


Fig. 1. Profiles of Honesty and Procrastination and corresponding levels of distributive work outcomes. Outcome mean values with unshared subscripts indicate significantly different means.

Likelihood Ratio Test (BLRT) associated with the adjusted Bayesian Information Criterion does not indicate a significant increase in fit (e.g., Marsh et al., 2009). The entropy values provide an omnibus estimate of classification accuracy, as one output of LPA is predicted profile membership. Entropy values of 1.0 indicate perfect classification, whereas values of .50 are considered poor. Following identification of the number and nature of the profiles, the pseudo-Wald chi-square test is used to compare mean differences on effectiveness levels across profiles. These are established procedures in the LPA literature (Pastor, Barron, Miller, & Davis, 2007).

H₈ suggested that profiles involving Honesty and Procrastination would be associated with different levels of cyberslacking (H_{8a}) and engagement (H_{8b}). Three profiles emerged according to the BLRT test, which indicates significantly improved model-data fit up to a three profile solution, $\chi^2\Delta(3) = 9.71, p < .05$. The entropy value of .82 suggested favorable classification accuracy. Fig. 1 plots the means of Honesty and Procrastination for each profile and indicates that Profile 1 involved high Honesty and low Procrastination, Profile 2 comprised moderately high Honesty and moderately low Procrastination, and Profile 3 comprised moderately low Honesty and moderately high Procrastination. According to the pseudo-Wald χ^2 test of mean differences, employees classified under Profile 1 had means that were more favorable on both cyberslacking and engagement than employees characterized by the other two profiles. Further, Profile 2 was superior to Profile 3 on engagement, whereas there was no difference on cyberslacking.

H₉ predicted that profiles involving Honesty and Conscientiousness would be related to different levels of regular upward communication. However, given RIA demonstrating that the bulk of the variance explained in this outcome was predicted by Conscientiousness and no other trait added significantly to that prediction, further profile analyses seemed superfluous. Similarly, for H₁₀ we predicted that Procrastination and Conscientiousness would be associated with self-management tactics, but in the RIA it was only Conscientiousness that explained significant and important variance. As such, neither H₉ nor H₁₀ were investigated further.

H₁₁ posited that profiles involving Extraversion and Agreeableness would be related to different levels of conscious socialization tactics. Indeed, in the RIA both of these personality factors accounted for important variance. Three profiles emerged according to the BLRT test, $\chi^2\Delta(3) = 9.71, p < .05$, although the entropy value of .61 was relatively weak. Adding a fourth profile did not significantly

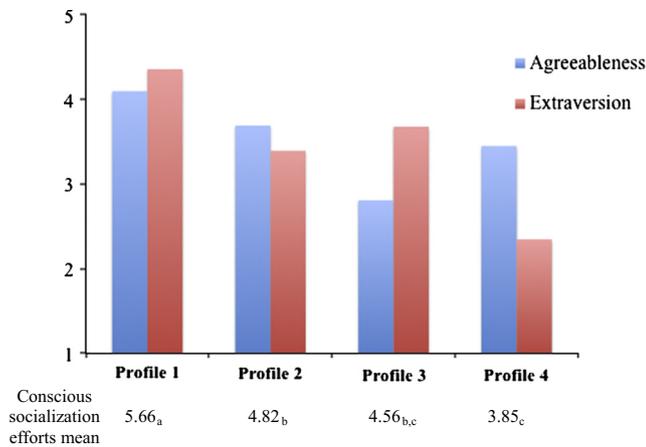


Fig. 2. Profiles of Agreeableness and Extraversion and corresponding levels of conscious socialization efforts. Outcome mean values with unshared subscripts indicate significantly different means.

increase model-data fit, $\chi^2\Delta(3) = 3.50$, *ns*, but the entropy value of .71 was considerably more favorable, suggesting more accurate classification of individuals to profiles. Moreover, the emerging profiles were more theoretically rich. As indicated in Fig. 2, the four profile solution contained a profile with high Agreeableness and Extraversion (Profile 1), moderate Agreeableness and Extraversion (Profile 2), low Agreeableness and moderate Extraversion (Profile 3), and moderate Agreeableness and low Extraversion (Profile 4). Indeed, the pseudo-Wald χ^2 test of mean differences on conscious socialization efforts indicated that individuals in Profile 1 reported the highest means, followed by Profile 2 and Profile 3 which had moderate means and were not significantly different from each other. Profile 4 exhibited the lowest mean on conscious socialization efforts, although not significantly lower than Profile 3.

4. Discussion

According to research by Moody and Siponen (2013), determinants of cyberslacking are complex. Apparently, attitudes, emotions, and social factors affect whether an employee intends to use work time for personal Internet use. Furthermore, anticipation of negative consequences is also an important determinant (Pee et al., 2008). Thus, there is a complex interplay of variables leading to cyberslacking, and we added considerably to this by examining personality and novel intermediary variables including self-management tactics, conscious socialization efforts, and regular upward communication. These personality and intermediary variables were also found to influence work engagement, which has only rarely been considered in the context of distributed work (e.g., Stanton, 2002). Yet, engagement is a primary antecedent of task performance and organizational citizenship behaviors (Rich et al., 2010), and it is of high importance to employees, front-line leaders, and upper management.

The current research offers a number of contributions. The most important finding is that personality appears to be a factor involved in distributed work effectiveness and behavior. Specifically, the results advance research by suggesting that non-Big Five traits of Honesty and Procrastination can be at least as important as the Big Five, that personality may relate to distributed work effectiveness both directly and indirectly through intermediary behaviors, and that traits can combine into profiles that describe “types” of people with varying degrees of expected effectiveness levels. Further, the current study supports the practical implications of personality assessment by making linkages to workplace

criteria of increasing relevance to modern organizations that are rapidly incorporating distributed work arrangements. Below we consider these contributions in greater depth.

4.1. Implications for research

Often researchers focus on Big Five factors of personality and overlook other traits (see O'Neill and Hastings, 2011). In the current study, even with the entire Big Five controlled, Honesty and Procrastination remained the dominant predictors of cyberslacking and engagement in distributed work. Neuroticism also emerged as an important predictor of cyberslacking, which suggests that employees prone to feelings involving anger, irritation, and anxiety may need extra support during distributed work. In the profile analyses, a group of employees high on Honesty and low on Procrastination were identified, and these individuals exhibited the most favorable levels of cyberslacking and engagement. In sum, from a scientific perspective, this indicates that it is worthwhile to identify traits that complement the Big Five in order to maximize the prediction of certain outcomes using personality (see also Ashton & Lee, 2007).

We identified three new intermediary variables, developed scales that were supported by psychometric analyses, and found that they explained linkages between some traits and distributed work effectiveness. Regular upward communication linked Conscientiousness to both cyberslacking and engagement, suggesting that employees high in Conscientiousness keep their supervisors informed with respect to work issues and progress, which likely further reinforces these individuals' motivation to avoid cyberslacking and remain engaged (e.g., Inceoglu & Warr, 2011; Jia et al., 2013). Self-management tactics also connected Conscientiousness to both cyberslacking and engagement, suggesting that employees high in Conscientiousness are using another productive set of behaviors by planning, structuring, and thinking ahead (e.g., Bakker, Demerouti, & ten Brummelhuis, 2012). These findings fit within theories of personality as a buffer, in that possessing a given trait helps the individual avoid engaging in counterproductive activity (e.g., Skarlicki, Folger, & Tesluk, 1999). They can also be put into context of trait activation theory (Tett & Burnett, 2003), as Conscientiousness is clearly activated by job demands of distributed work involving regular upward communication and self-management tactics.

With respect to the third intermediary variable, Extraversion and Agreeableness increased conscious socialization efforts, which in turn predicted engagement. Profile analyses further indicated that high scores on both traits were needed to reach the maximum conscious socialization effort level. Moderate scores on both or either traits led to lower levels of socialization efforts, and individuals low on Extraversion were the least likely to seek social connections during distributed work. Accordingly, a dependency exists such that Agreeableness contributes additionally and quite powerfully to conscious socialization efforts but only when Extraversion is already moderate to high. Stated differently, Extraversion is necessary but not sufficient for creating and maintaining opportunities to address social needs during distributed work. This, in turn, seems to be important for achieving high work engagement. Such findings highlight trait activation theory by demonstrating how Extraversion is affected by facilitators of the distributed work environment. Working from a distance has a strong impact on extraverted individuals, and as such they will be particularly sensitive to recognizing cues to engage in social interaction. If they do not use regular socialization tactics, Extraversion will generally be harmful for distributed work outcomes because of the isolation of this environment (e.g., O'Neill et al., 2009). Agreeableness, by virtue of cooperation and helpfulness, contributes to the probability that extraverted employees who

make creative efforts to maintain social interactions will persist for the long-term.

Important for future research is consideration of the hypotheses that were not supported. Honesty and Procrastination were not related to outcomes via the expected intermediary variables of regular upward communication and self-management tactics, respectively (see H_2 and H_4). Perhaps dishonest people would be equally likely to keep their supervisors informed even if this was largely driven by impression management motives rather than transparency (cf. Bourdage, Lee, Lee, & Shin, 2012). Moreover, variation on Procrastination by itself may not be related to self-management tactics, although supervisors that coach employees to better self-manage may overcome some of the challenges of high Procrastination potential (promising intermediary variables for future research consideration are offered below). Hypotheses involving conscious socialization tactics and cyberslacking were also not supported (see H_{6a} and H_{7a}), suggesting that behaviors aimed at reducing feelings of isolation and addressing social needs have little implications for Internet distraction. Nevertheless, this is valuable knowledge because in theory unwanted distractions involving social website surfing could be more likely when an individual feels disconnected from the interpersonal environment. Knowledge that this does not seem to occur is useful as it may not be helpful to emphasize conscious socialization efforts in order to address cyberslacking. Rather, our results suggest cyberslacking could be reduced with regular upward communication and self-management tactics, which managers could encourage and develop in their staff.

4.2. Implications for practice

The practical implications of this research involve the potential application of personality for supporting recruitment, selection, placement, and identification of individuals' suitability for distributed work. Honesty and Procrastination were powerful predictors of cyberslacking and engagement, as was Neuroticism as a predictor of cyberslacking. Conscientiousness was highly important for regular upward communication and self-management tactics. Finally, Extraversion and Agreeableness appeared to support the use of conscious socialization efforts. As such, although further replication and cross validation is needed, there seems to be promise in assessing an individual's personality in order to provide insights for managers deciding who to place in distributed work, how often distributed work should be used, and the particular outcomes an individual may be most able to achieve in light of his or her personality.

4.3. Limitations and future research

The principal limitation of this study is its cross-sectional design, which precludes causal implications. Accordingly, the ordering of intermediary variables and outcome variables could be reversed, mutually reinforcing, or possibly caused by a common third variable. For example, as a reviewer noted, the current design does not rule out the possibility that lower engagement could cause less regular upward communication. We predicted the reverse because engagement and cyberslacking are conceptually understood as indicators of distributed work effectiveness, whereas conscious socialization tactics, regular upward communication, and self-management tactics are behaviors that should link personality to effectiveness. Indeed, advancing these theories, developing the measures, and providing an initial empirical test is the main strength of this research. The issue of causality is less problematic for personality, however, as it is relatively stable over the adult lifetime and would not be influenced by our proposed intermediary or outcome variables.

The research findings raise a number of issues for future directions. First, Honesty and Procrastination were not uniquely

predictive of any of the intermediary variables, and therefore potential mechanisms were not identified. Given the predictive power of these traits, future research should consider how they impact outcomes. Employees low on Honesty may experience moral disengagement during distributive work, which may promote a willingness to cyberslack. Employees high on Procrastination may be impulsive and distraction prone when environmental cues such as laundry and house work, a friendly phone call, text messages and social media, pleasant weather, or a loud conversation at a coffee shop present themselves, and therefore the distraction potential of the distributed work environment may be an intermediary for future consideration.

Second, other traits beyond the Big Five may be of value, such as Egotism, Conventionality, and Manipulativeness (see O'Neill and Hastings, 2011). Egotistical employees may find distributed work difficult because it interferes with their ability to show confidence and gravitate toward positions of authority and leadership over others (cf. Paunonen, Lönnqvist, Verkasalo, Leikas, & Nissinen, 2006). Conventional employees may resist or be uncomfortable with the novelty of distributed work, as they may feel work is a place rather than an activity (Workman et al., 2003). Manipulative employees could prefer either work environment, as they might find it easier to manage impressions through technology, or they might find face-to-face is needed to truly leverage their political skills. These possibilities await further research, and other non-Big Five traits may also be worth considering.

Third, further examination of personality profiles is needed, as there are many potential profiles to consider and these offer a novel, person-centric view of how patterns of personality traits can influence distributed work outcomes. For example, a profile involving Extraversion and Emotional Stability may be insightful. A person low on Emotional Stability is likely susceptible to rapid shifts in mood. If he or she is extraverted, the preferred method of coping may be to reach out to others; if he or she is introverted, the preferred method of coping may involve being alone. Accordingly, these two employees, both with low Emotional Stability, may perform better and be more satisfied during distributed work if they have low rather than high Extraversion. In sum, additional profiles such as those considered here would be an interesting avenue for future research.

Fourth, in the cyberslacking literature there is disagreement regarding whether the behavior is viewed as productive or destructive (e.g., Coker, 2013; O'Neill et al., 2014). We adopted the destructive view and position cyberslacking as a new form of counterproductive and deviant work behavior, for which Honesty and Procrastination were strong predictors. Yet, we see value in examinations of cyberslacking as a productive behavior that provides rest, respite, and stress reduction (Coker, 2013), and we suspect that a different set of traits may be relevant. For this form of cyberslacking, traits involving self-regulation, organization, and Emotional Stability could be important, because they would help avoid excessiveness and be unlikely to produce strong emotional feelings (e.g., reading a sensitive Facebook message) that detract from returning to work refreshed, focused, and ready to execute. Future research on this question would certainly be valuable.

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