

# **Personality Differences as Predictors of Action-Goal Relationships in Work-email**

## **Activity**

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### Abstract

Email is a ubiquitous and work-critical tool for many people at work today. Research suggests that people engage a range of actions to deal with work-email, with the same email action (e.g. turning off email) facilitating some goals (e.g. for well-being) but hindering others (e.g. for being helpful). Using mixed-methods across two studies with knowledge workers who use work-email, we examined whether individual differences in personality can explain why there is a goal paradox of work-email actions. The theory of purposeful work behavior (TPWB) informs our approach. In Study 1, semi-structured interviews (N=28) uncovered (using thematic analysis) a comprehensive list of 72 work-email actions that differently impact goals related to Work, Well-being, Control and Concern. Study 2 then addressed whether personality traits could predict work-email activity directed towards these four goals. A multi-level survey (N=341;  $n = 5575$ ) of work-email activity was analyzed using cross-level hierarchical linear modelling. We found that action-goal relationships in dealing with work-email, could be predicted by people's trait-relevant goal striving. This advances understanding of why work-email actions can be both beneficial and problematic for people. Use of habitual actions also interacted with personality to strengthen action-goal relationships, except for those with low Emotional Stability. Findings are discussed in terms of their implications for theory, policy and practice.

*Keywords: work-email, personality, goal-striving, theory of purposeful work behavior, Five Factor Model*

### Personality Differences as Predictors of Action-Goal Relationships in Work-email Activity

#### 1.1 Introduction

Work-email activity is pervasive in contemporary, digitally enabled work (Kushlev & Dunn, 2015), with work-email often reported as a work critical tool that people would now struggle to do without (Ellis, 2019; Sumecki, Chipulu & Ojiako, 2011). Yet, in recent years, we have seen organizations (Burkus, 2016; Gibson, 2014) and even governments (France-Press, 2016; Stuart, 2014) introduce policies about how to limit or manage our work-email. Whether by restricting access outside of working hours, providing quick response-time expectations, or banning internal email, such policies assume firstly that email is a problem that needs to be solved (Ellis, 2019), and secondly that there is a ‘one-size-fits-all’ resolution that can be applied.

Yet, we know that the actions people use to deal with work-email are idiosyncratic, with both positive and negative repercussions for work and well-being (Dawley & Anthony, 2003). For example, people use work-email to manage their task lists, organize multiple project strands, work flexibly and conveniently, or to keep an audit trail of responsibilities (Dawley & Anthony, 2003; Middleton & Cukier, 2006; O’Kane & Hargie, 2011). However, work-email can also create excessive workload, interrupt people and disrupt their current workflow, disrupt family/home life, and cause misinterpretation and miscommunication issues (Barley, Meyerson & Grodal, 2011; Belkin, Becker & Conroy, 2016; Lee, Panteli, Bulow & Hsu, 2015; Mark, Volda & Cardello, 2012; Nurmi, 2011). Whether work-email activity is positively or negatively construed largely depends on the goals that people are striving towards, and these are in turn dependent on workers’ job roles, current tasks, organizational culture, job level and status, and individual differences (Addas & Pinsonneault, 2018; Kneidinger-Muller, 2019; Huang & Lin, 2014; Pignata, Lushington, Sloan & Buchanan, 2015; Russell, Purvis & Banks, 2007; Russell, Woods & Banks, 2017;

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Waller & Ragsdell, 2012). For example, if people are focused on reducing work stress they may opt to check their email less often, yet such an action is unlikely to be helpful if people are working in a quick-response email culture with the goal of being considerate and attentive to their colleagues (Kushlev & Dunn, 2015, Nurmi, 2011).

In this paper, our purpose is to explore individual differences in the actions that people use to deal with work-email, and how different work-email actions impact people's goals differently. As such, the influence of personality traits is examined through the conceptual lens of action-goal relationships, using the Theory of Purposeful Work Behavior (TPWB: Barrick, Mount & Li, 2013). The TPWB posits that our actions at work are galvanized to satisfy personally-salient goals, predictable according to people's traits (Barrick, Stewart & Piotrowski, 2002). For example, conscientious people may deploy actions associated with being efficient and keeping on top of work tasks, as this is a trait-based priority for them (Costa & McCrae, 1997).

By examining personality in the context of work-email goals, we aim to explain paradoxical empirical findings that the same email action can be helpful in attaining some goals, but hindering in attaining others (Dawley & Anthony, 2003; Kruglanski, Babush, Dugas and Schumpe, 2015; Middleton & Cukier, 2006). In this paper, we therefore make a unique contribution to the field by examining personality as a determinant of individual action-goal relationships. In so doing, we aim firstly to compile a comprehensive list of the actions and goals that people use in work-email activity. Despite the abundance of studies into work-email activity, such an exercise has not been undertaken to date, potentially limiting researchers in referring to only a handful of actions, or else, not enabling the differentiation between the causes and consequences of different 'types' of work-email activity (Ellis, 2019). If the range of actions that people use to deal with work-email service different, personally salient goals for different people, then presenting work-email action

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recommendations (e.g. banning work-email activity outside of working hours) as equally helpful to all workers is misplaced. This research has implications for practitioners, employers and email-users concerned with developing effective individual email management strategies and appropriate organizational policies.

Further, by linking work-email actions to goals in a relevant, applied work setting, our research enables an ecologically valid examination of the TPWB, which has not (to the best of our knowledge) been applied to the study of email activity to date. This will allow us to explore whether and how the trait-goal relationships proposed in the TPWB are borne out in this specific context, and whether the TPWB provides a useful framework for advancing understanding of why people deal with work-email in different ways, and with different repercussions.

We acknowledge that email is an asynchronous work communication tool that differs from other communications (such as face-to-face exchange, skype or telephone call) because of its relative leanness of media richness and facility for delay (Daft & Lengel, 1986; El-Shinnawy & Markus, 1997). However, the purpose of this research is not to compare action-goal relationships relating to different communication media. We refer readers to empirical studies undertaken by Barley et al., (2011), Braun, Hernandez Bark, Kirchner, Stegmann and van Dick (2018), O’Kane and Hargie (2007), Renaud, Ramsey and Hair (2006), if this is of interest. Rather, our concern is to focus solely on the range of work-email actions that people report to use, to specifically understand how these help or hinder different goals, according to trait-relevant striving.

We designed two studies to examine personality and goal-striving in work-email activity, using a mixed-methods approach. In using the term ‘goal-striving’, we refer to the deployment of actions allocated in pursuit of a goal (Mitchell, 1997). This approach fits with recommendations recently made by Ellis (2019), who stresses the need to examine actual

behaviors associated with communication technology and to ensure these are investigated in relation to both outcomes and traits. In the first study, actions and goals relating to work-email needed to be identified. Accordingly, we conducted an exploratory interview study to establish (i) the range of actions people use to deal with work-email, and (ii) the goals towards which these actions are focused. In the second study, the actions and goals identified in Study 1 were used in a multi-level survey of knowledge workers<sup>1</sup>, to test hypotheses around personality and goal-striving. In the sections that follow we first detail how extant theory contributed to our research design. We then present each study in turn, before providing an overall discussion of our findings.

### **1.1.1 Personality Predictors of Goal-striving**

Personality traits are defined as the characteristic patterns of behavior, thought and emotion that influence interaction with one's environment (see e.g. Parks & Guay, 2009; Funder, 2001). Research on the structure of personality traits has generally converged on the Five Factor Model (FFM), comprising Extraversion, Conscientiousness, Emotional Stability, Openness to Experience and Agreeableness (McCrae & Costa, 1997). The TPWB uses the FFM to predict which goals are salient to people with different personality characteristics, and therefore more likely to prompt goal-striving activity (Barrick et al., 2013).

The nature of personality differences gives rise to four work-related goals in the TPWB: Achievement, Autonomy, Status and Communion. Goals are internal representations of desired end states, achieved via different actions (Austin & Vancouver, 1996; DeShon & Gillespie, 2005). Actions are goal-directed plans, chosen from a range of alternatives (Locke, Frederick, Lee & Bobko, 1984). In the TPWB, goal-striving represents the use of actions with the intention of achieving one's valued goals. Communion and Status striving represent goals respectively concerned with 'getting along with' and 'getting ahead of' others (Hogan & Shelton, 1998). Autonomy and Achievement striving represent goals respectively concerned

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with being in control and being competent. Although the four goals of the TPWB are conceptualized as broadly valued, individuals concentrate their energies on working towards the goals that have especial importance to them (Parks & Guay, 2009). For example, according to the TPWB more conscientious people are likely to strive towards Achievement goals because they are interested in producing good work; more agreeable people are likely to strive towards Communion goals, because they are interested in getting along with other people (Barrick et al., 2002, 2013).

Goal-striving therefore appears to explain why people appear to use such a wide range of actions for dealing with their work-email, and why similar actions have paradoxical outcomes. For example, those who use actions for continually and actively dealing with incoming work-email may be less productive (through the creation of extra workload) but better at building working relationships (because of their attentiveness in communication) (Nurmi, 2011). This demonstrates how the same set of actions can be helpful in achieving one goal (Communion: getting along with others), but hindering in terms of another goal (Achievement: being productive).

Using the TPWB, one might expect that conscientious people are interested in striving towards Achievement goals, and so conscientious people are likely to choose actions that optimize their productivity in dealing with work-email (such as requesting email response deadlines: Gupta, Sharda & Greve, 2011). On the other hand, as highly agreeable people are striving towards goals that connect them with other people (Communion striving), then agreeable people are likely to engage in actions that make them highly responsive (such as responding to every email as soon as it arrives: Mazmanian, Orlikowski & Yates, 2005). Investigating personality as a mechanism to explain paradoxical outcomes associated with work-email activity is therefore worth exploring, and allows us to verify or extend propositions made by the TPWB in this specific applied work-email setting.

## 2.1 Study 1

### 2.1.1 Study 1 Introduction

The purpose of Study 1 was to ascertain (i) which actions people use to deal with their work-email, and (ii) the perceived goals that these actions either (or both) help and hinder. In respect of the first point, research has yet to produce a comprehensive list of work-email actions that people use at work in contemporary settings. Given that work-email has evolved in its application and use over time (from a ‘dial-up’ or intranet occasional communication to a wi-fi/4G-enabled global tool), it is important to identify how it is being used in its current form today. By establishing a compilation of the broad range of actions that people use to deal with email at work, it is hoped that a fulsome list of goals associated with work-email activity will also be uncovered. In respect of the second point, there is a dearth of existing research available that relates work-email actions to goal-striving (Ellis, 2019; Kushlev & Dunn, 2015), and so an exploratory, qualitative approach was deemed appropriate (Suddaby, 2006). Study 1 sought to answer the following research question:

*What are the actions that people use to deal with work-email across a range of contemporary work contexts, and how do these actions serve particular personal goals?*

### 2.1.2 Study 1 Method

**2.1.2.1 Procedure and participants.** Twenty-eight participants were contacted via purposive opportunity sampling (Collingridge & Gantt, 2008), using the first author’s network of contacts. To ensure that sampling was appropriate for the study, inclusion criteria were specified, and sampling also aimed to access a range of ages, job levels, job types and industry sectors. The key criteria for inclusion were that participants were knowledge workers (see endnote i), using email for work, accessed via both a desktop computer and a mobile device. Sixteen women and twelve men were interviewed, with an average age of 33-years. Participants worked in Finance and Insurance (N=7), Pharmaceutical Sector (N=11),



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Utilities (N=1), Creative and Media Sector (N=6) and Professional or Service Sectors (N=3). The modal job level was middle or project management (N=11).

A semi-structured interview format was applied. Questions were asked relating to: 1) actions used when dealing with work-email according to different conditions, states, personal and organizational factors (e.g. *“How do your strategies for sending email change according to: how bored you are”*); and, 2) perceived pros and cons of work-email actions, and how these impact outcomes or goals (e.g. *“Do you think that any of your strategies for dealing with incoming email are problematic? Why?”*). Interviews were held face-to-face at a time and location convenient to participants and lasted one to two hours. Prior to the interview, informed consent and right to withdraw was established. Participants received £10 for their participation, equivalent to US\$15. After the interview, participants were thanked and debriefed. Interviews were recorded (with permission) using a portable voice recorder, and transcribed verbatim.

**2.1.2.2 Analysis.** We conducted thematic analysis of the data, using the structural coding approach outlined by Saldana (2011). This involves coding in two stages, using a bottom-up, inductive approach (Charmaz, 2014). The first stage involved reflecting on passages in the interview transcripts to decipher the core meaning (decoding). Passages were then labelled with a code, which represented the meaning identified (encoding). In this way we produced ‘concepts’ of repeatedly expressed work-email actions and clustered these into categories. Participants discussed the consequences of their actions with respect to helping or hindering goal attainment, from which we could identify goal categories, using the same procedure as above. Actions were linked to goal categories in terms of whether each action concept was reported to have a ‘positive’ or ‘negative’ impact on each goal.

The action concepts, categories and consequences were systematically listed in a codebook. The iterative process of classifying action concepts, and linking these with positive

and negative relationships with the goal categories, continued until we were satisfied that the data would yield no further actions or associations. As part of an iterative, immersive approach, the first author conducted all interviews and initial coding, with the second author reviewing the codebook, alongside sample transcripts (Charmaz, 2014; Corbin & Strauss, 1990; Urquhart, 2001). The final coding framework was created following discussion and agreement between the authors (Syed & Nelson, 2015). Our thematic analysis allowed us to focus on not only ‘what’ people are doing when dealing with email, but ‘why’ they are doing this (Urquhart, Lehmann & Myers, 2010). Our analysis therefore served two purposes: 1) to develop a compilation of work-email action concepts, arranged into categories, and 2) to develop a ‘taxonomy’ of work-email goal categories, from the analysis of how different actions help or hinder different goals.

### **2.1.3 Study 1 Findings and Discussion**

**2.1.3.1 Usage findings.** Participants worked a mean of 42 hours per week, had used email at work for a mean of 120 months, accessing these via smartphone for a mean of 35 months. The median number of work-email received each day was reported to be 60. Participants received work-email on their device by physically checking it (N=14), by visual alert (N=16) and/or by audible alert or vibration (N=10). Participants received work-email on their desktop computer by physically checking it (N=14), by visual alert (N=22) and/or by audible alert (N=3).

[INSERT TABLE 1 ABOUT HERE]

**2.1.3.2 Actions and goals.** Seventy-two work-email action concepts were identified, that we clustered into 10 sub-categories, and three key categories for ‘constructing and sending email’, ‘dealing with incoming email’ and ‘managing the email system’. See Table 1 for the arrangement of categories and sub-categories. The positive and negative repercussions of using each action concept were noted (aligning with Ellis’s 2019 recommendations) in

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relation to the goals that participants reported as relevant (see Supplementary Appendix 1, which includes examples of how different statements were coded). Reported goals were initially summarized as pertaining to five different categories: ‘Work efficiency’, ‘Well-being’, ‘Showing concern for others’, ‘Maintaining a sense of control’, and ‘Being true to one’s self’. Henceforth these will be referred to as “Work”, “Well-being”, “Concern”, “Control” and “Self”, respectively. In addition to these goals, ‘habit’ was offered as an explanation for people’s actions. However, this is not a goal (according to the definition presented earlier).

The Concern goal reflects a desire to be considerate in one’s use of work-email. The Work goal reflects the need to be efficient and effective in one’s execution of work-email tasks. The Control goal emerged as participants reported that they use certain work-email actions in order to feel in control of their work. The Well-being goal related to people’s desire to reduce experiences of stress and overload in their dealings with work-email. Each of these goals is discussed in more detail in the Study 2 Introduction. We decided not to retain Self as a focal goal relating to work-email activity. Firstly, this is because Self was less often cited as a reason for employing a work-email action, compared with the other goals (see Supplementary Appendix 1). Secondly, because our sense of self and identity provides a representation of who we are, which is reinforced by pursuing trait-relevant goals (Markus & Nurius, 1986), it is more likely that Self, or ‘who we are’, predicts our goal-striving. This is conjecture that also aligns with the TPWB.

**2.1.3.3 Study 1 summary.** In this initial exploratory study we provide the first comprehensive list of work-email actions that people report to use in work-email activity. It is hoped that this compilation can be used by future researchers who are interested in studying different categories of work-email activity. In addition, we uncovered four associated focal goals that characterize contemporary work-email activity. In common with

expectation, the same action was often linked with the achievement of different goals, confirming that work-email actions can have positive and negative repercussions for people (Kruglanski et al., 2015). The actions and goals identified in Study 1 were then used in the design of Study 2, to examine the role of personality in predicting goal-striving (and the unexpected finding regarding habit-use) in work-email activity.

### 3.1 Study 2

#### 3.1.1 Study 2 Introduction

The main purpose of Study 2 was to advance theoretical understanding of the role of personality in predicting action-goal relationships when dealing with work-email. In achieving this aim we wanted to uncover whether FFM personality characteristics are the explanatory mechanisms in predicting goal-striving in this context, and whether these predictions align with those made in the TPWB. In addition, we wanted to understand more about the role of ‘habit’ in predicting work-email activity.

**3.1.1.1 Relating personality traits to goal-striving.** The TPWB provides a useful explanation of which Five-Factor Model (FFM) traits predict striving towards different goals (Barrick et al., 2013; Barrick et al., 2002). However, the work-email goals uncovered in Study 1 are not necessarily commensurate with the goal categories put forward by the TPWB, see Table 2. For example, in the TPWB, Status striving is exemplified by a need to feel control over others. However, such a goal was not reported by our Study 1 participants, even as part of the ‘Control’ goal category. We returned to our Study 1 data to examine the possibility that our coding had missed this (Suddaby, 2006), but found that even when action concepts related to the management or micro-management of others via email, these were only in relation to showing concern for others (positive or negative) or achieving work goals more effectively.

In addition, in the TPWB and other goal theories, well-being is a super-ordinate goal or

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by-product that emerges when other goals are met (Barrick et al., 2013; DeShon & Gillespie, 2005; Kruglanski et al., 2015; Ryan & Deci, 2001). Whilst we concur that acting in accordance with valued goals leads to heightened well-being at a macro level, we suggest that because stress and overload are salient in work-email contexts (Barley et al., 2011; Brown, Duck & Jimmieson, 2014; Jerejian, Reid & Rees, 2013; Kushlev & Dunn, 2015), well-being acts as a focal goal that determines people's work-email actions.

Therefore, in building our hypotheses about how personality predicts goal-striving in relation to our four work-email goals, we utilize propositions made by the TPWB where goal alignment is clear. However, in the sections below, we also examine how traits are likely to impact goal-striving based on the specific drivers that characterize work-email activity. We then turn our attention to understanding how habits, revealed in Study 1 as involved in people's work-email activity, predict or moderate trait-related goal-striving.

[INSERT TABLE 2 ABOUT HERE]

**3.1.1.2 Control.** Because work tasks are often delivered via email, and because these tasks are seldom negotiated, with implications for people's workloads and priorities, it seems that control is a salient driver in a work-email context (Huang & Lin, 2014). In the TPWB, Autonomy striving is most clearly aligned with our 'Control' goal. In both cases, having control over one's environment is seen to be the core value. However, there is nothing in our Control goal that refers to a need for growth (Ryan & Deci, 2001), which is inherent within the TPWB Autonomy striving, and predicted by openness to experience. Because work-email is very task based (Sumecki et al., 2011), this might explain why our Study 1 participants did not report that their use of email related to abstract growth opportunities. In the TPWB, Extraversion is highlighted as a trait that predicts the need for control over one's environment. Extraversion is associated with a need for agency, environmental feedback and reward (Depue & Collins, 1999; Lucas, Diener, Grob, Suh & Shao, 2000). Further,

extraverted people are more affiliative and comfortable engaging with other people, and so the opportunity to gain control over their work and environment may be well served by utilizing a communication tool, such as work-email (McCroskey & Richmond, 1990; Tett & Burnett, 2003). We therefore anticipate, in line with TPWB predictions, and the aforementioned empirical evidence, that Extraversion will predict Control striving in dealing with work-email. However, because need for growth does not characterize Control goals, we do not expect that Openness will be predictive of striving towards Control goals in the present study. Our next hypothesis is therefore:

*H1a: In work-email activity higher levels of Extraversion are positively related to Control goal-striving.*

Needing to feel control over one's work in an email context is also related to anxiety, a characteristic associated with low levels of emotional stability or neuroticism. Neuroticism is not often positively associated with goal-related action because those with higher levels of Neuroticism often have fewer resources available to galvanize goal-directed activity (e.g. resources may be more often used for 'coping') (Halbesleben & Bowler, 2007; Judge & Ilies, 2002; Parks & Guay, 2009). Dealing with work-email can result in feelings of stress and feeling out of control (Mano & Mesch, 2010; Renaud, Ramsey & Hair, 2006). Given that neurotic people feel less in control in work contexts (Judge, Erez, Bono & Thoresen, 2002), this suggests that work-email activity could prompt them to use the resources they do have available to them to engage in Control goal-striving. Indeed, Control goal-striving is likely to be a form of coping activity, which those with higher Neuroticism are likely to engage. As such, our next hypothesis is:

*H1b: In work-email activity lower levels of Emotional Stability are positively related to Control goal-striving.*

**3.1.1.3 Work.** Achievement striving directly overlaps with the 'Work' goal identified

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in Study 1, and the TPWB suggest that Conscientiousness and Emotional Stability are especially likely to predict this. People utilize work-email to help them to achieve their work goals (Mano & Mesch, 2010; Mark et al., 2012) across a multitude of functions (Dabbish, Kraut, Fussell & Keisler, 2005; Dawley & Anthony, 2003), and conscientious people are especially focused on being hard-working, achievement-oriented, and organized (Costa & McCrae, 1997). In addition, workers need to be able to deal with the stress that work-email can afford (Brown et al., 2014; Renaud et al., 2006). Emotional Stability is associated with working and adapting well to most work contexts (Huang, Ryan, Zabel & Palmer, 2014; Judge & Ilies, 2002). We therefore hypothesize, in line with the TPWB, that:

*H2a: In work-email activity higher levels of Conscientiousness are positively related to Work goal-striving.*

*H2b: In work-email activity higher levels of Emotional Stability are positively related to Work goal-striving.*

**3.1.1.4 Concern.** In the TPWB, Communion striving is most akin to the ‘Concern’ goal from Study 1. The TPWB asserts that higher levels of Emotional Stability and Agreeableness will be associated with striving towards Communion goals, and this is because Communion-striving is associated with a need to be liked and accepted by others. This belongingness need is not a motivator for our Concern goal, which instead reflects a desire to respect and consider other people’s work priorities and patterns. Showing concern is salient in a work-email context (Mark et al., 2012; Nurmi, 2011; O’Kane & Hargie, 2007). Studies report that some people write clear, polite and succinct messages, avoid putting pressure on people to respond, and avoid delegation by email, in order to show consideration towards colleagues (Im, 2006; Nurmi, 2011). Previous research indicates that those who show thoughtful, cooperative and collaborative tendencies are likely to be high on Agreeableness and Conscientiousness, especially with regard to being good team players (Bradley, Baur,

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Banford & Postlethwaite, 2013; Halfhill, Nielsen, Sundstrom & Weilbaeher, 2005; Witt, Burke, Barrick & Mount, 2002). As such, we anticipate that – in a work-email context, goal-striving towards Concern goals will be predicted by those higher on FFM Agreeableness and Conscientiousness. This leads to our next two hypotheses:

*H3a: In work-email activity higher levels of Agreeableness are positively related to Concern goal-striving.*

*H3b: In work-email activity higher levels of Conscientiousness are positively related to Concern goal-striving.*

**3.1.1.5 Well-being.** Research asserts that psychological well-being is a valuable but scarce commodity in contemporary life and that all people strive to conserve or attain it (Hobfoll, 1998; Wright & Hobfoll, 2004). Well-being does not feature as a focal goal in TPWB, however, previous research has shown Conscientiousness to consistently be associated with superior resource allocations (Barrick et al., 2002; Witt et al., 2002; Colbert, Barrick & Bradley, 2014; Perry, Hunter, Witt & Harris, 2010), and a desire to work efficiently (Costa & McCrae, 1997; Luo & Roberts, 2015). Acting efficiently means achieving salient goals at minimum cost to well-being (Hockey, 2000, 2002), to avoid health-related issues that could impede productivity. People who are focused on work performance and goal orientation (as conscientious people are), appear to be driven by a need to experience fulfilment and meaning in their work activity (Carver & Scheier, 1990; Frese, Stewart & Hannover, 1987) and as such may be especially attuned to the achievement of well-being goals. Conscientious people therefore appear to focus on well-being as a core goal (Wiese & Freund, 2005). As such, we hypothesize that:

*H4a: In work-email activity higher levels of Conscientiousness are positively related to Well-being goal-striving.*

There is also evidence that neurotic personalities (low Emotional Stability) tend to



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avoid situations that heighten their stress and anxiety (Elliot and Thrash, 2002). Although neuroticism is less likely to predict major life goal achievement (Judge & Ilies, 2002; Parks & Guay, 2009), the TPWB argues that trait-goal-striving is not concerned with how *well* people achieve their goals. Rather, it explicates which people are more likely to focus on which goals (Barrick et al., 2013). As email can be a source of stress and overload for people (Mano & Mesch, 2010; Renaud et al., 2006), it is likely that those with lower levels of emotional stability will be more likely to experience this, and thus will focus on attaining well-being goals, as a key trait-related concern in work-email activity (Huang & Lin, 2014; Jerejian et al., 2013). As such,

*H4b: In work-email activity lower levels of Emotional Stability are positively related to Well-being goal-striving.*

**3.1.1.6 Habits.** Habit emerged as a key reason for people engaging in specific email actions in Study 1. The frequent use of actions in response to a specific context (e.g. email activity) can result in habitual application (Gardner, 2015; Ellis, 2019; Neal, Wood & Drolet, 2013). In personality-goal-striving relationships, habitual action is likely to appear when relationships are strong and self-affirming, as actions will have been executed more often in such cases, and to good effect (Gardner, 2015; Verplanken & Orbell, 2003). We therefore do not expect that any one personality characteristic will be associated with greater use of habits. However, we were interested in exploring the notion that habits and personality might interact in predicting goal-striving strength. For example, we posit that when a personality characteristic is significantly related to goal-striving (e.g. as found in testing hypotheses 1-4) it is likely to be associated with stronger use of habitual actions in work-email activity. We therefore asked an exploratory research question to examine,

*RQ1: Do habitual actions interact with personality traits to more strongly predict goal-striving in work-email activity?*

### 3.1.2 Study 2 Method

**3.1.2.1 Participants and procedure.** Four-hundred and six participants responded to an email-based request for participants, using purposive opportunity sampling (as per study 1, and in relation to the same inclusion criteria) across the first author's network from business, academia and across social media. An incentive of entry into a prize draw to win gift vouchers was offered. Clicking on a link within the email took potential participants to an on-line survey, operated by Qualtrics. Further ethics information and instructions were provided and participants clicked a button to 'continue' if they consented to take part.

After removing incomplete or unfinished surveys 341 participants were included in the final analyses. The modal age range was 31-40 (36%), 33% were male and 67% were female. Participants worked for a large multi-national energy supplier (12%), a higher education institution (35%), a professional governing body (7%), an overseas development charity (29%), a management consultancy (2%), and 15% worked for a range of other organizations. All participants were knowledge workers, with the modal job level (37%) being project/middle management (or senior lecturer). The majority of participants (56%) worked 31-40 hours per week. Sixty-six percent of participants received up to 50 email each day. Outlook was the main email operating system (90%). Most participants could access work-email when away from their desk or outside of working hours (78%).

**3.1.2.2 Measures.** As per Kneidinger-Muller (2019) the online survey accessed two levels of data. At the first level within-person variables, for 'Goal-striving' and 'Habit' in relation to work-email actions from Study 1 were captured. Within-person data was nested in a second (higher) level of between-person variables measuring FFM personality characteristics. Demographic data was also collected.

*Measuring 'Goal-striving'*. Examining action alongside the goal it serves is considered to be an important and necessary step in furthering understanding of action-goal relationships

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(Halbesleben, Neveu, Paustian-Underdahl & Westman, 2014) in communications technology (Ellis, 2019). ‘Goal-striving’ involves examining what one chooses to pursue (the goal) combined with how one pursues it (the action) (Mitchell, 1997; Parks & Guay, 2009). In the present study, each participant reported the frequency with which they used each of 22 work-email actions, on a five-point scale, where 1 = ‘Never’; 2 = ‘Seldom’; 3 = ‘Sometimes’; 4 = ‘Often’; 5 = ‘Always’. Unless the participant reported that they ‘Never’<sup>ii</sup> used the action, they were then asked about the extent to which they ‘Strongly Disagree’ to ‘Strongly Agree’ (scored from 1 to 5 on a 5-point rating scale respectively) that they ‘use this action’ to successfully achieve the goals of Work (‘to achieve my work goals efficiently’), Well-being (see endnote<sup>iii</sup>), Concern (‘to show consideration to others’), Control (‘to feel in control’) and out of habit (‘because it is habit/automatic for me’: Habit). The frequency of use of the action was entered into a product term with each goal (not Habit) so that the extent to which a person uses common email actions to pursue the four work-email goals could be used to represent Goal Striving for each goal. Using a product as a variable (using the above approach) is commonly used in studies attempting to link actions with outcomes or events (Fishbein & Ajzen, 2010; deLeeuw, Valois, Ajzen & Schmidt, 2015; Ouellette & Wood, 1998) and avoids the tendency for some research to assume that frequent application of an action will necessarily imply certain outcomes or repercussions (Ellis, 2019). Up to 88 within-person measures of goal-striving (i.e. 22 actions related to 4 goals) were captured for each participant. As not all actions were used in goal-striving by all participants, the total number of data points for ‘Goal-striving’ and Habit at level-1 was n=5575. ‘Goal-striving’ scores could range from 5 to 25 for each goal (or habit) related to each action. The higher the score, the higher the extent of goal-striving<sup>iv</sup>. Scores were standardized to the z-scale before analysis.

To encourage participant uptake and minimize drop-out rate (Russell & Daniels, 2018),

not all of the 72 actions reported in Study 1 were included in the survey. Twenty-two actions were selected based on these being the most commonly reported, and related to at least 2 positive and 2 negative repercussions for goals, in Study 1. A full explanation of the action-selection method is outlined in Supplementary Appendix 2. The final list of the 22 actions used in the Study 2 survey can be found in Table 3.

**Measuring ‘Habit’.** Habit was not entered into a product term to measure goal striving, because habit is not a goal. However, to examine whether habitual use of actions interacts with personality to predict goal-striving relationships, the extent to which participants ‘Strongly Disagree’ to ‘Strongly Agree’ (scored from 1 to 5 on a 5-point rating scale respectively) that each action was used out of habit (‘because it is habit/automatic for me’, see above) was measured. Habit was then used as part of an interaction term with personality in each model<sup>v</sup>.

**Measuring Personality.** The 50-item Big Five Factor Marker (Goldberg et al., 2006) personality questionnaire was used to provide level-2 data. This includes five scales that reflect the FFM, with 10-items allocated per scale. Participants were asked to respond to a series of statements (e.g. “I get upset easily”) by rating on a 5-point scale the extent to which the statement is: 1 = ‘Very inaccurate’ to 5 = ‘Very accurate’. Scores for each scale range from 10 to 50. Alphas for each scale are: ‘Extraversion’ ( $a = .87$ ), ‘Agreeableness’ ( $a = .82$ ), ‘Intellect/Openness’ ( $a = .84$ ), ‘Conscientiousness’ ( $a = .79$ ), and ‘Emotional Stability’ ( $a = .86$ ). Scores were standardized to the z-scale before analysis.

**3.1.2.3 Analysis.** Hierarchical linear modelling (HLM: Kreft & deLeeuw, 2004; Snijders & Bosker, 2004) was employed, given that there were two levels to the data offering a within- and between-person design (see above). At level-1 (*i*) within-person data relating to ‘Goal-striving’ and ‘Habit’ was collected for each participant for each action ( $n=5575$ ). This was nested within the individual participants ( $N=341$ ) between-person measures of

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personality at level-2 (*j*). In all of the analyses, MLWiN version 3 was used (Rasbash, Browne, Healy, Cameron & Charlton, 2016). Having established that a two-level model was a better fit for the data than the null model in predicting Goal-striving outcomes, a forward-stepping procedure was adopted to prevent over-inflation of results (Hofmann, Baumeister, Forster & Vohs, 2012). In Step 1, the personality predictor variables were entered *en masse* as fixed coefficients (random intercepts only) to reduce the likelihood of making an erroneous interpretation of effects (Dormann et al., 2013). In Step 2, retaining all personality characteristics that significantly predicted Goal-striving at Step 1, Habit was entered as a main effect (and as an interaction term with significant personality parameters). As ‘Habit’ is a level-1 variable it was group-mean centered at level-2, which limits the impact of biases (e.g. self-report or method bias) on the results (Dimotakis, Scott & Koopman, 2011). Only significant parameters were retained in the final Step 2 model. Improvement in fit at each step is based on improvements in chi squared from the null model at Step 1, and from Step 1 at Step 2.

[INSERT TABLE 3 ABOUT HERE]

### 3.1.3 Study 2 Results

Frequency of use for each of the 22 actions is reported in Table 3, with the mean score for each goal reason reported for all participants who used the action. The median number of actions used by participants was 17. Not all participants were asked about all 22 actions (two actions were only included if people accessed work-email out of work hours; one action was only included if people used a smartphone/device to access work-email). Table 4 presents descriptive statistics, along with inter-correlations between level-2 predictor variables, and between predictor and aggregated outcome variables (level-2). No correlations were high enough to imply collinearity (Dormann et al., 2013).

[INSERT TABLE 4 ABOUT HERE]

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Four cross-level models with cross-level interaction terms were run (see Tables 5 and 6) for Goal-striving outcomes. In each model the variance attributed to level-1 and level-2 data respectively can be identified. Model 1 tested Hypotheses 1a and 1b. Model 2 tested Hypotheses 2a and 2b. Model 3 tested Hypotheses 3a and 3b. Model 4 tested Hypotheses 4a and 4b. Entering Habit as an interaction term with personality in each model allowed us to explore RQ1.

In Model 1 (Table 5), Extraversion ( $\gamma_j = 0.06; p < .001$ ) and Emotional Stability ( $\gamma_j = -0.05; p = .01$ ) were positively and significantly related to Control Goal-striving at Step 1. These findings support Hypotheses 1a and 1b. In entering Habit as an interaction term with Extraversion and Emotional Stability in Step 2, only Habit with Extraversion was significant and retained ( $\gamma_{ij} = 0.07; p < .001$ ), offering partial support to Hypothesis 6. To establish if higher levels of Extraversion and stronger habit use interact and are associated with Control Goal-striving (relating to RQ1), a simple slopes analysis for a 2-way multi-level model (with cross-level interactions) was run (Preacher, Curran & Bauer, 2006). This worked best when personality acted as a moderator of strength of habit use with goal-striving. Figure 2 presents the plot of the interaction, and the slopes analysis shows that Habit is positively and significantly related to Control Goal-striving when Extraversion is high (1SD above the mean:  $\gamma = 0.47; p < .001$ ), low (1SD above the mean:  $\gamma = 0.33; p < .001$ ), and at a mean level ( $\gamma = 0.40; p < .001$ ). The slope for highly extraverted people (at 1SD above the mean) is significantly steeper, indicating that whilst use of habits increases the extent to which all people engage in Control Goal-striving, this is especially so for highly extraverted people. This interaction shows that when a more extraverted person applies habitual actions, Control Goal-striving is stronger.

[INSERT TABLES 5-6 ABOUT HERE]

In Model 2 (Table 5), Conscientiousness ( $\gamma_j = 0.06; p < .001$ ) and Emotional Stability ( $\gamma_j = -0.05; p = .01$ ) were positively and significantly related to Work Goal-striving when

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entered at Step 1. These findings support Hypothesis 2a, but Hypothesis 2b is refuted, as the direction of the relationship is opposite to what was predicted; i.e. lower levels of Emotional Stability predicted Work Goal-striving. In entering Habit as an interaction term with Conscientiousness and Emotional Stability in Step 2, only Habit with Conscientiousness was significant and retained ( $\gamma_{ij} = 0.05; p < .001$ ). Simple slopes analysis was run as before to establish if higher levels of Conscientiousness and stronger habit use interact to predict Work Goal-striving (relating to RQ1). Again, personality acted as a moderator of strength of habit use with goal-striving. Figure 3 presents the plot of the interaction, and the slopes analysis shows that Habit is positively and significantly related to Work Goal-striving when Conscientiousness is high (1SD above the mean:  $\gamma = 0.49; p < .001$ ), low (1SD above the mean:  $\gamma = 0.39; p < .001$ ), and at a mean level ( $\gamma = 0.44; p < .001$ ). The slope for highly conscientious people (at 1SD above the mean) is significantly steeper, indicating that whilst use of habits increases the extent to which all people engage in Work Goal-striving, this is especially so for highly conscientious people, i.e. when a more conscientious person applies habitual actions, Work Goal-striving is stronger.

In Model 3 (Table 6), Agreeableness ( $\gamma_j = 0.05; p = .05$ ) and Conscientiousness ( $\gamma_j = 0.06; p = .02$ ) were found to be positively and significantly related to Concern Goal-striving at Step 1. This finding supports Hypotheses 3a and b. In entering Habit as an interaction term with Conscientiousness and Agreeableness in Step 2, only Habit with Agreeableness was significant and retained ( $\gamma_{ij} = 0.05; p < .001$ ). Simple slopes analysis was run as before, with personality moderating strength of habit use with goal-striving. Figure 1 presents the plot of the interaction, and the slopes analysis shows that Habit is positively and significantly related to Concern Goal-striving when Agreeableness is high (1SD above the mean:  $\gamma = 0.55; p < .001$ ), low (1SD above the mean:  $\gamma = 0.45; p < .001$ ), and at a mean level ( $\gamma = 0.50; p < .001$ ). The slope for highly agreeable people (at 1SD above the mean) is significantly steeper, indicating that whilst use of

habits increases the extent to which all people engage in Concern Goal-striving, this is especially so for highly agreeable people, i.e. when a more agreeable person applies habitual actions, Concern Goal-striving is stronger.

In Model 4 (Table 6), Conscientiousness ( $\gamma_j = 0.07$ ;  $p = .01$ ) and Emotional Stability ( $\gamma_j = -0.05$ ;  $p = .05$ ) positively and significantly related to Well-being Goal-striving at Step 1. These findings support Hypotheses 4a and b. In entering Habit as an interaction term with Conscientiousness and Emotional Stability in Step 2, only the Conscientiousness main effect retained its significance, and the interaction term with Emotional Stability was also not significant. The final Step 2 model therefore only includes the significant cross-level interaction term of Habit with Conscientiousness ( $\gamma_{ij} = 0.05$ ;  $p < .001$ ). Again, simple slopes analysis was run using personality as a moderator. Figure 4 presents the plot of the interaction, and the slopes analysis shows that Habit is positively and significantly related to Well-being Goal-striving when Conscientiousness is high (1SD above the mean:  $\gamma = 0.50$ ;  $p < .001$ ), low (1SD above the mean:  $\gamma = 0.40$ ;  $p < .001$ ), and at a mean level ( $\gamma = 0.45$ ;  $p < .001$ ). The slope for highly conscientious people (at 1SD above the mean) is significantly steeper, indicating that whilst use of habits increases the extent to which all people engage in Well-being Goal-striving, this is especially so for highly conscientious people, i.e. when a more conscientious person applies habitual actions, Well-being Goal-striving is stronger.

### 3.1.4 Study 2 Discussion

In Study 2 we found that action-goal relationships (Goal-striving) in dealing with work-email are significantly associated with stable personality characteristics. This provides strong support to the premise of TPWB that, when dealing with a work task or event (such as email), the deployment of actions is likely to be motivated by the pursuit of trait-relevant goals. Conscientiousness was especially strongly related to goal-striving in a work-email context, associated with Work, Well-being and Control goal-striving. In striving towards Work and



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Well-being goals, conscientious people were more likely to use habitual actions. We also found that Extraversion was significantly related to Control goal-striving, with extraverted people more likely to use habitual actions to do so. Further, higher levels of Agreeableness were significantly related to striving towards Concern goals, with agreeable people more likely to use habitual actions to do so. These findings suggest that when pursuing their most significant trait-relevant goals, people apply actions more habitually, potentially because these action-goal pathways are entrenched from repeated use and the rewards (of purpose and meaningfulness: Barrick et al., 2013) that acting in line with one's valued goals brings. Repetition and reward are features that lead to the habitual use of actions in similar circumstances (Gardner, 2015; Schonpflug, 1986). Applying actions automatically can be resource-saving and so it will be interesting, in future studies, to examine whether such resource-saving results in greater productivity for conscientious, agreeable and extraverted people as they go about pursuing trait-relevant goals in work-email activity.

Largely, the above main effects align with equivalent predictions in the TPWB (Conscientiousness predicts Work/Achievement goal-striving; Agreeableness predicts Concern/Communion goal-striving; Extraversion predicts Control/Autonomy goal-striving). However, in contrast to the TPWB, which only considers higher levels of Emotional Stability as related to goal-striving, Study 2 revealed that lower levels of Emotional Stability were related to Control, Well-being and Work goal-striving, in work-email activity. These findings offer novel insights into the theoretical position put forward in the TPWB and are discussed in the General Discussion below.

### **4.1 General Discussion**

In Study 1 we identified 72 actions that people are using to deal with work-email and four goals towards which they are striving; this is a notable addition to the study of work-email activity. In uncovering these actions, and the goals that they serve, Study 1 supports

conjecture put forward in the main introduction – that people are idiosyncratic in their use of work-email actions, and that the relationship between actions and goals differs between people. In Study 2, using actions and goals uncovered in Study 1, we found that FFM personality traits significantly related to goal-striving in work-email activity. Personality was also significant in interacting with habit to pursue trait-relevant goals. Some of the predictions made aligned with those in the TPWB framework. However, because of the specific email context, we also found that other relationships were apparent. This has implications for TPWB, particularly in terms of how personality-goal-striving relationships are conceptualized.

### **4.1.1 Practical and Theoretical Contributions**

Our findings have important implications for practice and theory. Firstly, in accordance with previous research (Dawley & Anthony, 2003; Middleton & Cukier, 2006), Study 1 reported paradoxically positive and negative repercussions associated with actions for dealing with work-email. Our Study 2 findings suggest that differences in personality may be a mechanism responsible for this. Different people choose different actions to fulfil different goals, based on trait-relevant properties. As per the TPWB, we found that in work-email activity, Conscientiousness is associated with Work goal-striving (akin to Achievement goals), Extraversion is associated with Control goal-striving (akin to Autonomy goals) and Agreeableness is associated with Concern goal-striving (akin to Communion goals). However, not all of the TPWB goals were relevant to how people deal with work-email activity. The TPWB goal of Status did not emerge as significant to work-email activity in Study 1, and so this was not included in Study 2. However, ‘Well-being’ was identified as a focal goal towards which people actively strive, and was predicted by Conscientiousness and low Emotional Stability. The anomalies in the applicability of the TPWB in this domain should be cross-checked in other settings. In this context however, we assert that Work, Well-

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being, Control and Concern goal-striving (i) are especially relevant to people's work-email activity, and (ii) can be predicted by different personality-traits.

Secondly, we found evidence that low level traits can be positively related to goal-striving in work-email activity. In the opposite direction to predictions made by TPWB, people with lower levels of Emotional Stability (e.g. more neurotic people) were more likely to strive towards Work (Achievement), Control (Autonomy) and Well-being goals in Study 2. In terms of Work goals, this is a plausible finding, given the association between neuroticism and drive (Furneaux, 1961; Lynn, 1959), seen in studies examining tendencies towards workaholism and job involvement (Andreassen, Hetland & Pallesen, 2009; Burke, Matthieson & Pallesen, 2006). With regard to Well-being and Control goals, neurotic people are more likely to experience heightened stress at work (Cavanaugh, Boswell, Roehling & Boudreau, 2000). In dealing with a known stressor (such as email), neurotic people might plausibly channel their (albeit more limited) resources to engage actions that help them to feel more in control and less stressed. Further research to confirm this conjecture would be welcomed.

Finally, in Study 2, those with the low level trait of neuroticism (or low Emotional Stability), did not utilize habitual actions in pursuing their goals. This could indicate that people with low levels of Emotional Stability are less likely than conscientious, extraverted or agreeable people to utilize resource-saving actions (i.e. habits) in work-email activity. This could be because they (i) are less able to automate action-goal pathways, and (ii) potentially fail to recognize which actions could be automated to help them achieve their valued goals more efficiently. It will be interesting to test, in future studies, whether Neuroticism is linked to a 'failure to automate' work-email actions (potentially because of depleted resources).

In light of our findings, we suggest that organizations and policy makers, who make broad-based recommendations about how to deal with work-email, might in fact be doing

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workers as disservice. Whilst some goals and some workers may be advantaged by adopting generalized action recommendations, for others these actions may not allow them to pursue the goals that are personally valuable to them, and could potentially even impede such goals. As such, our research suggests that providing ‘blanket fixes’ for managing work-email should be avoided. We argue that practitioners, organizations and policy-makers would better serve their workforce by personalizing work-email action recommendations according to the different goals that different people value. Developing such tailor-made, evidence-based solutions, without incurring prohibitive expense and complication, should now be the focus for researchers in this field.

### **4.1.3 Limitations**

In Study 1, we used qualitative methods. Whilst our sampling (breadth and size) fits recommendations regarding recruitment in qualitative studies (Creswell, 2007) we appreciate that we may have been unable to capture all of the actions and all of the goals that are operational when people deal with their work-email. In addition, whilst our use of purposive convenient sampling (in both studies) is considered to be advantageous in terms of recruiting willing, accessible and relevant participants (because demographics and inclusion criteria can be specified), there is the potential for bias in the sample that can limit generalizability of results (Etikan, Musa & Alkassim, 2016).

Further, a flexible interview approach, and ongoing thematic analysis via immersion, was adopted (Charmaz, 2014; Corbin & Strauss, 1990). Notes and memos were maintained as part of a code book that was cross-checked by both authors as part of an ongoing iterative process (Syed & Nelson, 2015). To test the applicability of the propositions developed from Study 1, Study 2 was designed (Syed & Nelson, 2015). We hope that our rigorous coding, collaborative approach, interpretation in light of existing theory, and use of multi-methods across two studies (Syed & Nelson, 2015) provide reassurances about the generation of our

conjecture (Corbin & Strauss, 1990). We, of course, encourage further development of Study 1 findings via future research.

Barrick et al. (2013) suggest that focusing on broad traits, broad goals and longer-term time frames allows for concordant levels of generality to be obtained, which provides the most explanatory power. Such a focus was applied in Study 2. Future research could, however, concentrate on measuring goal-striving on an episodic basis (Beal, Weiss, Barros & MacDermid, 2005) in order to examine fluctuations and causal relationships between personality, goals and actions for dealing with work-email, and potentially include other explanatory variables as controls (such as task characteristics).

Finally, whilst concerns with ‘common method variance’ from survey data are often overplayed in contemporary research (Conway & Lance, 2010; Spector, 2006), we acknowledge the cross-sectional nature of Study 2 as a potential limitation. However, there was no consistent sign of predictor-outcome coefficients being inflated (an indication of an underlying latent variable that is biasing the measurement); indeed many relationships were not significant, see Table 4. Further, our data had two-levels and level-1 variables were group-mean centered to reduce the impact of potential response bias (Dimotakis et al., 2011). These checks and processes provide some reassurance that measurement effects were unlikely to have contributed to Type 1 errors (Spector, 2006) in Study 2.

### **4.1.4 Conclusions**

In this paper we uncovered a wide range of actions that people use as they strive towards achieving personally salient but different goals, when dealing with work-email. We found that goals relating to Work, Well-being, Concern and Control are especially relevant in this context, and people with higher levels of Conscientiousness, Extraversion and Agreeableness, and lower levels of Emotional Stability prioritize these goals differently in terms of engaging work-email actions. These findings are important, given that in recent

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years, organizations, policy makers and practitioners have begun to recommend and even impose ‘one-size-fits-all’ work-email rules and regulations on workers, in an effort to help people manage their email better, and in a more standardized way. Our findings suggest that such recommendations need to be revisited, so that training and guidance is tailored to meet the individual strengths and priorities of workers. We now encourage further research to explicate these potential advancements, in other work settings.

Declarations of Interest: None

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**Table 1**

*Categories of work-email activity*

<b>Category</b>	<b>Sub-category</b>
Dealing with incoming email	Usual actions for dealing with incoming email
	Dealing with incoming email out of work hours
	Dealing with incoming email under other (non-usual) conditions (e.g. deadlines)
Constructing and sending email	Actions to encourage others to open and action sent email
	Email actions for informing others
	Crafting and writing email
	Conveying tone and etiquette
Managing the email system	Choosing when and how to communicate
	Storage and organization actions
	Managing unread/un-actioned email

**Table 2**

*Aligning Study 1 work-email goals with the TPWB goals*

Study 1 Goals and Definitions		Equivalent TPWB Goals and Definitions	
Work-email Goals	Definition	Goal	Striving towards
<u>Concern</u>	Striving to show concern for other people and avoid using an approach that would irritate, annoy or inconvenience co-workers, service-users or clients.	<u>Communion Striving</u> <i>Emotional Stability</i> <i>Agreeableness</i>	Obtaining acceptance and getting along with other people
<u>Work</u>	Striving to work efficiently and competently in achieving work tasks.	<u>Achievement Striving</u> <i>Conscientiousness</i> <i>Emotional Stability</i>	The timely, careful and efficient completion of tasks
<u>Control</u>	Striving to feel in control of their work and their environment.	<u>Autonomy Striving</u> <i>Openness to Experience</i> <i>Extraversion</i>	Control over one's world, and opportunities to 'grow'
<u>Well-being</u>	Striving to feel good, satisfied and happy at work, and to avoid feeling stressed or anxious.	<u>Status Striving</u> <i>Extraversion</i>	Obtaining power, influence and prestige
<u>Self</u>	Striving to act in accordance with their view of self, in order to preserve a sense of identity or reputation.	On working towards and acquiring trait-relevant goals, a sense of meaning and purpose is achieved.	

Note: Personality traits in italics represent the key FFM traits that the TPWB (Barrick et al., 2013) suggest will predict each form of goal-striving.

**Table 3**

*Frequency of use of work-email actions, and goals associated with use.*

Action	N	Frequency of Use (1-5 scale)							Goals (means)			
		Mean	SD	1	2	3	4	5	Work	Well-being	Control	Concern
1. I have audio and/or visual alerts switched on, and I check my email as soon as I receive an alert	341	3.60	1.12	34	13	73	162	59	3.75	3.11	3.74	3.80
2. I do not have audio/visual alerts switched on, but I check my email inbox periodically	341	2.64	1.46	113	56	62	61	49	3.86	3.03	3.75	3.50
3. OUTSIDE OF WORK HOURS I will review incoming email, but I won't respond to or 'action' it*	266	2.94	0.99	29	45	109	78	5	3.60	3.00	3.68	3.29
4. OUTSIDE OF WORK HOURS I deal with my email in exactly the same way as I would during work hours*	266	2.36	1.16	73	85	61	33	14	3.65	3.03	3.48	3.62
5. I ignore incoming email by not reading or responding to it at all	341	1.57	0.79	204	83	49	5	0	3.34	2.95	2.72	3.29
6. After checking my incoming email I tend to delay actioning it (responding, deleting, filing, etc.)	341	2.72	0.86	36	80	171	52	2	3.70	3.00	2.97	3.44
7. I use a system of files, folders or labels to organize my email in my email system	341	4	1.22	23	27	41	90	160	4.29	3.52	3.05	4.17
8. I conduct 'housekeeping' on my email system by spending time catching up, filing, and deleting email messages	341	3.50	1.02	11	45	109	119	57	4.00	3.53	3.10	3.99
9. I delete email messages without even opening or reading them	341	1.88	0.94	156	89	77	19	0	3.79	3.04	2.68	3.41
10. I use automated rules/labels/codes to organize my email into folders and systems	341	2.03	1.32	185	47	48	38	23	4.06	3.21	2.99	3.81
11. I delete incoming email after I have checked/actioned it	341	2.95	1.14	50	56	124	85	26	3.87	3.37	2.94	3.79
12. I request 'read receipts' on the email that I send	341	1.64	0.92	205	70	55	5	6	3.83	3	3.09	3.82

13. I use group-wide distribution lists to reach multiple end-users when sending email	341	2.91	0.99	41	51	157	80	10	4.16	2.90	3.37	3.30
14. I tend to write short, simple and succinct email messages	341	3.77	0.71	2	8	104	181	46	4.19	3.30	3.96	3.47
15. I use the 'reply-to-all' function when multiple users have been sent the same email	341	3.19	0.96	20	46	154	95	26	3.98	2.95	3.86	3.23
16. I write lengthy emails that cover multiple points	341	2.63	0.75	23	115	170	32	1	4.03	3.03	3.52	3.42
17. I use a different signature when emailing from my device, e.g. 'sent from my smartphone'**	66	3	1.78	25	4	7	6	24	2.88	2.55	2.93	2.68
18. I use a task-focused, blunt tone when writing an email	341	2.37	0.99	77	109	111	40	4	3.76	2.84	3.17	3.22
19. I engage in email 'chaining' or 'ping-pong', rapidly sending messages back and forth with other users	341	2.39	0.87	54	134	123	27	3	3.37	2.89	3.27	3.07
20. At work, I tend to use phone, skype or face-to-face methods to communicate with people	341	3.46	0.82	9	30	117	166	19	4.19	3.55	3.99	3.58
21. At work, I tend to use email to communicate with people	341	3.91	0.57	0	5	61	237	38	4.10	3.25	3.62	3.56
22. When I am in company, or engaged in conversation with someone, I will still check/deal with my email	341	1.98	0.97	132	114	68	25	2	3.51	2.95	3.01	3.43

Note. Goals are reported only for those who report that they used the action; \*only asked when participant indicated that they had access to email away from desk or outside of work hours; \*\* only asked of participants who indicated they used a mobile device (smartphone or tablet) for work-email use.

**Table 4***Descriptive statistics and inter-correlations*

Variable	Level 1			Level 2			1	2	3	4	5
	N	Mean	SD	N	Mean	SD					
1. Extraversion				341/339	31.22	3.68	.40**				
2. Agreeableness				341/339	32.17	4.23	.20**	.51**			
3. Conscientiousness				341/339	32.45	4.37	.15**	.21**	.19**		
4. Intellect/Openness				341/339	32.82	3.86	.19**	.35**	.32**	.27**	
5. Emotional Stability				341/339	29.19	6.15	.071	.17**	.17**	.052	.049
6. 'Habit'	5575	3.34	1.01	341/339	3.35	0.57	.18**	.20**	.13*	-.02	.04
7. 'Concern Goal-striving'	5575	11.72	5.21	341/339	11.79	2.31	-.023	.035	.053	-.028	-.046
8. 'Control Goal-striving'	5575	11.20	5.10	341/339	11.28	2.13	-.020	.088	.17**	.101	.011
9. 'Work Goal-striving'	5575	12.96	5.21	341/339	13.03	1.93	.071	.14**	.17**	.008	-.016
10. 'Well-being Goal-striving'	5575	10.45	4.73	341/339	10.55	2.43	.038	.12*	.15**	.092	.043

n.b. Means and standard deviations are based on non- standardized data and at Level 2 on an N of 341. Level-2 inter-correlations are based on an N of 339. Level 2 goal-striving statistics are based on aggregated data, to provide one score per person.



**Table 5***Predicting Control and Work goal-striving*

<i>Model 1</i>			<i>Model 2</i>		
<i>Control Goal-striving</i>	Step 1	Step 2	<i>Work Goal-striving</i>	Step 1	Step 2
Intercept	0.01 (.02)	0.01 (.02)	Intercept	0.01 (.02)	0.01 (.02)
<b>Fixed Effects:</b>			<b>Fixed Effects:</b>		
Extraversion	0.06 (.02)**	0.07 (.02)**	Extraversion	0.00 (.02)	<i>Not entered</i>
Agreeableness	0.03 (.03)	<i>Not entered</i>	Agreeableness	0.00 (.02)	<i>Not entered</i>
Conscientiousness	0.04 (.03)	<i>Not entered</i>	Conscientiousness	0.06 (.02)**	0.05 (.02)**
Openness	-0.03 (.02)	<i>Not entered</i>	Openness	0.03 (.02)	<i>Not entered</i>
Emotional Stability	-0.05 (.02)**	-0.04 (.02)*	Emotional Stability	-0.05 (.02)**	-0.04 (.02)*
<b>Moderator Effects:</b>			<b>Moderator Effects:</b>		
Habit		0.42 (.01)**	Habit		0.44 (.01)**
Habit*Extraversion		0.07 (.01)**	Habit*Conscientiousness		0.05 (.01)**
<b>Model</b>			<b>Model</b>		
Level 1 variance	0.88 (.02)**	0.75 (.02)	Level 1 variance	0.93 (.02)**	0.78 (.02)**
Level 2 variance	0.11 (.01)**	0.12 (.01)	Level 2 variance	0.07 (.01)**	0.10 (.01)**
2* Log Likelihood	15434.72	14577.54	2* Log Likelihood	15607.33	14731.02
	(n=5551)	(n=5551)		(n=5551)	(n=5551)
Improvement in fit (X <sup>2</sup> )	79.80**	857.18 **	Improvement in fit (X <sup>2</sup> )	70.90** (5df	876.31** (1df
	(5df from null model)	(1df from Step 1)		from null model)	from Step 1)

Two-tailed significance: \*  $p < .05$ ; \*\*  $p < .01$ . Standard errors are in parentheses.

**Table 6***Predicting Concern and Well-being goal-striving*

<i>Model 3</i>			<i>Model 4</i>		
<i>Concern Goal-striving</i>	Step 1	Step 2	<i>Well-being Goal-striving</i>	Step 1	Step 2
Intercept	0.01 (.02)	0.01 (.02)	Intercept	0.01 (.03)	0.02 (.03)
<b>Fixed Effects:</b>			<b>Fixed Effects:</b>		
Extraversion	0.03(.03)	<i>Not entered</i>	Extraversion	0.04 (.03)	<i>Not entered</i>
Agreeableness	0.05(.03)*	0.05 (.03)*	Agreeableness	0.03 (.03)	<i>Not entered</i>
Conscientiousness	0.06 (.03)*	0.05 (.03)*	Conscientiousness	0.07 (.03)**	0.07 (.03)**
Openness	-0.03 (.03)	<i>Not entered</i>	Openness	-0.03 (.03)	<i>Not entered</i>
Emotional Stability	-0.02 (.03)	<i>Not entered</i>	Emotional Stability	-0.05 (.03)*	<i>Not entered</i>
<b>Moderator Effects:</b>			<b>Moderator Effects:</b>		
Habit		0.50 (.01)**	Habit		0.45 (.01)**
Habit*Agreeableness		0.05 (.01)**	Habit*Conscientiousness		0.05 (.01)**
<b>Model</b>			<b>Model</b>		
Level 1 variance	0.86 (.02)**	0.68 (.01)**	Level 1 variance	0.79 (.02)**	0.63 (.01)**
Level 2 variance	0.13 (.01)**	0.15 (.02)**	Level 2 variance	0.20 (.02)**	0.22 (.02)**
2* Log Likelihood	15324.01 (n=5551)	14088.45 (n=5551)	2* Log Likelihood	14979.46 (n=5551)	13857.20 (n=5551)
			Improvement in fit ( $X^2$ )	76.37** (5df from null model)	1122.26** (1df from Step 1)

Two-tailed significance: \*  $p < .05$ ; \*\*  $p < .01$ . Standard errors are in parentheses.

**Figure 1.** Extraversion as a Moderator of the Relationship between Habit and Control Goal-striving

**Figure 2.** Conscientiousness as a Moderator of the Relationship between Habit and Work Goal-striving

**Figure 3.** Agreeableness as a Moderator of the Relationship between Habit and Concern Goal-striving

**Figure 4.** Conscientiousness as a Moderator of the Relationship between Habit and Well-being Goal-Striving

**Supplementary Appendix 1 (online only).** A summary of actions reported for dealing with email, and the goals/reasons reported to be impacted (positively and negatively) by their use.

**Supplementary Appendix 2 (online only).** Collating the final list of actions for Study 2.

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<sup>i</sup> Knowledge workers engage with mental information as the primary part of their job (rather than manual work) and are involved in gaining, processing and contributing to knowledge in order to meet the objectives of the organization or role (Drucker, 1973; Kidd, 1994).

<sup>ii</sup> 21% of responses related to participants ‘never’ using an action. Participants, who chose ‘Never’ in response to frequency of action response, were asked to comment on goal reasons for *not* using an action, to control survey length for all participants. If an action was reported to ‘never’ being used, this response could not be used in our analyses, as the product of ‘action x goal’ would have been based on different criteria. Choice of ‘never’ was not related to personality (which might have confounded our results). We correlated frequency of choice of ‘never’ for each action, for each of the 341 participants, with the five personality traits. Correlation sizes were very small (less than .06 in each case) and none were significant.

<sup>iii</sup> The ‘Well-being’ goal was separated into three statements measuring high Positive Activated Affect (‘To feel active and motivated’), low Negative Activated Affect (‘To feel calm, at ease and happy’), and low Negative Affect (‘To feel less negative (less bored, tired, anxious, angry and/or gloomy)’ (Russell & Daniels, 2018). The three items were combined and averaged to give a total score, referred to as ‘Well-being’ ( $\alpha = .87$ ).

<sup>iv</sup> E.g. a ‘Concern Goal-striving’ score of 20 for person 1 on action 1 could be achieved by the participant reporting to ‘Always’ use action 1 (score of 5), and who ‘Agrees’ (score 4) that this action is used because it helps them achieve their ‘Concern’ goal (5 multiplied by 4). Or, they might ‘Often’ use action 1 (score of 4) and ‘Strongly Agree’ (score of 5) that this action helps them to achieve their ‘Concern’ goal (4 multiplied by 5).

<sup>v</sup> Not including frequency as part of a product term in our measure of ‘Habit’ means there is no overlap in the use of frequency for both the Goal-striving outcome variable and Habit as a moderator variable. Had frequency

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been part of the Habit variable, this would have confounded and inflated relationships in predicting Goal-striving.