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# **The effects of counterdispositional behavior: An integrative approach to personality**

**Jennifer Pickett**

## **Doctoral dissertation**

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I would like to dedicate this dissertation to my grandmother, Marjorie Pickett (1919-1981) for believing in my future education when I was still only a young child. The inheritance she left me for tuition did not go very far, but her planting the idea of earning a higher education certainly did. Thank you for that, Grandma Pickett.

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## **Dissertation committee**

### **Advisors**

Supervisor: Prof. Dr. Joeri Hofmans, Faculty of Psychology and Educational Sciences, Vrije Universiteit Brussel, Belgium

Co-supervisor: Prof. Dr. Taru Feldt, Faculty of Education and Psychology, Department of Psychology, University of Jyväskylä, Finland

Co-supervisor: Prof. Dr. Filip De Fruyt, Department of Developmental, Personality and Social Psychology, Ghent University, Belgium

### **Exam Committee**

Prof. Dr. Tim Vantilborgh (chair), Faculty of Psychology and Educational Sciences, Vrije Universiteit Brussel, Belgium

Prof. Dr. Sara De Gieter, Faculty of Psychology and Educational Sciences, Vrije Universiteit Brussel, Belgium

Prof. Dr. Saija Mauno, Faculty of Education and Psychology, Department of Psychology, University of Jyväskylä, Finland

Prof. Dr. Edina Dóci, School of Business and Economics, Management and Organization, Vrije Universiteit Amsterdam, The Netherlands

Prof. Dr. Bart Wille, Faculty of Psychology and Educational Sciences, Department of Personnel Management, Ghent University, Belgium

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## Summary

In this dissertation, the affective, motivational and energetic consequences of counterdispositional behaviors are studied. As counterdispositional behavior pertains to deviations from one's personality traits, such an expedition necessitated an integrative approach to researching personality in which we simultaneously examined stable personality traits and unstable personality states. In our first chapter, we investigated how counterdispositional extraversion relates to performance approach goal orientation. Our findings show that it is not trait, nor state extraversion per se which leads to performance approach goal orientation, but rather the dynamic interplay between both trait and state extraversion, with deviations from the trait level associated with lower levels of performance approach goal orientation. In the second chapter, we explored how counterdispositional conscientiousness affects wellbeing by analyzing its association with positive and negative affectivity at work. The interaction between personality traits and states manifested itself in a complex manner, with deviations from the trait level of conscientiousness affecting wellbeing differently, depending if an individual is high or low on trait conscientiousness. In the third chapter, we added another layer of complexity to this expedition by demonstrating that the consequences of counterdispositional extraversion can differ, depending upon concurrent or lagged effects. A positive concurrent relationship was found between state extraversion and vitality, however, in the case of counterdispositional extraversion, vitality was lower for trait introverts one hour later. In the fourth chapter, we shifted aims and explored how people experience working in an extreme environment which, circumstantially, leads to counterdispositional behavior, regardless of one's personality dispositions. By focusing on the coping mechanisms employed to manage diverse occupational and environmental stressors and the positive aspects highlighted, we show that such arduous occupations can be managed in a sustainable way. In its entirety, this

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dissertation cultivates a better understanding of the significances and complexities of counterdispositional behavior.

## **Samenvatting**

Dit proefschrift bestudeert de affectieve, motivationele en energetische consequenties van counterdispositioneel gedrag. In acht nemend dat counterdispositioneel gedrag betrekking heeft op afwijkingen van iemand zijn persoonlijkheidstraits, vereiste een dergelijk onderzoek een integratieve benadering waarin we tegelijkertijd stabiele persoonlijkheidstrekken en onstabiele persoonlijkheidsstates onderzochten. In ons eerste hoofdstuk hebben we onderzocht hoe counterdispositionele extraversie betrekking heeft op performance-approach doel oriëntatie. Onze bevindingen tonen aan dat het niet trait, noch state extraversie op zich is, wat leidt tot performance-approach doel oriëntatie, maar eerder het dynamische samenspel tussen zowel trait als state extraversie, waarbij afwijkingen van het stateniveau geassocieerd wordt met lagere niveaus van performance-approach doel oriëntatie. In het tweede hoofdstuk hebben we onderzocht hoe counterdispositionele consciëntieusheid het welzijn beïnvloedt, door de associatie ervan met positieve en negatieve affectiviteit op het werk te analyseren. De interactie tussen persoonlijkheidstraits en states manifesteerde zich op een complexe manier, waarbij, afhankelijk van of een individu hoog of laag scoort op trait consciëntieusheid, afwijkingen van het traitniveau van consciëntieusheid, welzijn op een andere manier beïnvloeden. In het derde hoofdstuk voegden we een extra laag van complexiteit toe aan dit onderzoek door aan te tonen dat de consequenties van counterdispositionele extraversie kunnen verschillen, afhankelijk van concurrente of vertraagde effecten. Er werd een positieve concurrente relatie gevonden tussen state extraversie en vitaliteit, maar in het geval van counterdispositionele extraversie daalde de vitaliteit voor trait introverten één uur later. In het vierde hoofdstuk hebben we onze doelen verschoven en onderzochten we hoe mensen het ervaren in een extreme omgeving te werken die, bij gelegenheid, kan leiden tot counterdispositioneel gedrag, ongeacht iemands persoonlijkheidsdispositie. Door ons te richten op de coping-mechanismen die gebruikt worden voor het omgaan met diverse beroeps- en omgevingsstressoren, en de positieve aspecten die

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daarbij benadrukt worden, laten we zien dat dergelijke zware beroepen op een duurzame manier kunnen worden beheerd. In zijn geheel cultiveert dit proefschrift een beter begrip van de betekenis en complexiteit van counterdispositioneel gedrag.

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## Yhteenveto

Tutkimme tässä väitöskirjassa vastakkaiskäyttäytymisen affektiivisia, motivoivia ja energisiä seurauksia. Koska vastakkaiskäyttäytyminen koskee poikkeamiseen henkilön luonteenpiirteistä, tällainen tutkimus vaati intergroivaa lähestymistapaa persoonallisuuden tutkimiseen, jossa samanaikaisesti tarkastellaan vakaita luonteenpiirteitä sekä epävakaita luonteentiloja. Ensimmäisessä kappaleessa selvittelimme miten vastakkaiskäyttäytymisen asenne liittyy suorituskyykyyn perustuvaan lähestymistavoitteeseen. Tuloksemme osoittivat että se ei ole luonteenpiirre eikä asennetila sinänsä, mikä johtaa suorituskyykyyn perustuvaan lähestymistavoitteeseen, vaan pikemminkin dynaaminen vuorovaikutus sekä piirteen että persoonallisuuden ominaisuuden välillä, poikkeamalla piirteentasoista jotka liittyvät alhaisempaan suorituskyykyyn perustuvaan lähestymistavoitteeseen. Toisessa kappaleessa tutkimme kuinka vastakkaiskäyttäytymisen tietoisuus vaikuttaa hyvinvointiin analysoimalla sen suhdetta positiiviseen ja negatiiviseen vaikutukseen työssä. Luonteenpiirteiden sekä luonteentilojen välinen vuorovaikutus ilmeni monimutkaisella tavalla, ja poikkeamalla hyvinvoinnin vaikuttavuuden tunnelmatasosta eri tavalla, riippuen siitä onko henkilö korkealla vai matalalla luonteenpiirteen tunnelmatasossa. Kolmannessa kappaleessa lisäsimme toisen monimutkaisuuden tason tähän tutkimukseen osoittaen että vastakkaiskäyttäytymisen asenne voi vaihdella riippuen samanaikaisista tai viivästyneistä tehosteista. Positiivinen samanaikainen yhteys todettiin luonteentilan olenteen ja elinvoimuuden välillä, mutta vastakkaiskäyttäytymisen asenteen tapauksessa, elinvoimaisuus oli pienempi luonteenpiirre sisäänpäinkääntyville tunnin jälkeen. Neljännessä kappaleessa muuttimme tavoitteemme ja tutkimme miten ihmiset kokevat työskentelyn äärimmäisessä ympäristössä, joka epäsuorasti johtaa vastakkaiskäyttäytymis käytökseen, riippumatta henkilön luonteenlaadusta. Keskittymällä käyttämään selviytymismekanismeja hoitamaan erilaisia ammatillisia ja ympäristöllisiä stressintekijöitä ja korostaen myönteisiä näkökohtia, osoitamme että tällaisia

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Thank you. Truly.

Jennifer Pickett  
October 22, 2019  
Brussels, Belgium

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## Introduction

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Research shows that employees are inclined to pursue occupations that — at least partially — fit their personality traits (Wille & De Fruyt, 2014). This seems intuitive since people in general seek encounters that are in line with what they like and who they are, however, people cannot always freely choose the behaviors they engage in. Particularly in an occupational setting, people are sometimes required to behave in a way that is inconsistent with or even counter to their personality traits. For example, imagine an introverted personality needs to give a presentation or when conscientious personalities need to rush a task due to tight deadlines. Despite the belief that behaving in line with one's personality traits should lead to positive effects (Moskowitz & Côté, 1995), research on counterdispositional behaviors has resulted in mixed findings. While some studies show that deviations from one's traits are depleting, tiresome and are associated with higher levels of negative affect (Côté & Moskowitz, 1998; Moskowitz & Côté, 1995; Gallagher, Fleeson, & Hoyle, 2011; Zelenski, Santoro, & Whelan, 2012), other studies demonstrated that higher levels of state extraversion and state conscientiousness lead people to be happier, despite their trait extraversion and conscientiousness levels (Fleeson, Malanos, & Achille, 2002; McNeil, Lowman, & Fleeson, 2010; Smillie, Wilt, Kabbani, Garrett, & Revelle, 2015; Zelenski et al., 2013). The question thus becomes, which course is correct? Is it beneficial to behave counter to one's personality dispositions? That is, do deviations from one's personality traits come with positive or negative effects? These are the main research questions that we attempt to address in this dissertation.

### **The nomothetic and idiographic approach to personality**

The concept of personality can be traced back to Aristotle (384-322 BCE), who provides the first written description of personality traits, then referred to as dispositions. According to

Aristotle, such dispositions included modesty, bravery and vanity. These dispositions were instrumental in the sense that they could be used to predict if one would behave ethically (Maltby, Day, & Macaskill, 2017). Fast forward a few thousand years, which brings us to the lexical approach of Gordon Allport (1897-1967) who identified 18,000 words, of which 4,500 described personality traits (Maltby et al, 2017), including familiar terms such as shy, arrogant and conscientious but also obscure terms such as earthbred, delitescant and vulnific (meaning vulgar, secretive and wounding, respectively) (Funder, 2017). This approach to personality combines the informal, yet intuitive language of personality with the formal psychological language that is used to explain and predict human behavior. Even though Allport used the term ‘personality traits’, he was cautious of personality trait’s limitations to describe an individual’s personality in specific situations and adopted a unified approach to personality (Maltby et al., 2017). This led to Allport’s distinction in his early work between the nomothetic and the idiographic approach to personality, a distinction that is still relevant today.

Traditionally, personality research has strongly focused on nomothetic assessments of personality traits, referred to as assessments of stable, between-person differences in habitual patterns of behavior, cognition and affect with the aim of making broad, general predictions of human behavior (Hofmans, De Clercq, Kuppens, Verbeke, & Widiger, 2019; Beltz, Wright, Sprague, & Molenaar, 2016). The idiographic approach, conversely, focuses on the momentary expressions of these traits – known as personality states – and considers the fluctuations among those states in regards only to that same individual (Beck & Jackson, 2019). In other words, with the idiographic methods approach, one studies the thoughts, feelings and behaviors that co-occur within the same individual in the moment in order to elicit person-specific (Hofmans et al., 2019) and dynamic processes (Wright & Zimmermann, 2019).

## **Towards an integrative approach to personality: Counterdispositional behavior**

In this dissertation, we argue that the nomothetic (a focus on traits or differences *between* individuals) and idiographic (a focus on states or differences *within* the individual) approaches to personality are not contradictory, but ideally go together, hand in hand and should be assessed at the same time. The reason being is that the two approaches carry different information, and only by looking at these different sources of information simultaneously, a full understanding of personality can be achieved. In recent years, several personality scholars have done exactly this, including Fleeson (2001) with his density distribution approach, Minbashian, Wood, and Beckmann (2010) with their task-contingent units of personality and Sosnowska, Hofmans, Kuppens, and De Fruyt (2019) with the recently developed Personality Dynamics (PersDyn) model.

We focus on a phenomenon that directly follows the unique and dynamic interplay of personality traits and states — counterdispositional behavior. Counterdispositional behavior refers to momentary deviations from one’s personality dispositions, which in the literature has also been referred to as contra-trait effort (Gallagher, Fleeson & Hoyle, 2011). The rationale behind the name “contra-trait effort” is that engaging in behavior that contradicts one’s personality traits is effortful, as research shows that engagement in counterdispositional behavior indeed depletes self-control resources (Zelenski, Santoro, & Whelan, 2012). Moreover, the behavioral concordance model introduced by Moskowitz & Côté (1995) theorizes that personality *states* that are congruent with one’s personality *traits* are believed to be associated with positive emotions, while deviating from one’s trait triggers negative emotions. In sum, counterdispositional behavior or contra-trait efforts are demanding and effortful, thereby triggering a depletion of necessary self-regulation resources (Vohs, Baumeister & Ciarocco, 2005), such behaviors are found to be mentally draining (Baumeister, Gailliot, DeWall, & Oaten, 2006; Gallagher, et al., 2011), causing mental fatigue and decreased levels of wellbeing

(Zelenski et al., 2012). Furthermore, if taxing self-regulatory tasks are sequentially executed, the chance of successfully completing said tasks decreases considerably (Vohs & Baumeister, 2004).

Previous research on the concurrent taxing effects of counterdispositional behavior have been predominantly performed using laboratory experiments in which people are forced to behave in a specific way (e.g., Gallagher, et al., 2011; Study 1; Zelenski et al, 2012), with only a small handful of studies being performed in real life settings (Gallagher, et al., 2011; Study 2). The studies in this dissertation are all conducted by following individuals throughout everyday life, additionally, they are conducted by doing this in individual's everyday work setting. The workplace is a particularly interesting context for studying counterdispositional behavior, not only because people spend a large amount of their adult life at work, but also because at work people are often required to show behaviors that are required for the proper execution of the job, but that are not necessarily in line with one's personality traits. Examples most people can relate to are giving negative feedback to a coworker for someone high on agreeableness, chairing a meeting for a person low on extraversion, or doing highly accurate work for an individual low in conscientiousness. By studying counterdispositional behaviors in this manner, we contribute to the research on counterdispositional behavior in the following ways.

First, we add to the small number of studies that have looked at the effects of counterdispositional behavior in a real-life context. This is highly relevant because, unlike in lab experiments in which the experimental manipulations are typically rather extreme (forcing people to engage in behavior that is opposite to their dispositions), in everyday life people do not passively undergo the situations they are confronted with. Rather, they select, avoid, manage and reappraise the situations they are in, implying that, in real life, people most likely engage in more mild forms of counterdispositional behavior (i.e., behavior that is not fully in

line with one's personality, but also not completely opposing it). In such situations, the question becomes whether the effects that are observed in the lab will also show in actual life. Second, by studying the effects of counterdispositional behavior at work, we gain insight into the wellbeing- and performance-related costs of requiring people to show behaviors that are not in line with their personalities. This might be relevant when the stakes are high, the costs might outweigh the benefits for organizations, making it important for organizations to try to manage such behaviors by paying more attention to personality-job fit in the selection procedures, or by allowing employees to craft their jobs in such ways that they align more with their personalities, for example.

In the following is the outline of this dissertation with each chapter succinctly describing its aim, a brief description of the research design and sample, and the key findings.

### **Dissertation Outline**

In this dissertation, we explore the effects of counterdispositional behavior in four chapters, in which we report on five different empirical studies. The first three chapters include quantitative, repeated-measures studies that each aim to answer the same research question: What are the effects of counterdispositional behavior at work? The last chapter (Chapter 4), shifts aim and is a qualitative study exploring at how people experience working in an extreme environment, specifically focusing on the stressors caused and the coping mechanisms used to sustainably manage such an occupation. The following briefly describes each of the four studies and how they each explore the effects of counterdispositional behavior at work.

We explore in Chapter 1 how counterdispositional extraversion relates to one's level of approach goal orientation. Using experience sampling data from 47 employees across 10 days ( $N = 307$ ), and building on the idea that acting against one's personality trait is effortful and consumes self-control resources (Zelenski, et al., 2012), we show that it is not necessarily the

trait, nor the state level of extraversion itself that predicts momentary goal achievement, but rather the unique interplay between trait and state extraversion. This integrative approach to personality demonstrates that behaving in line with one's trait level of extraversion is beneficial for performance goal orientation.

We investigate in Chapter 2 how counterdispositional conscientiousness relates to wellbeing at work. In two studies — a 10-day experience sampling study on 82 employees ( $N = 731$ ), and an event-reconstruction study of 449 employees — we test the effects of one's level of counterdispositional conscientiousness on positive and negative affectivity. Drawing on the behavioral concordance model (Moskowitz & Côté, 1995), which states that trait-concordant behavior leads to positive outcomes, we show that both positive and negative affective states are influenced by counterdispositional conscientiousness. However, not all deviations from one's trait conscientiousness level lead to decreases in wellbeing, as predicted by the behavioral concordance model. Overall, this chapter suggests that the interplay of personality traits and states is a complicated matter with deviations from the trait level of conscientiousness influencing wellbeing, but not in a straightforward manner.

In Chapter 3, we examine not only the concurrent but also the delayed effects of counterdispositional extraversion on one's level of vitality. Using experience sampling data from 67 employees for 5 work days ( $N = 1664$ ), we found a positive, contemporaneous relationship between state extraversion and vitality, regardless of one's trait level of extraversion. Though, we also found that if one's extraverted behaviors were not consistent with one's trait level of extraversion, these behaviors backfired and produce decreased levels of vitality one hour later. Importantly, this backfiring was more prominent for introverts behaving in an extraverted way than for extraverts who behaved in an introverted way, again attesting to the complicated ways in which counterdispositional behaviors manifest themselves.

For Chapter 4, as mentioned, we change course and present a qualitative study in which we interviewed nine Alaskan commercial fisherfolk, focusing on how they experience living and working in an extreme environment. This study employs interpretative phenomenological analysis, a method which investigates the dynamic relationship between the part and the whole and is influenced by phenomenology, hermeneutics and idiography. Interpretative phenomenological analysis explores in depth the particular of an individual, rather than make claims regarding the total population (Smith, Flowers, & Larkin, 2012).

The environment these fisherfolk work in is an extreme environment and is intermittently a setting in which everyone has to behave counter to their dispositions eventually, irrespective of their personality traits. Indeed, an environment with unfamiliar psychological stressors from either physical, occupational or psychological foundations (e.g., risks, hazards or death) is considered to be extreme when a person is exposed to exceptional circumstance(s) which requires them to adapt and can, in turn, overwhelm their physiological and/or psychological resources (Rivolier, 1992; Nicolas, Guadino & Vacher, 2018). Commercial fishing in Alaska certainly falls within this description. While some personality traits are definitely more advantageous than others for working in such conditions (Musson, Sandal & Helmreich, 2004), even the best suited personalities will eventually become overtaxed in such an environment. As a result, this study allows us to examine counterdispositional behavior and its effects in a holistic way (as opposed to studying the microlevel dynamics of one single trait), while also examining the situations in which they occur, the accumulative effects of exposure to stressors, and how these conditions affect them.

In this last study, we first describe the physical and psychological stressors of working in the isolated, confined, extreme environment of commercial fishing in Alaska. We then present coping mechanisms employed by these employees to manage the occupational and environmental stressors. Finally, we also highlight the uplifts or positive experiences of

working in extreme conditions, while showing the effects on wellbeing such working conditions have and how people cope with them.

In the final chapter of this thesis, we close with a general Discussion section. Here, we summarize the key findings of each chapter. Then, we discuss the overarching discoveries found from all four chapters as a whole and how those discoveries contribute to the scientific literature of counterdispositional behavior. Next, we take a critical reflection of limitations of the dissertation as a set. Finally, we highlight future research paths of investigation that could help advance the understanding of an integrative approach to personality by investigating the effects of counterdispositional behavior in a real-life setting.



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## CHAPTER 1

### **Extraversion and performance approach goal orientation: An integrative approach to personality**

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## **Abstract**

Research shows that extraversion is unrelated to performance approach goal orientation, both at the trait- and the state-level. However, since previous studies have either focused on the trait- or the state-level, such a conclusion may be premature. Building upon the idea that acting against one's trait consumes self-control resources, we reason that within-person deviations from one's level of trait extraversion might negatively relate to performance approach goal orientation. Using experience sampling data from 47 employees across 10 days ( $N=307$ ), we found that deviations from one's trait extraversion levels are associated with lower levels of performance approach goal orientation. These findings suggest that an integrative approach to personality allows to better understanding of the relationship between extraversion and performance approach goal orientation.

## Introduction

Meta-analytical studies on the relationship between personality and goal orientation have demonstrated that extraversion is unrelated to performance approach orientation, or the desire to demonstrate competence on performance indicators relative to others (McCabe, Van Yperson, Elliot, & Verbraak, 2013 ( $\bar{r} = -.13$ ; 95% CI [-.20, .06]); Payne, Youngcourt, & Beaubien, 2007 ( $\bar{r} = .03$ ; 95% CI [-.01, .06])). Moreover, in their study on the functional nature of manifestations of extraversion, McCabe and Fleeson (2012) found state extraversion to relate to a wide set of approach-oriented goals, but not to “trying to get things done”. Even though this particular goal is not a perfect operationalization of performance approach orientation, high-achieving students have been shown to have a stronger focus on getting things done than low-achieving students (Wentzel, 1989), offering empirical support for its status as an approach goal. Thus, meta-analytical research at the trait-level suggests that performance approach orientation is unrelated to extraversion, while the study of McCabe and Fleeson (2012) very tentatively suggests that, also at the state level, this relationship might be weak or nonexistent.

However, since these studies have either focused on the trait *or* the state level, it may be premature to conclude that performance approach goal orientation and extraversion are unrelated. Building upon the notion that acting against one’s trait consumes self-control resources (Zelenski, Santoro, & Whelan, 2012), we reason that, while trait and state extraversion themselves may be unrelated to approach goal orientation, within-person deviations from one’s trait extraversion levels are depleting and therefore such counterdispositional extraversion should hinder performance approach goal orientation. In other words, we maintain that not the trait, nor the state level as such, but their unique interplay

might predict momentary goal achievement, thereby offering an integrative approach to studying the relationship between extraversion and performance approach orientation.

### **1.1 Performance approach orientation and its relationship with personality**

According to Payne et al. (2007), goal orientation “refers to one’s dispositional or situational goal preferences in achievement situations” (p. 128). As this definition suggests, goal orientation has been alternately treated as a stable, trait-like preference (e.g. Colquitt & Simmering, 1998), or a situation-specific, state-like preference (e.g. McCabe et al., 2013). Indeed, although a goal orientation might relate to stable, between-person differences, theory and research suggest that it can also be triggered by situational factors (Button, Mathieu, & Zajac, 1996).

In terms of content, a traditional distinction has been made between mastery and performance orientation. Mastery orientation refers to a focus on self-development and building competence, while performance orientation implies demonstrating competence by making normative comparisons with others. In the mid-nineties and the beginning of the 21<sup>st</sup> century, respectively, both performance orientation and mastery orientation have been further differentiated into approach and avoidance orientations. Approach goal orientation is focused on the need to succeed or achieve, and it is therefore associated with adaptive behaviors in response to incentives (i.e., successful determination). Avoidance goal orientation, in turn, is concerned with avoiding failure and this typically results in maladaptive behaviors (Elliot & Church, 1997; Payne et al., 2007). In the present paper, we specifically focus on performance approach goal orientation because of its unique status.

In the scientific literature, the status of performance goal orientation has been one of intense debate. A first area of controversy concerns the relationship between performance goal orientation and performance. Because performance approach orientation encompasses both



positive (i.e., its approach-related process) and negative (i.e., its external focus) features, the relationship with performance can take many forms. Following this ambiguity, different studies have hypothesized (and found) different relationships: a positive one, a negative one and the absence of a relationship (e.g., Davis, Mero, & Goodman, 2007; Payne et al., 2007; Seijts, Latham, Tasa, & Latham, 2004). The second area of controversy—and the one that is most relevant to the present paper—pertains to its relationships with antecedents, and particularly personality. Whereas mastery approach orientation and performance avoidance orientation have been shown to be consistently related to the Big Five personality traits, the pattern of relationships for performance-approach orientation is less clear. For example, the meta-analysis of Payne et al. (2007) found that performance approach orientation is (negatively) predicted by emotional stability only, while the meta-analysis by McCabe et al. (2013) found performance-approach orientation to be (weakly) associated to a mixed-valence personality profile, being positive relationships with conscientiousness and openness and a negative one with emotional stability.

In the present paper, we argue that, in order to fully capture the relationship between performance approach orientation and personality, it might not suffice to only look at either the trait or the state level. Instead, and drawing on the behavioral concordance model (Moskowitz & Côté, 1995), we argue that, on top of the unique effects of traits and states, it is of crucial importance to look at their interplay. In our study, this is done by testing the depleting effect of counterdispositional extraversion on performance approach goal orientation. Extraversion is a particularly interesting personality dimension because, despite its grounding in fundamental motivation systems, such as the behavioral activation system (Dauvier, Pavani, Le Vigouroux, Kop, & Congard, 2019), and despite the fact that energy is a core feature that is shared by both extraversion and performance approach goal orientation (Costa & McCrae, 1980), meta-analytical research shows trait extraversion to be unrelated to performance approach goal

orientation (McCabe et al., 2013; Payne et al., 2007). Moreover, also at the within-person (state) level, initial empirical evidence found that state extraversion was unrelated to the goal “trying to get things done”, which clearly qualifies as an approach goal (McCabe & Fleeson, 2012). Thus, despite the fact that extraversion encompasses aspect of achievement (Payne et al., 2007), it appears to be unrelated to performance approach goal orientation. Such situations in which there are null relationships at the trait- and state-level provides the ideal conditions to test the idea that exactly the interaction between traits and states matters to performance approach goal orientation. Moreover, the choice for focusing on extraversion is also inspired by the fact that the large majority of (laboratory) studies on counterdispositional behavior have focused on extraversion, in part because this personality dimension can easily be manipulated (e.g., Gallagher, Fleeson, & Hoyle, 2011; Zelenski et al., 2012). By studying counterdispositional extraversion, we thus explicitly align our study with the existent body of research on counterdispositional behavior.

## **1.2 An integrative approach to personality: The Behavioral concordance model**

The behavioral concordance model (Moskowitz & Côté, 1995) states that behaving in line with one’s personality trait level leads to positive emotions, while deviating from one’s trait level—or in other words acting out of character—, triggers negative emotions. The reasoning is that deviations from one’s trait level—also referred to as counterdispositional behaviors—are effortful to monitor, modify and maintain because they consume or exhaust self-regulatory resources (Gallagher et al., 2011). Self-regulatory resources are what help people maintain their behaviors in socially desired ways, such as self-control. When such self-regulatory resources are exhausted, people experience stress and mental fatigue (Zelenski et al., 2012). In other words, according to the behavioral concordance model, counterdispositional behavior or

contra-trait efforts entail costs (Coté & Moskowitz, 1998), and these costs can lead to a reduction in performance in situations that require self-control and self-regulation.

Importantly, to engage in performance approach goal orientation, high levels of self-regulatory resources are required. In support of this idea, it has been shown that, compared to non-depleted individuals, depleted ones are more passive and less inclined to engage in active behavior (Baumeister, Bratslavsky, Muraven, & Tice, 1998), while they also persist less and quit sooner on demanding tasks (Burkley, 2008; Schmeichel & Vohs, 2009). Indeed, performance approach goals have been shown to relate to increased levels of mental focus, or the extent to which one is able to concentrate and to become absorbed in an activity (Lee, Sheldon, & Turban, 2003). To be able to uphold such heightened levels of mental focus, one needs to be rich in self-regulatory resources. Moreover, research has shown that when people's self-regulatory resources are depleted, they tend to feel inefficacious, which should decrease the chances of engaging in performance approach goals (Chow, Hui, & Lau, 2015). Finally, the availability of self-regulatory resources is believed to promote performance approach goal orientation because it aids the maintenance of high standards (Zimmerman & Kitsantas, 1997).

In line with this reasoning, we hypothesize that, when an individual's level of state extraversion aligns with his/her level of trait extraversion, s/he will be higher in performance approach goal orientation. However, when that same individual's level of state extraversion deviates from one's level of trait extraversion, his/her self-regulatory resources are taxed and therefore (s)he will be less inclined to engage in approach goal orientation. In other words, we hypothesize that, the further away one veers from their level of trait extraversion, the lower his/her level of performance approach orientation may be.

## **2. Methods**

### **2.1. Participants**

63 full-time employees from various Belgian organizations who had access to a computer during their working day were contacted to participate. Fifty-three of them participated, of whom 34 were women (64.2%). The average age of the respondents was 40.60 years ( $SD = 12.57$ ) with ages ranging from 23 to 65 years. Average organizational tenure was 9.0 years ( $SD = 10.08$ ), and the majority of the participants was employed in the for-profit sector (81.1%). The majority of these employees (94.3%) worked as clerks. Participation was voluntary and participants were not compensated.

### **2.2 Procedure**

Participants first completed an informed consent form and a baseline questionnaire assessing demographical variables as well as a measure of trait extraversion. One week later, all 53 participants that filled out the baseline questionnaire enrolled in a ten-day experience sampling study in which they received a daily prompt in the afternoon (around 3 pm) assessing their daily level of state extraversion and performance approach orientation. The study resulted in 386 daily reports from 49 participants. After removal of set responses (i.e., no variation in the responses to the diary items), diaries filled out on the same day (in which case which we consistently kept the last one), and diaries completed in the weekend or after the study ended, we retained 307 daily reports from 47 participants. Those 47 participants provided responses on at least two days, making their data useful for further analyses (with only one observation, the within-person variability cannot be separated from the between-person variability). In terms of the number of individual observations, we thus obtained 307 unique observations out of a maximum of 470 (47 employees  $\times$  10 days) data points, which corresponds to a response rate of 65.32 percent.

## **2.3 Measures**

### **2.3.1 Trait and state extraversion**

Trait and state extraversion were measured using the twelve extraversion items of the revised NEO Personality Inventory (NEO-PI-R) (Hoekstra, Ormel, & De Fruyt, 1996). Items were rated on a 7-point scale, ranging from “strongly agree” to “strongly disagree”. A sample item of the trait questionnaire was “I like to have a lot of people around me”. To measure state extraversion, the items were slightly adapted to allow the momentary measurement of extraversion (e.g., “Today, I liked having a lot of people around me”). The Cronbach alpha reliability coefficient for the trait measure equaled .83. To test the reliability of our state extraversion measure, we used the multilevel confirmatory factor analysis approach by Geldhof, Preacher and Zyphur (2014). Using this technique, the within-person factor model is separated from the between-person factor model, after which an omega reliability index is calculated on both levels separately. The within-person omega reliability coefficient equaled .87 while the between-person omega reliability coefficient was .84.

### **2.3.2 Performance approach goal orientation.**

Performance approach goal orientation was measured using the 6 corresponding items of the Achievement goal scale (Elliot & Church, 1997), with a sample item being “Today, I was motivated by the thought of outperforming my colleagues”. Ratings were provided using a 7-point scale, ranging from “strongly agree” to “strongly disagree”. The within-person omega reliability coefficient was .87 and the between-person omega reliability coefficient was .98.

## **3. Results**

Descriptive statistics of our study variables, along with intra-class correlation coefficients (ICCs) and zero-order correlations are shown in Table 1. The ICCs show that a substantial amount of variation in state extraversion (i.e., 53%) and performance approach goal orientation

(i.e., 25%) is due to within-person fluctuations, suggesting that people indeed fluctuate on a day-to-day basis.

Table 1.

*Descriptive statistics, intra-class correlation coefficients (ICCs) and zero-order correlations for all study variables. Within-person correlations are above and between-person-correlations are below the diagonal.*

	<i>M</i>	<i>SD<sub>within</sub></i>	<i>SD<sub>between</sub></i>	<i>ICC</i>	1	2	3
1. Trait extraversion	5.17	-	.82	-	-	-	-
2. State extraversion	4.67	.65	.79	.47	.61***	-	.17***
3. Performance approach goal orientation	3.36	.70	1.36	.75	.20	.28	-

Notes: \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

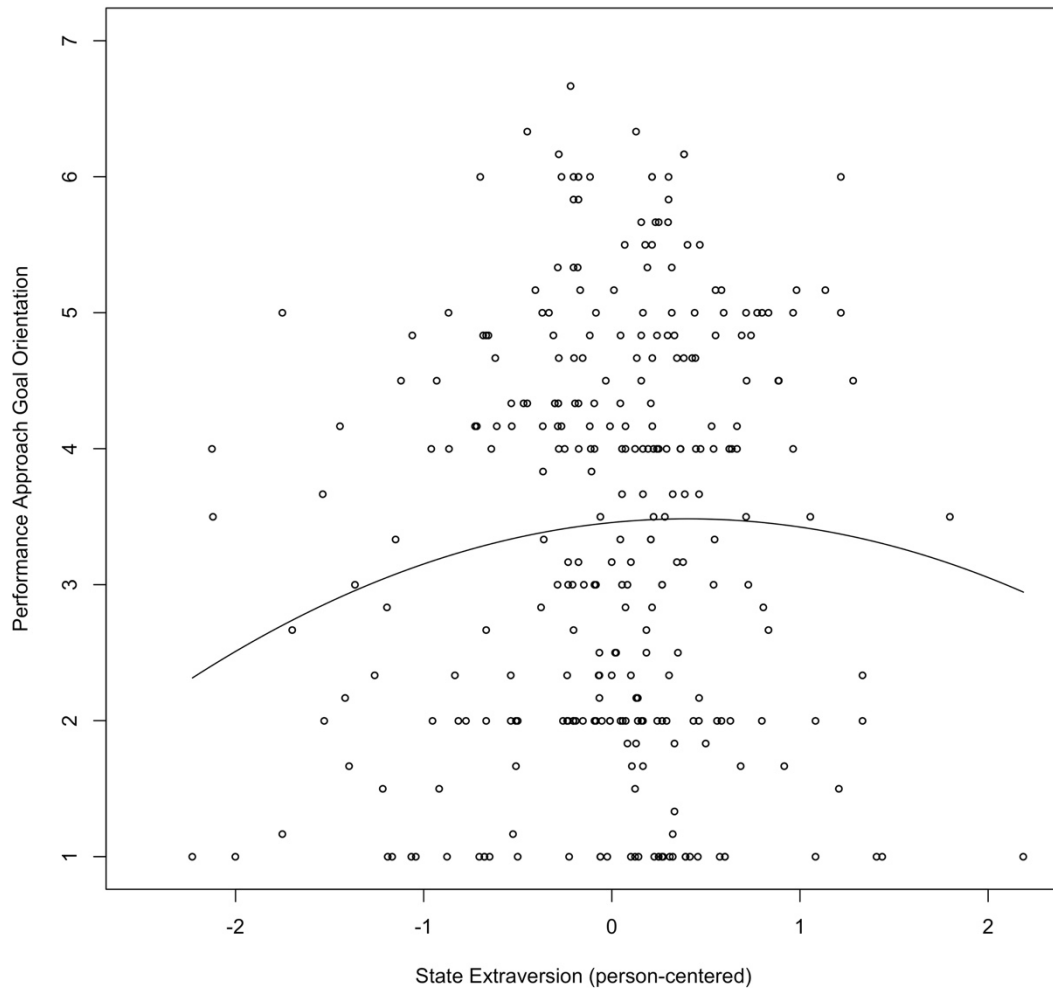
As our data have a nested, two-level structure with daily measurement on the first level and participants on the second level, we performed two-level regression analyses in the lme4 package for R. Confidence intervals around the parameter estimates were calculated using nonparametric bootstrapping (1,000 bootstrap samples along with percentile confidence intervals (CIs)) using the lmeresampler package. Based on the state extraversion data, we first calculated an index of trait extraversion by averaging per person the state extraversion scores across all measurement occasions. This index correlated .61 ( $p < .001$ ; 95% CI [.38, .82]) with the trait extraversion scores as measured by the NEO-PI-R trait scale<sup>1</sup>.

<sup>1</sup> In a recent paper on state-trait homomorphy (the degree to which traits and aggregated states measure the same construct), Rauthmann, Horstmann and Sherman (2018) found convergent correlations between trait extraversion and aggregated state extraversion of about .40, which is slightly lower than the correlation found in our study. Moreover, they also studied whether the nomological network of state and traits are similar, showing that extraversion had the highest nomological homomorphy of all HEXACO traits. In other words, both their study and the convergent correlation in our study suggests that trait extraversion and aggregates of state extraversion measure the same construct (Rauthmann, et al., 2018).

Deviations from the trait level were subsequently obtained by person-centering the state extraversion ratings. To test whether larger deviations related to impaired levels of performance approach goal orientation, we predicted performance approach goal orientation using the person-centered extraversion scores as well as the squared person-centered extraversion scores. Both fixed and random effects were included in the model. This model explained 8.6% of the variance in performance approach orientation at the within-person level and 6.1% at the between-person level. In line with our expectations, we found a negative curvilinear component ( $\beta = -.16$ ;  $p = .045$ ; 95% CI [-.44, -.02]) along with a non-significant linear one ( $\beta = .14$ ;  $p = .109$ ; 95% CI [-.12, .26]). This curvilinear relationship is shown in Figure 1. Interestingly, the inflection point of the curvilinear relationship is located at .40, which is very close to 0 or the point where trait and state extraversion aligns.

Figure 1.

*The curvilinear relationship between state extraversion and performance approach goal orientation*



Next, we tested whether the curvilinear relationship held across different trait levels. This was done by adding the main effect of average state extraversion, the cross-level interactions between average state extraversion and the linear and quadratic component to the model. This model explained 8.6% of the variation in performance approach orientation at the within-person level (note that no within-person predictors were added), and 13.2% at the between-person level. Moreover, the analysis again showed that the within-person relationship



was curvilinear in nature ( $\beta = -.17$ ;  $p = .072$ ; 95% CI [-.43, -.01] for the curvilinear component<sup>2</sup> and  $\beta = .13$ ;  $p = .144$ ; 95% CI [-.12, .27] for the linear component). Moreover, the average level of state extraversion was positively related to performance approach goal orientation ( $\beta = .46$ ;  $p = .064$ ; 95% CI [.11, .99]), and there was no interaction between the average level of state extraversion and deviations from the trait level ( $\beta = .04$ ;  $p = .813$ ; 95% CI [-.45, .42] for the curvilinear and  $\beta = -.01$ ;  $p = .961$ ; 95% CI [-.34, .54] for the linear component). Altogether, these findings imply that deviations from the trait level are detrimental to performance approach goal orientation, and that this holds true across trait levels. In other words, no matter what one's trait level of extraversion is (be it high or low), veering from one's trait is disadvantageous to one's performance approach goal orientation.

#### **4. Discussion**

The aim of this study was to examine the relationship between extraversion and performance approach goal orientation using an integrative approach to personality. By not only looking at the effects of state and trait extraversion separately, but also at their dynamic interplay, we were able to demonstrate that deviations from one's level of trait extraversion matter. Specifically, and in line with the predictions of the behavioral concordance model (Moskowitz & Côté, 1995), we found that extraversion-related behaviors that are congruent with one's level of trait extraversion relate to higher levels of approach performance goal orientation than behaviors that diverge from one's trait level. It is important to stress that, because of the nature of our study, we exclusively focused on daily effects. This is relevant as Leikas and Ilmarinen (2016) demonstrated that, when using a finer-grained time scale, the effects might not show immediately, but rather in a delayed fashion. They found that behaving extraverted and

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<sup>2</sup> Note that the effect is statistically significant at the  $p < .05$  level using the nonparametric bootstrap procedure, while it is marginally significant ( $p < .10$ ) with Maximum Likelihood Estimation (ML). Because bootstrap confidence intervals have been shown to be superior to ML (Meijer, Busing, & Van der Leeden, 1998), we use the bootstrap confidence intervals when interpreting our findings.

conscientiously was related to momentary increases in positive mood, but lead to mental depletion three hours later. Provided that timing seems to matter, future studies could look at not only daily effects, as we did, but also delayed effects as well as accumulative effects over time (i.e., what happens when we repeatedly behave in a counterdispositional way over a longer period of time?).

While there is no shortage of literature touting the positive effects of extraversion, our study contributes to studies that demonstrate that concepts that are believed to only lead to advantageous outcomes may boomerang and result in adverse outcomes (see Vergauwe, Wille, Hofmans, Kaiser, & De Fruyt, 2018). Indeed, when looking at performance approach goal orientation, we found that it is more beneficial to act true to your trait level than to maximize your state level of extraversion. While this finding is in line with previous research showing that counterdispositional behaviors can be costly for those enacting them (Little, 2008; Zelenski et al., 2012), it is important to note that we only looked at this phenomenon among employees at their workplace. Hence, our sample may not represent the population as a whole. However, this limitation is less of an issue in this study because rather than compare individuals to each other, we compare each person to him or herself.

Recent research on the nomological homomorphy (the degree that two constructs display parallel links with a specific group of correlates) of states and traits (Rauthmann, Horstmann & Sherman, 2018) concluded that aggregated states is equivalent to traits if sufficient observations were made to characterize participant's day-to-day. In other words, state aggregates of extraversion should estimate trait extraversion with enough observations. Meaning that state aggregates of extraversion should estimate trait extraversion with enough observations.

Moreover, by adopting an integrative approach to personality, we demonstrated that findings on either the trait or the state level alone might give an incomplete picture of the actual

relationship between personality and its consequences. Specifically, for the relationship between extraversion and performance approach goal orientation, previous meta-analytical research found a null-relationship at the trait-level, while the paper by McCabe and Fleeson (2012) demonstrated that state extraversion was unrelated to “trying to get things done”. Yet, when combining the between-person and the within-person approach, we found that both trait and state extraversion—and particularly their interplay—are important for the prediction of performance approach goal orientation.

By demonstrating that performance approach goal orientation decreases as individuals veer from their trait level of extraversion, our findings portray a pathway for practical implications in the workplace. A first implication is that it might be useful to pay explicit attention to person-environment fit, and particularly to personality-environment fit in the selection procedure. This can, for example, be done by giving the correct account of the type of behavior required on the job. By providing a realistic job preview (Rynes, 1991) that includes such required behaviors, job candidates can create an accurate expectation of whether their dispositional tendencies align with these requirements. Second, by permitting employees autonomy, organizations can establish environments that allow employees to work in a way that is in line with their personality (i.e., craft their jobs). Moreover, giving autonomy and allowing employees time allows them to refill their drained self-regulatory reserves in case this is needed (Little, 2008). While the daily nature of our findings as well as the moderate effect sizes might somewhat diminish the practical implication for employees, one should keep in mind that counterdispositional extraversion is just one occurrence of counterdispositional behavior. In everyday life, people typically face numerous situations daily that go against their personality grain and all of these are potentially depleting.

## 4.2 Limitations and future research

Notwithstanding the contributions of this paper, some limitations have to be considered. First, the majority of participants in our study were employed as clerks, which begs the question as to how that could impact the generalizability of our results to other employees. Since the depletion of resources is more of a cognitive phenomenon (as opposed to a physical one), the expectation would be that depletion would affect cognitive tasks more than physical tasks, and those cognitive tasks are more prominent in clerk's jobs than in blue-collar work. Hence, future studies might address whether counterdispositional behavior also affects performance approach motivation in more physical jobs.

Second, although self-report measures are less problematic when focusing on within-person differences, using self-reported data does make our findings susceptible to common-method bias. However, since the correlation between state extraversion and performance approach goal orientation was relatively small, common-method bias is most probably not a significant issue in our data. Diminishing the importance of this issue even further, common-method variance is less problematic when the focus is on interactions or higher-order effects (Siemsen, Roth, & Oliveria, 2010).

Additionally, it is important to emphasize that there is still more to learn about the mechanisms underlying the connection between counterdispositional extraversion and performance approach goal orientation. Demonstrating an association, as we did, is just the first step. Of particular importance is that, although we theorize that it is the depletion of regulatory resources that explains the relation between counterdispositional extraversion and performance approach goal orientation, we failed to test this assumption. This is an important limitation of our study, because, even though the depleting effect of counterdispositional behavior on one's regulatory resources has been demonstrated in both experimental (Gallagher et al., 2007; Study 1; Zelenski et al., 2011) and real-life studies (Gallagher et al., 2007; Study 2; Leikas &

Ilmarinen, 2017), it might well be that the curvilinear relation between counterdispositional extraversion and performance approach goal orientation is driven by other mechanisms. One such possibility is that decreased level of performance approach goal orientation are not (only) due to the depletion of regulatory resources, but might also directly result from negative feelings associated with feelings of inauthenticity, which in turn encourage defensive rather than a generative behavior (Frederickson, 2001). To study these alternative explanations, further research is needed on the mechanisms underlying the observed effects. Moreover, if it is truly the case that approach goal orientation requires resources, a similar phenomenon should be observed for mastery goal orientation as well. That is, in that case counterdispositional behaviors would deplete the necessary resources to trigger any mechanism that requires resources and would therefore relate positively to avoidance goal orientation and negatively to mastery and performance goal orientation, as the individual would attempt to keep their resources rather than use them to obtaining goals. Finally, apart from looking at other forms of goal orientation, further research could also cultivate from this study by looking into other Big Five dimensions.

### **4.3 Conclusion**

This study demonstrates that being true to one's level of trait extraversion is beneficial for performance approach goal orientation. Counterdispositional extraversion, in contrast, turns out to be associated with decreased levels of performance approach goal orientation, and this is true for individuals with different trait extraversion levels. Besides showing that within-person fluctuations in state extraversion do relate to performance approach goal orientation, this finding helps reiterate that the interplay of personality traits and states is a complex question that needs to be further studied.

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## CHAPTER 2

### **Counterdispositional conscientiousness and wellbeing: How does acting out of character relate to positive and negative affect at work?**

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Pickett, J., Hofmans, J., Debusscher, J., & De Fruyt, F. (2019). Counterdispositional conscientiousness and wellbeing: How does acting out of character relate to positive and negative affect at work? *Journal of Happiness Studies*, 1-23. <https://doi.org/10.1007/s10902-019-00139-1>

## **Abstract**

Conscientiousness is typically seen as a positive or desired personality trait in the workplace, with the overall assumption being “the more, the better”. Drawing on the behavioral concordance model, we challenge this assumption, expecting that the highest level of positive affect and the lowest level of negative affect will correspond at the point where state and trait conscientiousness converge. Using an experience sampling study and an event reconstruction study, we show that deviations from one’s level of trait conscientiousness relate to variations in positive and negative affect, but not in a straightforward way. While wellbeing was lower when people behaved less conscientiously than they normally do, increases beyond one’s typical conscientiousness level were largely unrelated to wellbeing. Moreover, people high in trait conscientiousness suffered more from negative deviations from their trait level than people low in trait conscientiousness. As a whole, our findings suggest that the interplay of personality states and personality traits is complicated, with both the state level and deviations from the trait level being relevant to wellbeing – calling for an integrative approach to personality.

## **Introduction**

The role of wellbeing in the workplace has been acknowledged since the 1930's, with employee wellbeing initially being used to predict employee turnover rates. However, it fell out of fashion during the Great Depression and laid dormant for nearly 50 years (Wright, 2010) until the advent of positive psychology. Nowadays, employee wellbeing is again on the agenda, with employee wellbeing being used as an umbrella term, encompassing popular and often studied concepts such as job satisfaction, employee engagement and positive and negative affect at work.

Because of its status in the work context, a great number of studies have looked into situational and person-related antecedents of employee wellbeing. Regarding the latter, research has shown that personality in general (DeNeve & Cooper, 1998) and conscientiousness in particular relates to employee wellbeing. That is, trait conscientiousness relates positively to life satisfaction (Heller, Watson, & Ilies, 2004) and overall subjective wellbeing (Carter, et al., 2015).

Employees who are high in trait conscientiousness generally desire order, they obtain satisfaction from achieving goals, view their job as an opportunity to utilize their strengths and incorporate work into their identity (Boyce, Wood, & Brown, 2010; Ilies et al., 2016). However, due to circumstances beyond their control, such as tight deadlines, idle coworkers, or various time constraints, these employees are not always able to sustain their preferred levels of conscientiousness and will often be pressed to work in a lower state of conscientiousness in order to complete their task or job. Similarly, people low in conscientiousness will often also not be able to behave according to their trait level because organizations typically require them to elevate their level of conscientiousness in order to work in an efficient and organized manner. Thus, because throughout their day-to-day work life, people are confronted with varying

environmental demands (e.g., a task that requires one to work fast followed by one that requires one to work very meticulously), people are often required to behave in a way that disagrees with their trait level of conscientiousness, and this is true for both people high and people low on trait conscientiousness. Although the effects of trait conscientiousness on employee wellbeing are often studied and thus well understood, the consequences of such deviations from one's trait level of conscientiousness for employee wellbeing are not. In the present paper, we address this lacuna by presenting two empirical studies that examine the affective consequences of such discrepancies between one's *trait* conscientiousness level and one's *state* conscientiousness level.

Drawing on the behavioral concordance model (Moskowitz & Côté, 1995), which theorizes that people experience positive affect (PA) when their behaviors are concordant with their personality, whereas negative affect (NA) is experienced when behaviors are discordant with one's traits, we test the possibility that people's affective states are impacted by the fit or concordance between one's trait and state level of conscientiousness. Following this idea, high momentary levels of conscientiousness might only be beneficial for people who are also high in trait conscientiousness. For people low in trait conscientiousness, on the contrary, the behavioral concordance model predicts that high momentary levels of conscientiousness will lead to low PA and high NA.

By investigating not only the positive but also the potential negative effects of conscientiousness, this study adds to a growing number of studies that show that constructs that are generally considered adaptive and desirable may have unexpected costs (e.g., Pierce & Aguinis, 2013; Vergauwe, Wille, Hofmans, Kaiser & De Fruyt, 2018). Specifically, for conscientiousness, whereas previous studies have shown that high levels of conscientiousness are desirable in a work setting (e.g., LaHuis, Martin, & Avis, 2005), recent studies found exceptionally high levels of conscientiousness relate to maladaptive obsessive-compulsive

tendencies, which are associated with lower levels of wellbeing (Carter, Guan, Maples, Williamson & Miller, 2015; Roberts, Jackson, Fayard, Edmonds & Meints, 2009). Moreover, Fayard, Roberts, Robins and Watson (2012) found that people who are high in conscientiousness tend to be more guilt ridden when they fail.

In what follows, we first discuss conscientiousness and its relevance in a work context. Subsequently, we argue how within-person and between-person fluctuations in conscientiousness might interact, and finally we draw on the behavioral concordance model to hypothesize how these interactions are expected to relate to positive and negative affect.

### **1.1 Conscientiousness**

Conscientiousness, one of the Big-Five personality traits identified by McCrae and Costa (1996), is defined as the inclination to follow socially prescribed norms for impulse control that facilitates task- and goal-directed behavior, such as prioritizing tasks, planning and organizing, and delaying gratification (DeYoung, 2015; John & Srivastava, 1999; Jackson et al., 2010). Individuals who score high on conscientiousness tend to, for example, work hard, be more organized, follow rules and social norms, possess erect posture, be neat and tidy, and think before acting (Jackson et al., 2010). On the contrary, people low in conscientiousness tend to oversleep, be late or cancel plans altogether, exceed their credit limit and curse more often (Jackson et al., 2010).

In terms of wellbeing, research generally shows that trait conscientiousness is a positive predictor of life satisfaction (Heller et al., 2004) and overall subjective wellbeing (Carter et al. 2015). Regarding one's positive and negative affective experiences, meta-analytic research demonstrates that trait conscientiousness relates positively to PA and negatively to NA (DeNeve & Cooper, 1998; Fayard et al., 2012), which can partly be explained by the relationship between conscientiousness and attentiveness-related emotions, with those

emotions being a facet of positive affect (Watson, 2000). Also, at the momentary state level, research has shown that conscientious behaviors relate positively to positive mood (Leikas & Ilmarinen, 2017). This relation can be explained by the fact that working in a conscientious manner typically means being productive and fulfilling one's responsibilities (Debusscher, Hofmans & De Fruyt, 2016; 2017), which is highly desired and valued by managers and organizations, and hence, associated with positive feelings.

Although the findings of between- and within-person studies on the relation between conscientiousness and wellbeing in general and PA and NA in particular suggest that higher levels of conscientiousness are better, what has not yet been thoroughly tested is whether within-person fluctuations in conscientiousness lead to higher PA and lower NA for everyone, regardless of their trait level of conscientiousness. This is an important omission in the literature since between-person and within-person differences do not exist in isolation. Rather, personality states are always experienced by an individual with a specific set of trait scores. The result of this intertwining of states and traits is that a high momentary level of state conscientiousness can be experienced in a very different manner by someone high in trait conscientiousness than by someone low in trait conscientiousness. Likewise, the outcome of low levels of state conscientiousness can differ as a function of one's trait level of conscientiousness. Thus, although the between-person and the within-person approaches are important and have made major contributions to our understanding of the relation between conscientiousness and PA and NA, in order to achieve a better working understanding of the potential affective consequences of conscientiousness, personality states and traits need to be simultaneously considered (Debusscher et al., 2016; Fleeson, 2004). In the following, we will argue that such a simultaneous consideration might in effect nuance the idea that more conscientiousness is always better.

## **1.2 Integrating traits and states: The behavioral concordance model**

The behavioral concordance model (Moskowitz & Côté, 1995) posits that behaving concordant to one's trait triggers PA while deviating from one's trait level elicits NA. The reasoning is that deviations from the trait level—also referred to as counterdispositional behaviors or contra-trait effort—are effortful to maintain and therefore consume or exhaust limited self-regulatory resources (Vohs, Baumeister, & Ciarocco, 2005). When these self-regulatory resources are taxed or depleted, people experience negative affective states, stress and mental fatigue (Zelenski, Santoro, & Whelan, 2012). In summary, counterdispositional behavior or contra-trait effort triggers resource depletion, which is a state that requires additional efforts of self-regulation and is found to be strenuous, fatiguing or even exhausting (Baumeister, Gailliot, DeWall, & Oaten, 2006; Gallagher, Fleeson, & Hoyle, 2011), which is why counterdispositional behaviors are expected to relate negatively to PA and positively to NA.

Applying the behavioral concordance model to the relationship between conscientiousness and PA and NA, it is expected that when an individual is high in trait conscientiousness, that individual tends to experience decreases in PA and increases in NA when s/he conducts herself/himself in a manner that is low in conscientiousness. An individual low in trait conscientiousness, on the contrary, will experience decreased levels of PA and increased levels of NA when behaving in a high-conscientious state. Although the examples given above pertain to cases in which the trait and state level are opposite, according to the behavioral concordance model, any discrepancy between the trait level and the momentary state level should lead to decreased levels of wellbeing (Moskowitz & Côté, 1995). Hence, for people who are moderately high on trait conscientiousness, behaving in a very conscientious manner is depleting, very much like behaving unconscientiously. Moreover, the greater the deviation between the state and the trait level, the more the individual's positive and negative affect are affected (Moskowitz & Côté, 1995).



In the present study, the impact of counterdispositional conscientiousness on wellbeing is studied by tracking within-person fluctuations in PA and NA (Emmons & Diener, 1985). Subjective wellbeing includes both a cognitive component (i.e., life satisfaction; Diener, Emmons, Larsen, & Griffin, 1985; Ozer & Benet-Martinez, 2006) as well as an affective component that incorporates the presence of positive and absence of negative emotions (Larson, 2000; Ozer & Benet-Martinez, 2006). Because the behavioral concordance model explicitly deals with the affective component as a result of counterdispositional behavior, this article focuses on the emotional aspect of wellbeing. Whereas PA echoes the degree to which an individual feels energetic, alert and enthusiastic, NA, on the other hand, echoes anguish and an unpleasant and apathetic state that encompasses disdain, aversion, anxiety, guilt and fear.

In line with the behavioral concordance model, we hypothesize the highest level of PA and the lowest level of NA to correspond to the point where state and trait conscientiousness converge. Any deviations from this optimal level (either increases or decreases in conscientiousness) are expected to be accompanied by decreases in PA and increases in NA, respectively. In other words, the relationship between deviations from the trait level and PA is hypothesized to follow an inverse U-shaped curve, with both positive and negative deviations from the trait-level resulting in lower levels of PA. For NA, the relationship is hypothesized to be U-shaped, with both positive and negative deviations from the trait-level leading to increases in NA. In the present paper, we tested those predictions based on the behavioral concordance model in two real-life studies: one experience sampling study in which we followed 83 employees for 10 days throughout their day-to-day work life (Study 1), and one event reconstruction study in which 449 employees reported on three recent conscientiousness-related work situations (Study 2).

## **2 Study 1: Experience Sampling Study**

### **2.1 Methods**

#### **2.1.1 Participants**

Associates of the researchers contacted 100 full-time employees from their own personal networks. Those employees worked for a variety of Belgian organizations and were all asked to fill out an online baseline questionnaire and partake in an experience sampling study. The baseline questionnaire was completed by 87 individuals of whom 39 were men (44.8%). The average age of the respondents was 27.34 ( $SD = 7.61$ ) and their average organizational tenure was 3.98 years ( $SD = 6.27$ ). In terms of sector, the majority were employed in education (17.2%), banking and finance (13.6%), governmental and non-profit organizations (10.3%), and healthcare (9.2%).

#### **2.1.2 Procedure**

Ethical approval was not applied for because at the time of this data collection, our university ethics committee did not deem approval as necessary for studies that are considered non-invasive and harmless. Having said that, we did inform participants about the purpose of the study and the confidentiality, after which participants completed an online baseline questionnaire assessing demographical variables (i.e., age, organizational tenure and sector) as well as a measure of trait conscientiousness. One week later, all participants that filled out the baseline questionnaire enrolled in a ten-day experience sampling study, receiving a daily prompt at 11AM assessing their level of state conscientiousness and PA and NA via an online questionnaire. Of the 87 employees, 82 filled out the questionnaire on at least two days and therefore could be used for further analyses (the minimum of two repeated observations is necessary because with only one observation it is not possible to separate within- from between-person variability; Debusscher et al., 2017). In terms of the number of individual observations, we obtained 731 unique observations out of a maximum of 820 (82 employees  $\times$  10 days) data

points, which equates to an overall response rate of 89.14% or an average of 8.9 observations per participant.

### **2.1.3 Measures**

#### **2.1.3.1 Trait and state conscientiousness**

Trait and state conscientiousness were measured using the 8 conscientiousness items (e. g., organized, efficient, systematic, practical, disorganized, sloppy, inefficient and careless) of Saucier's (1994) Mini-Markers scale. These adjectives were rated on a 9-point scale ranging from 'extremely inapplicable' to 'extremely applicable'. To measure state conscientiousness the instructions were slightly adapted, allowing for a momentary measurement of conscientiousness by adding the prefix "At this moment..." to each item. The Cronbach alpha reliability coefficient for trait conscientiousness equaled .80. To test the reliability of our state conscientiousness measure, we relied on the multilevel confirmatory factor analysis approach of Geldhof, Preacher and Zyphur (2014) because our data have a two-level structure with measurements on the first level and persons on the second level. With this technique, the within-person factor model is separated from the between-person factor model and the omega reliability index is calculated for both of the levels independently using the factor loadings and the residuals from the respective level. This resulted in a within-person omega reliability coefficient of .68 and a between-person omega reliability coefficient of .87. The scale scores for trait and state conscientiousness were calculated by taking the average of the individual item scores.

#### **2.1.3.2 Positive affect**

PA was measured using the Positive and Negative Affect Schedule (PANAS) of Watson, Clark and Tellegen (1988). Participants rated to what extent they experienced the positive affective states on that particular day (e. g., attentive, interested, alert, excited, enthusiastic, inspired,

proud, determined, strong, and active) on a 5-point scale, ranging from ‘very slightly or not at all’ to ‘extremely’. The PA scale score was computed by taking the average of the individual item scores. The within-person omega reliability coefficient equaled .57 while the between-person omega reliability coefficient was .96.

### **2.1.3.3 Negative affect**

NA was measured also using the Positive and Negative Affect Schedule (PANAS) of Watson et al., (1988). Participants rated to what extent they experienced the 10 negative affective states on that particular day (e. g., distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) on a 5-point scale, ranging from ‘very slightly or not at all’ to ‘extremely’. Again, the scale score was computed by averaging the item score. The omega reliability coefficient for NA equaled .54 at the within-person level and .93 at the between-person level.

### **2.1.4 Analyses**

As our data have a nested, two-level structure with daily measurements on the first level and participants on the second level, all hypotheses were tested using two-level regression analyses in the lme4 package for R (Bates, Maechler, Bolker, & Walker, 2015).

First, we derived an index of trait conscientiousness from the daily conscientiousness scores by averaging per individual the daily conscientiousness scores across days. This index of trait conscientiousness strongly correlated with the trait conscientiousness measure participants filled out at the beginning of the study ( $r = .68$ ; 95% CI [.55, .78]), supporting the idea that the average state conscientiousness score taps into stable, inter-individual differences in conscientiousness (Fleeson, 2001; Rauthmann et al., 2018)<sup>3</sup>. Next, the daily

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<sup>3</sup> Research on state-trait homomorphy, or the degree to which traits and aggregated states measure the same construct, shows that extraversion, conscientiousness and agreeableness show higher and openness and neuroticism show lower levels of trait-state homomorphy (Rauthmann, Horstmann and Sherman 2018).

conscientiousness scores were person-centered in order to adhere to the behavioral concordance model's prediction that positive and negative affect are impacted when one's states deviate from one's trait level. That is, by subtracting the person's average conscientious score (representing the person's level of trait conscientiousness) from each individual observation, the person-centered scores represent the extent to which the individual deviates from his or her trait conscientiousness level on each observation. Following these transformations, our hypotheses were tested with multilevel polynomial regression analysis.

Because the behavioral concordance model predicts that people's positive (respectively negative) affect decreases (respectively increases) when they deviate from their trait level, we not only introduced the person-centered conscientiousness scores (see  $C_{ij}$  in formula 1), but also the squared person-centered conscientiousness scores in our regression model (see  $C_{ij}^2$  in formula 1). Introducing the squared person-centered conscientiousness scores allowed testing whether momentary deviations from the trait level relate negatively to PA and positively to NA. That is, in case our hypotheses based on the behavioral concordance model are supported,  $C_{ij}^2$  should be statistically significant and positive for NA and statistically significant and negative for PA.

Moreover, we also introduced the average conscientiousness scores (see  $C_i$  in formula 1), the interaction between the average conscientiousness scores and the person-centered conscientiousness scores (see  $C_{ij}C_i$  in formula 1), and the interaction between the average conscientiousness scores and the squared person-centered conscientiousness scores (see  $C_{ij}^2C_i$  in formula 1). These interactions allow testing whether the relationships implied by the behavioral concordance model do apply across different trait levels.

$$PA_{ij} = \beta_{0j} + \beta_{1j}C_{ij} + \beta_{2j}C_{ij}^2 + \beta_3C_i + \beta_4C_{ij}C_i + \beta_5C_{ij}^2C_i + e_{ij} \quad (1)$$

As can be seen in formula 1, the effect of the person-centered conscientiousness scores might differ across individuals (i.e.,  $\beta_{1j}$  has a subscript  $j$ ). To test whether or not this was the case, we tested if a model with a random slope for the person-centered conscientiousness scores fitted our data significantly better than a model without a random slope for the person-centered conscientiousness scores. To compare these models, we performed a log-likelihood difference test. Statistically significant random effects ( $p < .05$ ) were included in the model while non-significant random slopes were removed (Sieracki, Leon, Miller and Lyons 2008). We also tested whether the effect of the squared person-centered conscientiousness scores varied across individuals. However, including a random slope for the squared person-centered conscientiousness scores led to model non-converge, which is why a random slope for the squared effect was never included in our models. To test for statistical significance, we calculated bootstrap confidence intervals for the multilevel polynomial regression parameters using the `confint.merMod` function in R (using 10,000 bootstrap samples)<sup>4</sup>.

In terms of statistical power, the number of observations at the person- and day-level is in line with the recommendations of recent studies showing that with 30 or more level-2 units cross-level interactions are estimates in an unbiased way (Gonzales-Roma & Hernandez, 2017), and that 50 level-2 units, each having 10 level-1 units usually suffice to detect small cross-level interactions and variance components (LaHuis & Ferguson, 2009).

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<sup>4</sup> Polynomial regression has been shown to be well suited for testing congruence hypotheses (see Humberg, Nestler and Back 2018). Our approach differs from the traditional use of polynomial regression analysis in two important ways. First, in a typical polynomial regression analysis, one models measures from two separate dimensions (e.g., perceived promises and perceived obligations) and/or from two different sources (e.g., a self-view measure and a reputation measure). We instead collected repeated measures on one dimension (i.e., Conscientiousness) from a single source, after which we modelled the between- and the within-person variability in those scores. This approach makes sense from a conceptual point of view because the person's average state Conscientiousness score has been shown to be a good indicator of trait Conscientiousness (Fleeson 2001; Rauthmann et al. 2018), while the person-centered state Conscientiousness scores capture momentary deviations from one's level of trait Conscientiousness (thus representing counterdispositional behavior). By using this approach, we circumvented the issue of high multicollinearity that would have shown up when testing congruence effects using the raw trait and state scores. A second important consequence of our atypical use of polynomial regression is that, unlike in traditional polynomial regression, the congruence effect directly corresponds to one of the parameters in the model, being the quadratic effect for the person-centered Conscientiousness scores.

### 2.1.5 Results and Discussion

Means, standard deviations, between-person and within-person correlations between conscientiousness, PA and NA are shown in Table 1. Conscientiousness positively related to PA, both at the between-person ( $r = .27$ ; 95% CI [.05, .46]) and within-person level ( $r = .36$ ; 95% CI [.30, .42]). Moreover, conscientiousness related negatively to NA at the within-person level ( $r = -.20$ ; 95% CI [-.27, -.13]), while no between-person relationship was found between conscientiousness and NA ( $r = -.04$ ; 95% CI [-.25, .18]).

Table 1.

*Means, standard deviations, within-person correlations (below the diagonal) and between-person correlations (above the diagonal) for all study variables*

	<i>M</i>	<i>SD</i>	<i>C</i>	<i>PA</i>	<i>NA</i>
Conscientiousness (C)	6.59	1.07	1	.27*	-.04
Positive Affect (PA)	3.20	.72	.36***	1	-.20
Negative Affect (NA)	1.57	.53	-.20***	-.26***	1

Notes: \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

We tested our hypotheses using multilevel polynomial regression analysis (see Table 2 for the full results, including the bootstrapped confidence intervals). For PA, we found that the person-centered conscientiousness scores (Figure 1 shows that the person-centered conscientiousness scores related positively to PA, both for people high and for people low in trait conscientiousness. At the same time, the positive relationship appeared to be an upward concave for people low on trait conscientiousness and downward convex for people high on trait conscientiousness. That is, for people low on trait conscientiousness, increases in PA are associated with behaving more conscientiously than usual, whereas behaving less conscientiously than usual had little to no impact on their PA. On the contrary, people high on trait conscientiousness experienced decreases in PA when they behaved less conscientiously

than normal, while their PA was relatively unaffected when behaving more conscientiously than normal. Together, these findings suggest that higher levels of conscientiousness benefit PA, but that the mechanism underlying this relationship differs for people depending on whether they are high or low in trait conscientiousness. For people low in trait conscientiousness, acting more conscientiously than usual is beneficial for their PA, while for people high in trait conscientiousness, acting less conscientiously than usual depletes their PA.

For NA (see Table 2 for the full results) we found a negative relationship with the person-centered conscientiousness scores ( $\beta = -.12$ ; 95% CI [-.17, -.06]). Similar to PA, we failed to support our hypothesis of a relation between NA and the squared person-centered conscientiousness scores ( $\beta = .01$ ; 95% CI [-.04, .06]). However—and again similar to our findings for PA—the interaction between trait conscientiousness and the squared person-centered conscientiousness scores approached conventional levels of significance ( $\beta = .07$ ; 90% CI [.01, .12]). We interpreted this interaction using a surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to NA (on the Z-axis) (see Figure 2).  $\beta = .26$ ; 95% CI [.20, .32]) and the trait conscientiousness scores ( $\beta = .27$ ; 95% CI [.15, .39]) related positively to PA. As opposed to our expectations, we found no statistically significant effect of the squared person-centered conscientiousness scores ( $\beta = -.04$ ; 95% CI [-.10, .02]). However, the interaction effect between trait conscientiousness and the squared person-centered conscientiousness scores turned out to be statistically significant ( $\beta = -.09$ ; 95% CI [-.17, -.01]). To further interpret this interaction, we examined the surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to PA (on the Z-axis). Response surface analysis (RSA) and polynomial regression analysis go hand in hand, with RSA concerning the graphical interpretation of the coefficients resulting from the polynomial regression analysis. RSA is often used to help interpret the estimated regression coefficients of a polynomial



regression model, which is otherwise very challenging given the complicated regression equation that includes quadratic and interaction effects (Humberg et al., 2018).

Table 2.

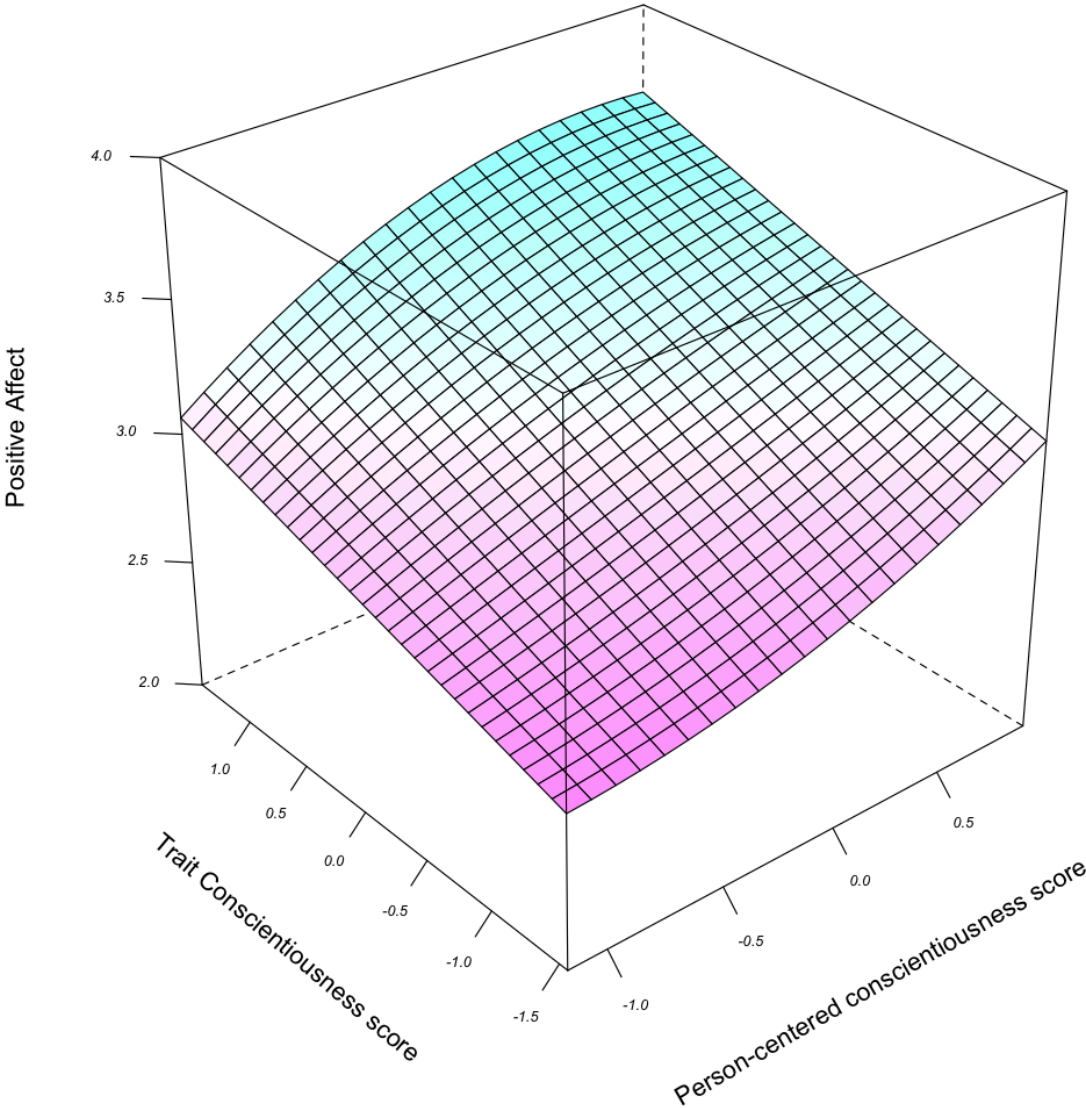
*Regression parameters relating trait conscientiousness ( $C_{TR}$ ) and the person-centered conscientiousness scores ( $C_{PC}$ ) to positive affect*

	estimate	S.E.	95 % CI
Intercept	3.19	.06	[3.08, 3.31]
$C_{PC}$	.26	.03	[.20, .32]
$C_{PC}^2$	-.04	.03	[-.10, .02]
$C_{TR}$	.27	.06	[.15, .39]
$C_{PC}C_{TR}$	-.01	.04	[-.08, .07]
$C_{PC}^2C_{TR}$	-.09	.04	[-.17, -.01]

Figure 1 shows that the person-centered conscientiousness scores related positively to PA, both for people high and for people low in trait conscientiousness. At the same time, the positive relationship appeared to be an upward concave for people low on trait conscientiousness and downward convex for people high on trait conscientiousness. That is, for people low on trait conscientiousness, increases in PA are associated with behaving more conscientiously than usual, whereas behaving less conscientiously than usual had little to no impact on their PA. On the contrary, people high on trait conscientiousness experienced decreases in PA when they behaved less conscientiously than normal, while their PA was relatively unaffected when behaving more conscientiously than normal. Together, these findings suggest that higher levels of conscientiousness benefit PA, but that the mechanism underlying this relationship differs for people depending on whether they are high or low in trait conscientiousness. For people low in trait conscientiousness, acting more conscientiously

than usual is beneficial for their PA, while for people high in trait conscientiousness, acting less conscientiously than usual depletes their PA.

Figure 1.  
*Surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to positive affect (on the Z-axis)*



For NA (see Table 2 for the full results) we found a negative relationship with the person-centered conscientiousness scores ( $\beta = -.12$ ; 95% CI [-.17, -.06]). Similar to PA, we failed to support our hypothesis of a relation between NA and the squared person-centered conscientiousness scores ( $\beta = .01$ ; 95% CI [-.04, .06]). However—and again similar to our

findings for PA—, the interaction between trait conscientiousness and the squared person-centered conscientiousness scores approached conventional levels of significance ( $\beta = .07$ ; 90% CI [.01, .12]). We interpreted this interaction using a surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to NA (on the Z-axis) (see Figure 2). (Table 3.)

Figure 2.

*Surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to negative affect (on the Z-axis)*

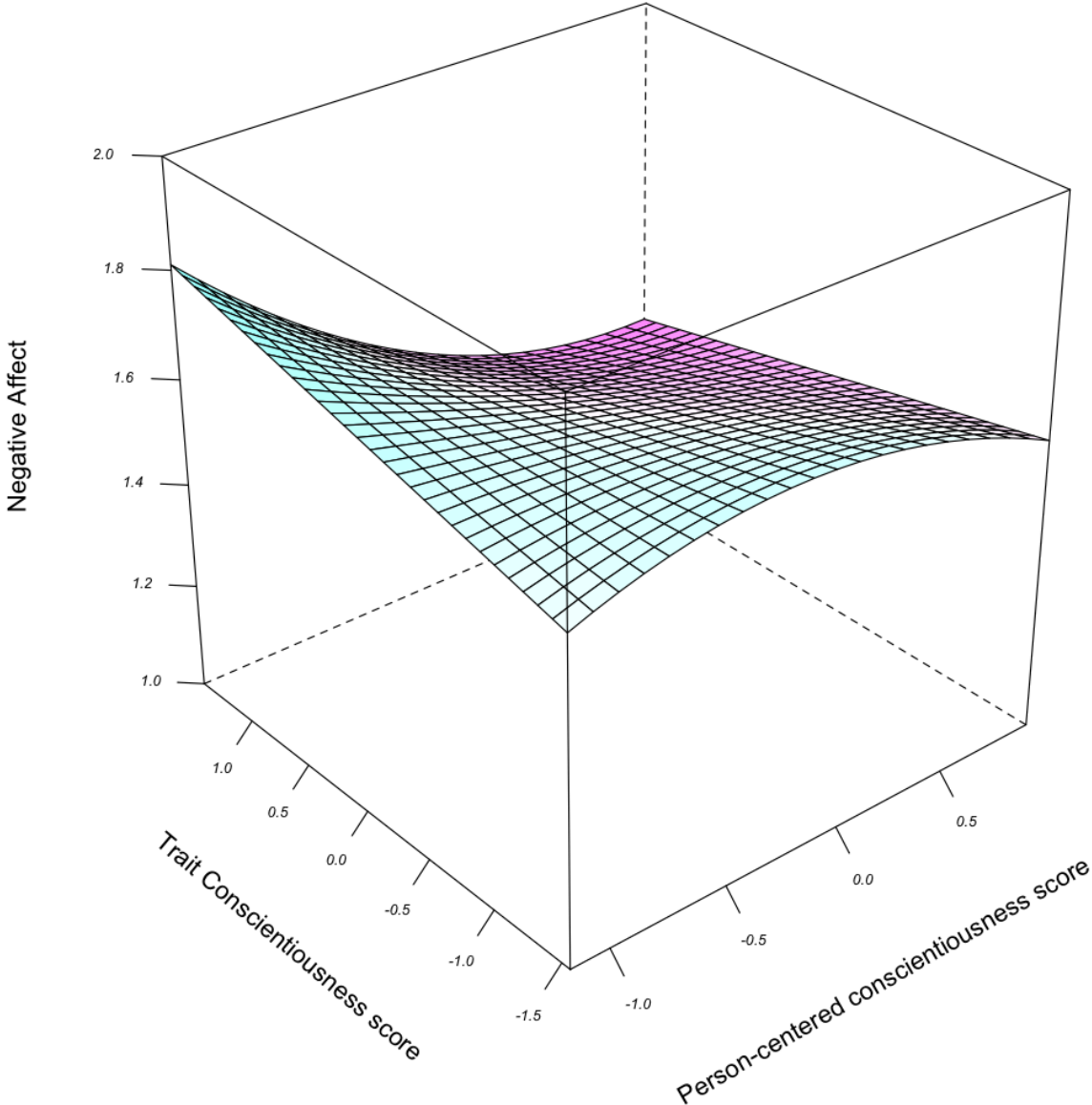


Table 3.

*Regression parameters relating trait conscientiousness ( $C_{TR}$ ) and the person-centered conscientiousness scores ( $C_{PC}$ ) to negative affect*

	estimate	S.E.	95 % CI
Intercept	1.56	.04	[1.48, 1.64]
$C_{PC}$	-.12	.03	[-.17, -.06]
$C_{PC}^2$	.01	.03	[-.04, .06]
$C_{TR}$	-.07	.05	[-.16, .02]
$C_{PC}C_{TR}$	-.04	.03	[-.11, .02]
$C_{PC}^2C_{TR}$	.07	.03	[-.00, .13]

Figure 2 shows that the person-centered conscientiousness scores related in a negative way to NA, however not for everyone. For people low in trait conscientiousness, within-person fluctuations in conscientiousness were unrelated to the within-person fluctuations in NA. On the other hand, for people high in trait conscientiousness, the relationship between NA and the person-centered conscientiousness scores was negative, which can be seen from the downward convex curve. This means that these people experienced increases in NA especially when they behaved less conscientiously than typically, while behaving more conscientiously than usual had little effect.

Taken together, the majority of our findings are not in line with the behavioral concordance model (Moskowitz & Coté, 1995), nor with a “more is better” principle. First, as opposed to the expectations put forth by the behavioral concordance model, we found that deviations from one’s trait conscientiousness level do not always impact PA and NA. When people high on trait conscientiousness behave more conscientious than usual, this has little effect on their level of PA and NA and the same goes for people low on trait conscientiousness

who behave less conscientiously than normal. Moreover, when people low on trait conscientiousness behave more conscientiously than normal, they experience an increase in PA, which is in direct contradiction to the behavioral concordance model that expects deviations from the trait level to always deplete levels of wellbeing. At the same time, the findings of this study also nuance the idea that higher levels of conscientiousness are always better. That is, people high on trait conscientiousness appear to be particularly sensitive to momentary reductions in their usual levels of conscientiousness, while their wellbeing does not respond to momentary increases of their typical levels. This suggests that for people high in trait conscientiousness, the claim “less is worse” applies, opposed to “more is better”. For people low in trait conscientiousness, “more is better” rather than “less is worse” applies as these people’s PA increases when they behave more conscientiously than usual, whereas they experience little NA when behaving less conscientiously than normally.

Despite its strengths, such as its ability to demonstrate the effects of counterdispositional conscientiousness in a real-life setting, this study is subject to a number of limitations. The most important one is undoubtedly the relatively small number of participants. Moreover, participants were recruited by associates of the researchers, which may have resulted in a fairly homogeneous sample and associated generalizability issues. Whereas the small number of participants is not problematic for the within-person relationships, since they take into consideration not only the number of participants, but also the number of repeated measurements, it might have affected the interaction results. Because of this reason and to replicate the findings of our first study, we performed a second study with a larger, more diverse sample of employees.

### **3 Study 2: Event Reconstruction Study**

#### **3.1 Methods**

##### **3.1.1 Participants**

502 employees were recruited via Amazon Mechanical Turk (MTurk), which allows sampling a large, vocationally diverse set of participants. Based on the recommendations of Peer, Vosgerau and Acquisti (2014), only participants with a quality approval rating of 95% or higher were allowed to participate in our study. Moreover, we used attention check questions to increase the quality of the data and truthful responding (Woo, Keith and Thornton 2015) as they help safeguard against participants' inattentively responding (i.e., randomly answering) (Peer et al., 2014). For a full review of using MTurk (mturk.com) for data collection, see Brawley and Pury (2016) and Woo et al., (2015).

Of the 502 participants, we filtered out 53 because they failed to pass at least one of the four control questions in which we asked the participants to select a particular response option (e.g., "select moderately"). Of the remaining 449 individuals, 232 (51.7%) were male. The average age of the respondents was 34.73 ( $SD = 9.58$ ) and their average organizational tenure was 5.40 years ( $SD = 5.06$ ), with 1 year being the minimum and 36 years the maximum. Participants were employed in a wide range of sectors, including IT (16.6%), healthcare (11.4%), education (10.8%), sales (9.4%), banking & finance (7.4%), engineering & manufacturing (7.2%), government & non-profit (6.5%), foodservice & hospitality (4.3%) and "Other" (i.e., administration, design, insurance, legal services, etc.) (26.5%).

##### **3.1.2 Procedure**

Participants first completed a baseline questionnaire measuring their level of trait conscientiousness, after which they proceeded to an event reconstruction study (Grube, Schroer, Hentzschel, & Hertel, 2008). In this event reconstruction study, participants were asked to recall three different episodes or job experiences from their current place of employment. These

episodes were defined by the level of state conscientiousness that was shown by the participant during the episode. That is, we asked the participants to recall one episode in which they behaved in a low state of conscientiousness, one in which they behaved in a moderate state of conscientiousness and one in a high state of conscientiousness (the order of the episodes was randomized across participants). To aid the recall of these episodes and to minimize memory biases, we each time asked them to describe the task they were working on, when the episode happened and where they were during said episode (see Grube et al., 2008 for guidelines on how to conduct such a study). Each query was then followed by the Positive and Negative Affect Schedule (PANAS), which measured how participants felt during these episodes (i.e., excited, proud, ashamed, nervous, etc.). After completing the event reconstruction study, participants completed a questionnaire assessing demographical variables (i.e., age, gender, organizational tenure, and sector).

### **3.1.3 Measures**

#### **3.1.3.1 Trait conscientiousness**

Trait conscientiousness was measured using the 8 conscientiousness items of Saucier's (1994) Mini-Markers scale (i.e., organized, efficient, systematic, practical, disorganized, sloppy, inefficient, and careless). These adjectives were rated on 9-point scale ranging from 'extremely inapplicable' to 'extremely applicable'. The Cronbach alpha reliability coefficient was .85. Scale scores were computed by averaging the item scores.

#### **3.1.3.2 Positive affect**

PA was measured using the Positive and Negative Affect Schedule (PANAS) of Watson et al. (1988). More specifically, participants rated to what extent they experienced 10 positive emotions (e. g., attentive, interested, alert, excited, enthusiastic, inspired, proud, determined, strong, and active) on a 5-point scale ranging from 'very slightly or not at all' to 'extremely'.

The omega reliability coefficient for PA equaled .96 at the within-person level and .94 at the between-person level. The PA scale score equaled the average of the PA item scores.

### **3.1.3.3 Negative affect**

NA was measured using the Positive and Negative Affect Schedule (PANAS) of Watson et al. (1988). More specifically, participants rated to what extent they experienced 10 negative emotions (e. g., distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) on a 5-point scale, ranging from ‘very slightly or not at all’ to ‘extremely’. The omega reliability coefficient for NA equaled .90 at the within-person level and .96 at the between-person level. The NA scale score was computed by averaging the NA items.

### **3.1.4 Results and Discussion**

Means, standard deviations and correlations between trait conscientiousness and PA and NA are shown in Table 4 for the three conscientiousness episodes (i.e., low, moderate, and high state conscientiousness). Firstly, simple paired samples t-tests showed that, both for PA (all  $p < .001$ ) and NA (all  $p < .010$ ), the differences between the three conscientiousness episodes are all statistically significant. Second, inspection of the means shows that the differences in PA (respectively NA) between the moderate and the low conscientiousness episode are substantially larger than the differences in PA (respectively NA) between the moderate and the high conscientiousness episode (see Table 4). This pattern of findings is also mirrored in the correlation coefficients, which show that the levels of PA (respectively NA) in the high and the moderate conscientiousness episode are more similar than the levels of PA (respectively NA) in the high and the low, or than in the moderate and the low conscientiousness episode. As a set, these findings suggest that, relative to a moderate state of conscientiousness, decreasing



one's level of state conscientiousness more strongly impacts PA and NA than increasing one's level of state conscientiousness.

Table 4.

*Means, standard deviations and between-person correlations for all study variables*

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Trait conscientiousness	7.18	1.12						
2. PA (high C condition)	3.84	.78	.31**					
3. PA (moderate C condition)	3.60	.88	.26**	.71**				
4. PA (low C condition)	2.42	1.00	.04	.30**	.45**			
5. NA (high C condition)	1.49	.65	-.28**	-.03	.11*	.29**		
6. NA (moderate C condition)	1.42	.61	-.29**	.00	.08	.27**	.74**	
7. NA (low C condition)	2.07	.83	-.13**	.20**	.23**	.06	.41**	.43**

*Note.* \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; PA = Positive Affect; NA = Negative Affect; C = Conscientiousness

Next, we more systematically tested whether within-person variation in state conscientiousness related to within-person variation in PA and NA and whether this relationship was impacted by one's level of trait conscientiousness. To do so, we conducted two repeated measures ANCOVAs: one for PA and one for NA. In these repeated measures ANCOVAs, the three conscientiousness episodes (low, moderate, and high level of state conscientiousness) served as the repeated categorical independent variable, while the centered trait conscientiousness scores served as the covariate. Note that by centering the trait conscientiousness scores, a conscientiousness value of zero becomes meaningful because it

now represents a trait conscientiousness score equaling the average trait conscientiousness score in our sample.

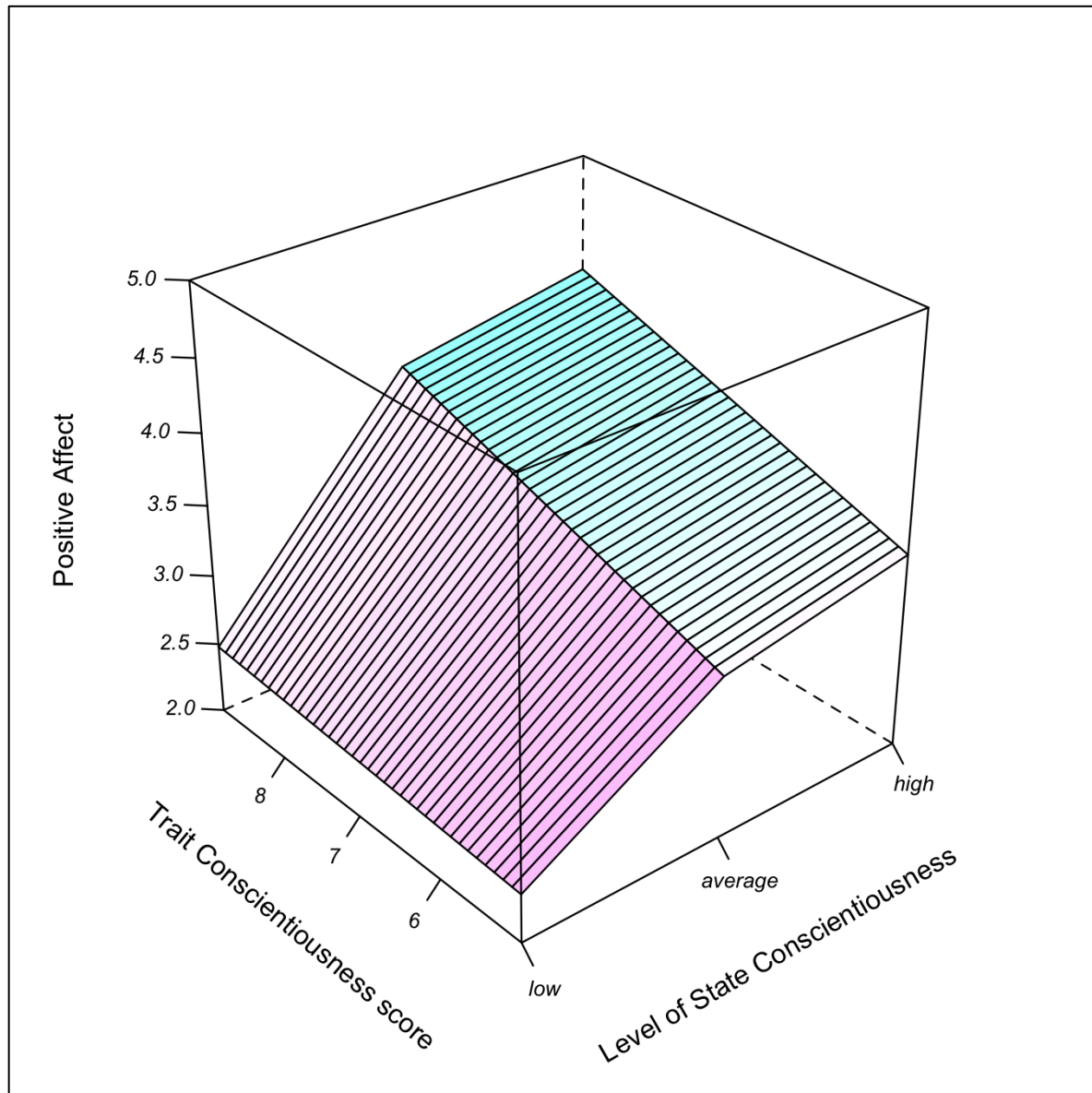
For PA, the ANCOVA analysis showed that the level of state conscientiousness was related to PA ( $F(2,447)=638.71; p < .001$ )<sup>3</sup>. Moreover, PA did relate to trait conscientiousness ( $F(1,447)=28.34; p < .001$ ), and the effect of state conscientiousness on PA differed for people with different levels of trait conscientiousness ( $F(2,447)=15.05; p < .001$ )<sup>5</sup>. Because of the presence of a statistically significant interaction, we inspected the exact nature of the relationships in Figure 3.

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<sup>5</sup> We used the Greenhouse-Geisser correction to account for non-sphericity in the data.

Figure 3.

*Surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to positive affect (on the Z-axis)*



Firstly, Figure 3 shows that PA substantially decreases when one behaves less conscientiously than one normally does. This is true for people low ( $-1 SD$ ) (from 3.36 to 2.38 (95% CI of mean difference  $[-1.10, -.85]$ ), average (from 3.60 to 2.42 (95% CI of mean difference  $[-1.09, -1.27]$ ), and high ( $+1 SD$ ) on trait conscientiousness (from 3.84 to 2.46 (95% CI of mean difference  $[-1.51, -1.25]$ )). These findings also show that behaving less

conscientiously than normal had a stronger negative impact on PA for people high opposed to people low in trait conscientiousness. Secondly, behaving more conscientiously than one normally does leads to a rather small increase in PA. This is again true for people low (from 3.36 to 3.60 (95% CI of mean difference [.15, .32]), average (i.e., from 3.60 to 3.84 (95% CI of mean difference [.18, .30])), and high on trait conscientiousness (from 3.84 to 4.08 (95% CI of mean difference [.16, .33])). The fact that the increase in PA is about equally large for people low, moderate and high on trait conscientiousness suggests that trait conscientiousness did not moderate the effects of behaving more conscientiously than normal.

Similar to PA, both within-person differences in state conscientiousness ( $F(2,447)=223.66; p < .001$ )<sup>3</sup> and between-person differences in trait conscientiousness related to NA ( $F(1,447)=32.49; p < .001$ ). Moreover, and similar to our findings for PA, the impact of state conscientiousness on NA was different for people with different levels of trait conscientiousness ( $F(2,447)=3.46; p=.045$ )<sup>3</sup>. Due to the presence of the interaction effect, we again plotted the interaction effect to interpret it further (see Figure 4).

Figure 4.

Surface plot relating trait conscientiousness (on the X-axis) and the person-centered conscientiousness scores (on the Y-axis) to negative affect (on the Z-axis)

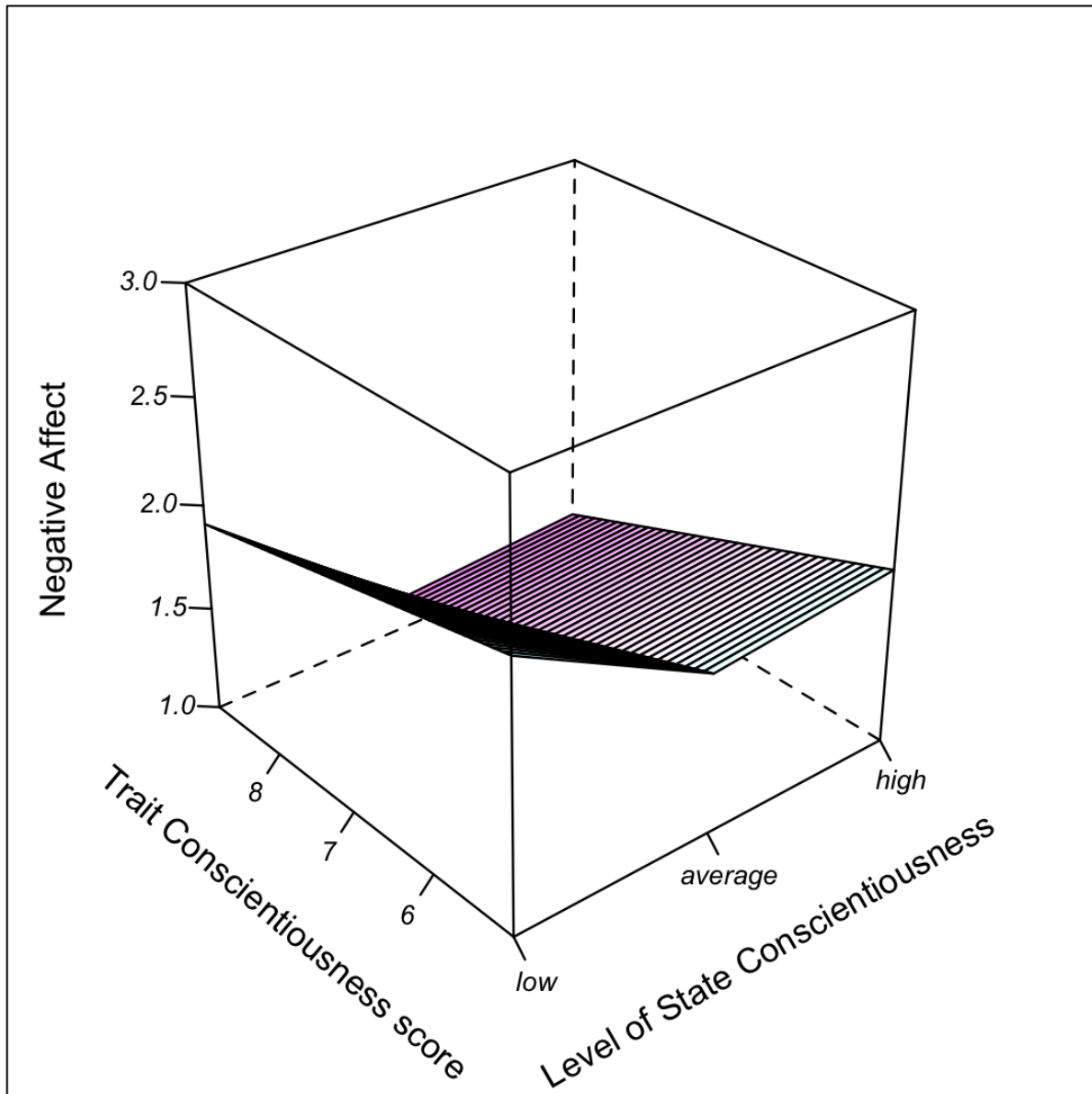


Figure 4 shows the exact nature of the relationship between conscientiousness and NA. First, NA increases substantially when going from one's typical level of state conscientiousness to a low level of state conscientiousness. This is true for people low ( $-1 SD$ ) (from 1.60 to 2.17 (95% CI of mean difference [.47, .67])), average (i.e., from 1.42 to 2.07 (95% CI of mean

difference [.57, .72]), and high (+1 *SD*) on trait conscientiousness (from 1.25 to 1.96 (95% CI of mean difference [.61, .82])). Similar to the findings for PA, these findings also reveal that, when behaving less conscientiously than they typically do, people high in trait conscientiousness experience a stronger increase in NA than people low in trait conscientiousness. Second, going from one's typical to a high level of state conscientiousness had little effect on NA. This was again true for people low (-1 *SD*) (from 1.60 to 1.68 (95% CI of mean difference [.02, .13]), average (from 1.42 to 1.49 (95% CI of mean difference [.03, .11])), and high (+1 *SD*) on trait conscientiousness (from 1.25 to 1.31 (95% CI of mean difference [.01, .13])). The fact that these increases in NA are about equally large for people low, moderate and high on trait conscientiousness suggests that, also for NA, trait conscientiousness did not moderate the effects of behaving more conscientiously than normal.

In summary, the results of our second study showed that deviating from one's typical level of conscientiousness triggers variation in both PA and NA. At the same time, we also found that this was not equally true for all types of deviations. Behaving less conscientiously than one typically does increases NA and decreases PA substantially, while behaving more conscientiously than one typically does had a much smaller effect on PA and NA. Finally, we also found that the effect of behaving less conscientiously was stronger for people high on trait conscientiousness than for people low on trait conscientiousness.

#### **4. General discussion**

In the present paper, we challenged the idea that higher levels of conscientiousness are always beneficial for wellbeing. Building on the behavioral concordance model, we hypothesized that conscientiousness-related states that disagree with one's level of trait conscientiousness would result in depleted levels of PA and increased levels of NA. However, contrary to our expectations, we found that not all deviations (e.g., counterdispositional behaviors) from one's

trait level matter. Whereas PA and NA were clearly impacted by negative deviations from the trait level (i.e., behaving less conscientiously than normally), positive deviations (i.e., behaving more conscientiously than normally) had little to no effect. Apart from challenging the behavioral concordance model, these findings also nuance the idea that behaving in a more conscientious way is always better. In fact, the finding that people's levels of PA and NA appear to be particularly sensitive to momentary reductions in their typical level of conscientiousness, implies that "less is worse" rather than "more is better" applies here. While statistically speaking, both phenomena give rise to a similar, positive within-person relationship, psychologically speaking the "less is worse" principle is vastly different from the "more is better" principle.

The finding that behaving less conscientiously than normal has more bearing on PA and NA than behaving more conscientiously than normally is consistent with previous research. For example, Gallagher et al., (2011)—in their study on counterdispositional extraversion—showed that counterdispositional behaviors below one's typical trait level were more effortful than trait-typical behavior, while this was not the case for counterdispositional behaviors above one's typical trait level. In a similar vein, Zelenski et al., (2012) demonstrated that counterdispositional extraversion resulted in poor Stroop performance, but only for extraverts who had to act introverted. One reason for the observed asymmetry might be a *negativity bias*. Negativity bias refers to the phenomenon that negative subjects are more persuasive than positive subjects of the same equivalence (Rozin & Royzman, 2001). In other words, when occurrences of equal measure are negatively valenced, such as receiving criticism, the effect will be greater than that of a positively valenced occurrence, such as receiving praise (Baumeister, Bratslavsky, Finkenauer and Vohs 2001). This is because negative information is processed more thoroughly than positive information (Baumeister et al., 2001), and therefore causing it to become more significant and prevailing (Rozin & Royzman, 2001). As

conscientiousness is highly valued in organizations and society in general, dropping below one's typical level might be perceived as negative and therefore it might carry more weight than going beyond one's typical level of conscientiousness. Moreover, Fleeson, and Wilt, (2010) demonstrated that people experience higher levels of subjective authenticity—being the judgment that one's current actions express one's true self—when they act in a more conscientious manner. Their results thus imply that people should feel less true to themselves when they show counterdispositional behaviors below one's typical trait level but not when showing counterdispositional behaviors above one's typical trait level, and these feelings of authenticity might make such behaviors less effortful and impactful. Finally, Fayard et al. (2012) showed that the asymmetry underlying the “less is worse” principle might actually be an adaptive mechanism in the sense that the feelings of NA associated with failure activate reparative tendencies that lead the individual to re-engage in conscientious behaviors. In other words, the increased NA and decreased PA following lower levels of conscientiousness might stimulate people to again achieve higher levels of conscientiousness.

A second contribution of this study is that it looks at the affective consequences of the *interplay* between personality states and personality traits. Although rich literature exists on the correlates of personality traits, studies on the momentary expression of these traits – referred to as personality states—are less frequent. This is somewhat remarkable since research shows that behaviors, feelings and cognitions vary at least as much within an individual as they vary between individuals (e.g., Fleeson, 2001). This implies that both between-person as well as within-person fluctuations in behaviors, thoughts and feelings should be considered equally in order to facilitate a comprehensive understanding of personality and its effects on wellbeing. In this paper, we explicitly adopt an integrative approach to personality, studying the effects of momentary deviations from one's trait level on PA and NA. By doing so, we contributed to a better understanding of personality and its affective consequences at the workplace.



Interestingly, we found that the integration of states and traits mattered as negative deviations from one's trait conscientiousness level impacted PA and NA to a different extent for people with different trait conscientiousness levels. In particular, people high on trait conscientiousness suffered more from decreases in state conscientiousness below their trait level than people low on trait conscientiousness. Although we did not anticipate this effect based on the behavioral concordance model, it is in line with research on counterdispositional extraversion showing that counterdispositional behavior is perceived as effortful and is associated to cognitive deficits, but only for extraverts and not for introverts (Gallagher et al., 2011; Zelenski et al., 2012). Moreover, it aligns with the observation that people high on trait conscientiousness react more strongly to negative events, such as negative performance feedback (Cianci, Klein & Seijts, 2010) or negative life events (Boyce, Wood & Brown, 2010). Finally, it also corresponds with recent neurobiological research that demonstrated that people high on trait conscientiousness react more strongly to uncontrollable psychosocial stressors than people low trait conscientious (Dahm et al., 2017). Our findings add to the literature by showing that high trait conscientious individuals not only react more strongly to negative external events, but also do so to negative internal ones. One reason for this effect might be that, because conscientiousness is characterized by rigidity of thoughts (Carter et al., 2015), people scoring high on this trait might have more difficulties deviating from their optimal conscientiousness level, especially because for people high on trait conscientiousness, low levels of state conscientiousness are opposite to one's trait and are therefore more salient (Smith, Ryan & Röcke, 2013).

In addition to the findings that replicated across both studies, we also found study-specific results. Whereas we generally found that people reacted more strongly to decreases rather than to increases from their trait conscientiousness level, we found in Study 1 that people low on trait conscientiousness experienced more PA when they behaved more conscientiously than usual, whereas behaving less conscientiously than usual did not impact their PA.

Moreover, these individual's NA showed little reactivity to within-person fluctuations in state conscientiousness. This study-specific finding has two important implications. First, although we failed to replicate the exact relationship between state conscientiousness and wellbeing for people low on trait conscientiousness, the findings from both Study 1 and Study 2—although slightly different—both fail to support the behavioral concordance model. That is, across both studies, the data show that deviations from the trait level do not only necessarily lead to decreases in wellbeing but can even be beneficial. Second, the finding that people react more strongly to decreases than to increases from their trait conscientiousness level was replicated for people high on trait conscientiousness but not for people low on conscientiousness (for whom this pattern of findings was only found in Study 2). In each case, the failure to replicate the relationship between state conscientiousness and PA and NA for people low on trait conscientiousness highlights the need for future research on this topic, especially among people low in trait conscientiousness.

## **5. Practical Implications**

By revealing that people experience decreased levels of wellbeing when they behave less conscientiously than normal, our findings point to promising paths for interventions in the workplace. That is, our findings suggest that in order to nurture employee wellbeing, organizations should try to create conditions that stimulate people to work in an organized, neat and tidy way, and that allow them to think before acting (Jackson et al., 2010). As Minbashian, Wood, and Beckmann (2010) demonstrated, this might be done by assuring that the tasks one is working on have a high enough level of difficulty and urgency. However, two important nuances are in place here. First, Minbashian et al., (2010) demonstrated that there are substantial individual differences to the extent to which one's level of state conscientiousness depends upon the difficulty and urgency of the task, with some people showing strong increases in state

conscientiousness while others showed no reaction or even slight decreases in state conscientiousness. Because increasing difficulty and urgency of the task increases state conscientiousness for some but decreases it for others, offering tasks with a high enough level of difficulty and urgency will not work for everyone. Second, whereas offering tasks with a high level of difficulty and task urgency seems to be a straightforward solution to the problem, this might be challenging in contemporary organizations where, in order to deal with stiffer deadlines, employees are often required to work under increasing time pressure and with tighter deadlines (Kim, Nembhard & Kim, 2016). Such practices might easily lead to extreme levels of time pressure and task urgency, which might come at the expense of employee wellbeing because imposing extensive challenges upon employees will in fact imply that they need to decrease their level of conscientiousness to meet the requirements. In other words, there is probably a (person-specific) optimal level of task urgency and difficulty that, when exceeded, leads to lower rather than higher levels of state conscientiousness (see Hofmans, Debusscher, Dóci, Spanouli, & De Fruyt, 2015 for a similar mechanism regarding work pressure and employee core-self evaluations).

## **6. Limitations and Future Research Directions**

Notwithstanding the contributions of this paper, some limitations should be considered. First in Study 1, participants were recruited by associates of the researchers. This way of recruiting participants may have resulted in rather a homogeneous, unrepresentative sample that potentially limits generalizability of the study results. To address this concern, we recruited a bigger and more heterogeneous sample in our second study. A second limitation is that, although one of the by-products of person-centering the data is that it removes individual differences in response biases from the data (Beal & Weiss, 2003), the sole utilization of self-reported data makes the findings susceptible to common-method bias. However, we do not

believe this to be a major issue in this particular study. First, as Table 1 shows, the correlations between the study variables were small to moderate at best (with some correlations even being nonsignificant), and suggest that common-method variance is not a major issue. Second, our models include both quadratic effects (in Study 1) as well as the interaction effects (Study 1 and Study 2), and it has been shown that quadratic effects and interaction effects cannot be artifacts of common-method variance (Siemsen, Roth and Oliveira 2010). Thirdly, at this point in time, there does not appear to be a better or more practical way to measure variations in state levels of personality and affect other than with self-reported measures. Fourthly, in Study 1, participants received prompts to report their *daily* level of PA and NA while they were asked to rate their *momentary* level of conscientiousness. This difference in temporal framing complicates finding associations between the study variables as, for example, a person may work hard at the moment, however report high NA as a result of an occurrence that happened earlier in the day. In Study 2, we addressed this limitation because, in our event reconstruction study, all measurements pertained to specific events. Finally, although we convincingly showed that fluctuations in state conscientiousness relate to fluctuations in PA and NA in two studies in a real-life setting, this setting does not allow drawing causal conclusions. In fact, one alternative explanation for our findings is that both state conscientiousness and PA and NA were influenced by the nature of the tasks people were working on, rather than state conscientiousness influencing PA and NA. To rule out such alternative explanations, one would need to perform a lab experiment in which one can manipulate task state conscientiousness while measuring PA and NA.

In summary, although our results suggest that the interplay of state and trait conscientiousness is a complex matter, it is important to underscore that there is still much more to learn in regards to the mechanisms that drive the relationship between personality and wellbeing. Linking the two together as we did with these two studies on conscientiousness, PA

and NA is only one step. Future research might develop from this study by examining other Big Five dimensions to investigate if similar findings hold true for other trait domains. This might be particularly relevant for traits that are less valued by society, such as neuroticism. For such traits, the pattern of relationships might be different as for these traits decreases below one's typical level tend to be perceived as positive by one's environment. Thus, for such traits particularly increases beyond one's typical level might relate to increases in PA and increases in NA. Moreover, future research would also benefit from explicitly studying the mechanisms that are at play when people behave in a counterdispositional manner. This can, for example, be done by measuring the extent to which counterdispositional conscientiousness leads to the depletion of self-regulatory resources and hence to lower wellbeing.

## **7. Conclusion**

Our study demonstrates that people showed increased levels of NA and decreased levels of PA when they behaved less conscientiously than they typically do. Acting more conscientiously, however, had little effect on their PA and NA. Moreover, people high on trait conscientiousness suffered more from drops in their level of conscientiousness than people low on trait conscientiousness. Collectively, these results suggest that the conscientiousness-wellbeing relationship can better be described by “less is worse” rather than by “more is better”. By revealing this important dynamic, our findings suggest that the interplay of personality states and personality traits is a complicated issue, with both the trait level and deviations from the trait level being relevant to people's wellbeing.

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## CHAPTER 3

### Concurrent and lagged effects of counterdispositional extraversion on vitality

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Pickett, J., Hofmans, J., Feldt, T., De Fruyt, F. (2019). Concurrent and lagged effects of counterdispositional extraversion on vitality. (Under review).

## Abstract

There are two contrasting positions on the effects of state extraversion. One states people benefit from behaving extraverted, regardless of their trait extraversion and the second entails behaving concordant to one's trait is natural and deviations from the trait level—counterdispositional behaviors—are effortful to maintain, leading to mental fatigue. In this paper, we test the possibility that both perspectives are correct, with beneficial effects of high state extraversion showing immediately, while the depleting counterdispositional effects are delayed. Experience sampling data from 67 employees ( $N = 1,664$ ), shows extraverted behaviors are associated with high levels of vitality in the short-term, however, if extraverted behaviors are not congruent with one's trait level, they backfire, leading to depleted levels of vitality later.

## Introduction

Counterdispositional behavior refers to behavior that contrasts or deviates from one's dispositions or personality traits (Zelenski, Santoro, & Whelan, 2012). Provided that personality traits represent behavioral tendencies, the engagement in such behaviors implies that people need to (consciously or unconsciously) overrule these behavioral tendencies, and this modification of one's typical behavior is believed to exhaust limited self-regulatory resources and cause stress (Vohs, Baumeister, & Ciarocco, 2005). For example, when a person behaves more extraverted than (s)he normally does, deviating from one's typical extraversion-related behavior is believed to require mental resources, leading to feelings of exhaustion. However, empirical research on the effects of counterdispositional extraversion has not always found such depleting effects, with counterdispositional extraversion even being linked to indicators of high levels of mental resources, such as increased levels of positive affect (Fleeson, Malanos, & Achille, 2002). An important question thus concerns the explanation of these seemingly contradictory findings.

In this paper, we argue that the answer lies in the fact that these differential effects of counterdispositional extraversion might show differently on different time scales. That is, whereas engaging in highly extraverted behavior might be beneficial in the moment, the fact that one needs to overrule one's behavioral tendencies to do so might backfire after a while for people low on trait extraversion (for whom highly extraverted behaviors are counterdispositional). To test this possibility, we performed an experience sampling study in which people reported on their level of state extraversion and vitality six times a day for five days, allowing the testing of both concurrent and lagged effects of counterdispositional extraversion on vitality. By taking a dynamic, temporal approach, the current study contributes



to previous research on counterdispositional extraversion by looking into why counterdispositional extraversion may or may not be beneficial.

### **1.1 Previous research on counterdispositional extraversion**

Empirical research on the effects of counterdispositional extraversion has yielded mixed results, resulting in two competing perspectives. Firstly, people's subjective wellbeing benefits from behaving in an extraverted way, which is why, according to this perspective, people can improve their happiness by engaging in extraverted behaviors more often (Fleeson, et al., 2002; Zelenski, et al., 2012). The direct consequence of this perspective is that it is better for everyone to behave in a more extraverted way, regardless if one is high or low on trait extraversion (Fleeson et al., 2002).

Conversely, the second perspective holds that behaving in an extraverted way is beneficial only for people high in trait extraversion, but not for people low in trait extraversion. The reasoning is that, for dispositional introverts, engaging in extraverted behaviors implies the overriding of one's default behavioral tendencies, thereby leading to the depletion of mental resources, triggering associated feelings of exhaustion (Leikas & Ilmarinen, 2017; Pickett, Hofmans, & De Fruyt, 2019). Hence, according to this perspective, extraverted behaviors are beneficial for people high, but not for people low on trait extraversion.

Considering these inconsistent and contradictory findings, one might wonder what is behind the complexity of counterdispositional extraversion and what are the mechanisms causing these inconsistencies. In what follows, we argue that both perspectives can be correct. That is, our reasoning is that the momentary effects of high levels of state extraversion might be positive, but engaging in such behaviors backfires after a short period of time for people for whom such behaviors are counterdispositional. To test this idea—which aligns with several calls to research to the role of time (e.g., Vantilborgh, Hofmans, & Judge, 2018), we studied

the relationship between counterdispositional extraversion and vitality. Vitality is a particularly interesting outcome as it is a direct indicator of mental resources, (Ryan & Frederick, 1997) thereby allowing for a straightforward test of the basic assumption that counterdispositional behavior relates to the depletion of such resources.

## **1.2 Extraversion and Vitality**

Vitality refers to the positive feeling that follows from the experience of feeling energetic and alive (Ryan & Frederick, 1997) and being high in physical and mental energy (Ryan & Deci, 2008), which is why vitality is sometimes referred to as *positive* energetic arousal (Thayer, 1989). Important to our expedition is that self-regulatory or mental resources directly concern the idea of energy available to the self (Ryan & Deci, 2008). In other words, according to self-regulation theories (Baumeister, Gailliot, DeWall, & Oaten, 2006), vitality is core to the regulation of behavior, with the engagement in self-regulation temporarily depleting one's level of vitality.

Regarding its association with extraversion, we expect a positive concurrent relationship. The reason is that extraversion is a personality dimension that is characterized by features such as outgoingness, assertiveness, activity and positive affect. In that sense, state extraversion connotes a sense of personal energy and liveliness (Ryan & Frederick, 1997), characteristics which constitute the very core of vitality. In line with this rationale, a positive association has already been demonstrated at the trait level, with between-person differences in extraversion being positively linked to between-person differences in vitality (e.g., Ryan & Frederick, 1997). Moreover, also at the momentary level, empirical research shows that people like behaving in an extraverted way, a finding that has been found both in the laboratory and in real-life settings (Fleeson et al., 2002). As a result, we posit a positive relationship between state extraversion

and vitality, expecting that deviations from one's trait level in the direction of more extraverted behaviors would be associated with higher levels of vitality.

Though, as we argued earlier, behaving concordant to one's trait is believed to be natural and thus requires little self-regulation and therefore little energy. Deviations from the trait level, in turn, are effortful to maintain because they consume or exhaust limited self-regulatory resources (Vohs et al., 2005). In line with this reasoning, studies have shown that some of the costs of counterdispositional behaviors include decreased levels of self-control (Zelenski et al., 2012), decreased energy levels (Gallagher, Fleeson, & Hoyle, 2011), and a delay in processing emotions or coping in regards to new events or situations (Tamir, Robinson, & Clore, 2002). However, since extraversion and vitality share an important energetic component, the exhaustion of limited self-regulatory resources might not show immediately, but in a delayed fashion. That is, the depleting effects of counterdispositional extraversion might only show when the situation that provoked the extraverted behavior is over (Leikas & Ilmarinen, 2017). Supporting this idea, Leikas and Ilmarinen (2017) demonstrated that higher levels of extraversion were related to immediate mood gains (i.e., increased positive affect), but also to later fatigue. Hence, whereas we expect a positive concurrent association between state extraversion and vitality, we expect a negative delayed relationship. As research has shown that the average length of a work episode is 61 minutes (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004), we expect the delayed depleting effects to show after about one hour.

## **2 Methods**

### **2.1 Participants**

We collected data by contacting 109 full-time Belgian employees (67% female;  $M_{\text{age}} = 39.6$ ). Eighty-five of those employees participated, of whom 46 were women (54%). The average age of the respondents was 39.6 years ( $SD = 11.44$ ) with ages ranging from 18 to 62 years. Participation in the study was voluntary.

## **2.2 Procedure**

Participants had to work full-time during regular office hours for one full work week and they needed to have access to a smartphone. Participants first completed an online informed consent form and a preliminary questionnaire assessing demographic variables. After completing the preliminary questionnaire, participants received step-by-step instructions on how to download and activate the mobile experience sampling (ESM) application PACO on their phone.

In the ESM phase, participants were prompted six times throughout the work day using a semi-random measurement schedule, asking them to fill out a short questionnaire via the PACO app. The study lasted for one full work week.

The survey was completed by 70 participants at least once. However, in order to be able to separate within-person fluctuations from between-person variability, a minimum of two observations per person is necessary. Removing all participants with less than two repeated observations, the study resulted in  $N = 1,664$  unique observations from 67 participants, which corresponds to a response rate of 82.79%. Per completed questionnaire, respondents earned a €0.50 donation to charity.

## **2.3 Measures**

### **2.3.1 State extraversion**

State extraversion was measured using the eight adjectives (e.g., talkative, extroverted) from Saucier's (1994) Mini-Marker's scale. Items were scored on a nine-point scale ranging from 1 (not applicable) to 9 (extremely applicable). To measure state extraversion, the items were prefaced by 'at this moment' to allow the momentary measurement of extraversion. We used multilevel confirmatory factor analysis to test the reliability of our state extraversion measure (Geldhof, Preacher, & Zyphur, 2014). The within-person omega reliability coefficient equaled .86, while the between-person omega reliability coefficient was .81

### 2.3.2 State vitality

State vitality was measured using the four-item vitality subscale of the SF-36-VT questionnaire (Ware & Sherbourne, 1992). Items were scored on a six-point scale ranging from 1 (not at all) to 6 (all the time) and a sample question was “Did you have a lot of energy”? To measure the state level of vitality, items were again prefaced with ‘at this moment’. The within-person omega reliability coefficient was .83 and the between-person omega coefficient was .89.

## 3 Results

### 3.1. Descriptive statistics

Descriptive statistics of our variables, intra-class correlation coefficients (ICCs) and zero-order correlations can be found in Table 1. The ICCs reveal that 54 percent of the variance in state extraversion and 48 percent of the variance in state vitality is due to within-person fluctuations, underscoring the idea that both constructs not only vary between, but also within individuals. In terms of the correlations, we found a positive correlation, both at the between-person ( $r = .49$ ;  $p < .001$ ) and at the within-person level ( $r = .47$ ;  $p < .001$ ).

Table 1.

*Descriptive statistics, intra-class correlation coefficients (ICCs) and zero-order correlations for all study variables. Within-person correlations are above and between-person-correlations are below the diagonal.*

	<i>M</i>	<i>SD<sub>within</sub></i>	<i>SD<sub>between</sub></i>	<i>ICC</i>	1	2
1. State extraversion	6.28	.91	.89	.46	-	.47***
2. Vitality	4.56	.64	.70	.52	.49***	-

Notes: \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

### 3.2. Hypothesis tests

As the data have a nested data structure, we performed multilevel regression analysis using the lme4 package for R (Bates, Mächler, Bolker, & Walker, 2015). First, we computed an index of trait extraversion by averaging each participant's state extraversion ratings across all measurement occasions. Note that this aligns with the idea that traits tap into how someone behaves, feels and thinks on average (Rauthmann, Horstmann, & Sherman, 2019). Next, we calculated an index of counterdispositional extraversion by calculating per measurement moment the deviation between one's trait extraversion level and the state extraversion level (i.e., group-mean centering or person-centering). Then, we tested the relationship between counterdispositional extraversion and vitality using a quadratic multilevel regression analysis (see Equation 1). In this model, we predicted vitality based on the person-centered extraversion scores ( $E_{ij}$  in Equation 1), and the squared person-centered extraversion scores ( $E_{ij}^2$  in Equation 1). The inclusion of the linear effect of counterdispositional extraversion (i.e.,  $E_{ij}$ ) allows testing whether deviating from one's trait level relates in a linear way to vitality, while inclusion of the quadratic effect (i.e.,  $E_{ij}^2$ ) allows testing whether deviations from one's trait (in both directions) relate to lower levels of vitality. Moreover, we also tested whether the relationship between counterdispositional extraversion and vitality was the same for people with different trait extraversion scores by testing a separate model in which interaction terms between trait extraversion and the linear and curvilinear effects of counterdispositional extraversion were included (i.e.,  $E_{ij}E_j$  and  $E_{ij}^2E_j$  in Equation 2).

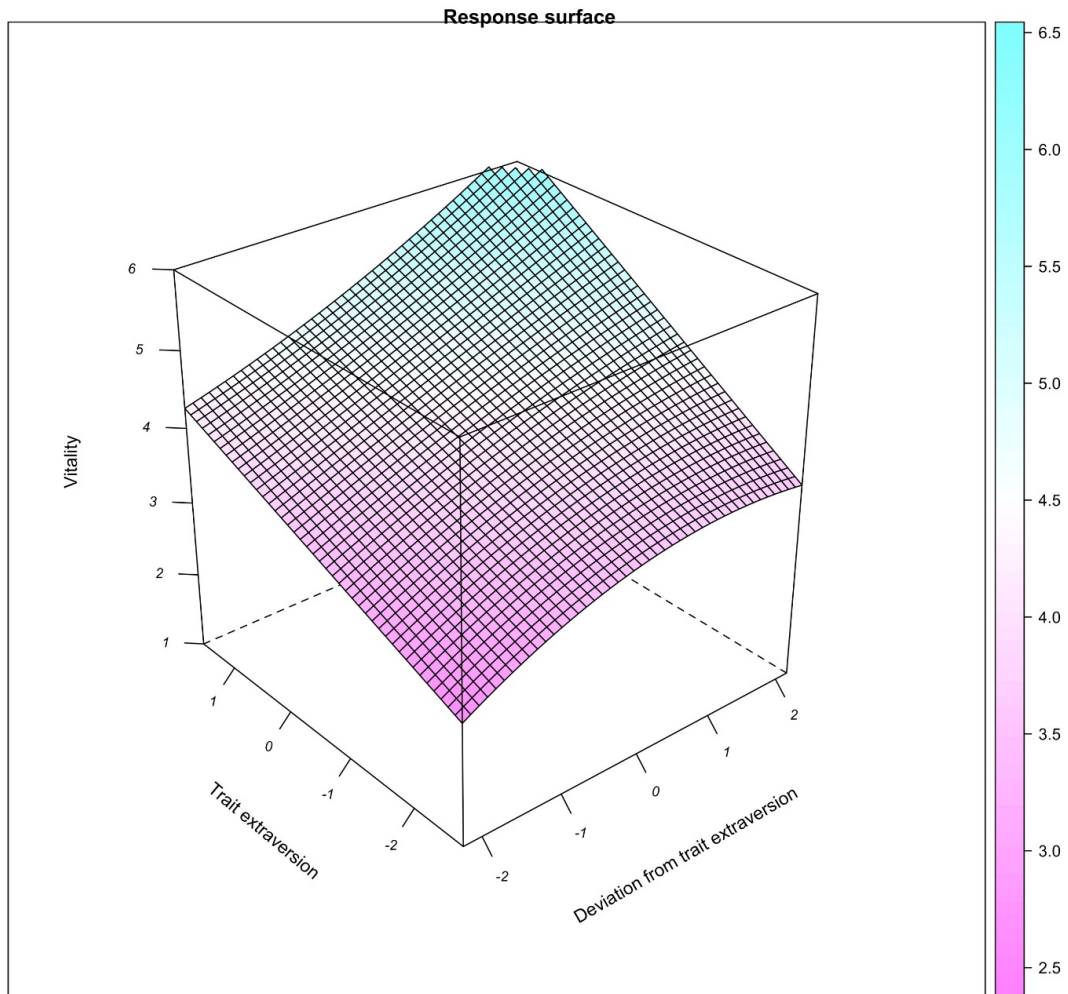
$$Vitality_{ij} = \beta_{0j} + \beta_{1j}E_{ij} + \beta_{2j}E_{ij}^2 + e_{ij} \quad (1)$$

$$Vitality_{ij} = \beta_{0j} + \beta_{1j}E_{ij} + \beta_{2j}E_{ij}^2 + \beta_3E_j + \beta_4E_{ij}E_j + \beta_5E_{ij}^2E_j + e_{ij} \quad (2)$$

When testing concurrent associations between counterdispositional extraversion and vitality, we found—in line with our expectations—that counterdispositional extraversion was positively associated to within-person variation in vitality ( $\beta_{10} = .36; p < .001$ ). Moreover, the quadratic effect of counterdispositional extraversion was nonsignificant ( $\beta_{20} = -.02; p = .460$ ). When testing Equation 2, we found that this effect held true across different trait extraversion levels, with the interaction between trait extraversion and the linear effect of counterdispositional behavior ( $\beta_4 = .06; p = .170$ ), and the interaction between trait extraversion and the quadratic effect of counterdispositional behavior being nonsignificant ( $\beta_5 = .03; p = .300$ ). These associations are graphically shown in Figure 1, showing that counterdispositional extraversion is positively related to vitality, with this association holding true across different trait extraversion levels.

Figure 1.

*Surface plot relating trait extraversion (on the X-axis) and the person-centered extraversion scores (on the Y-axis) at Time  $t$  to state vitality (on the Z-axis) at Time  $t$*



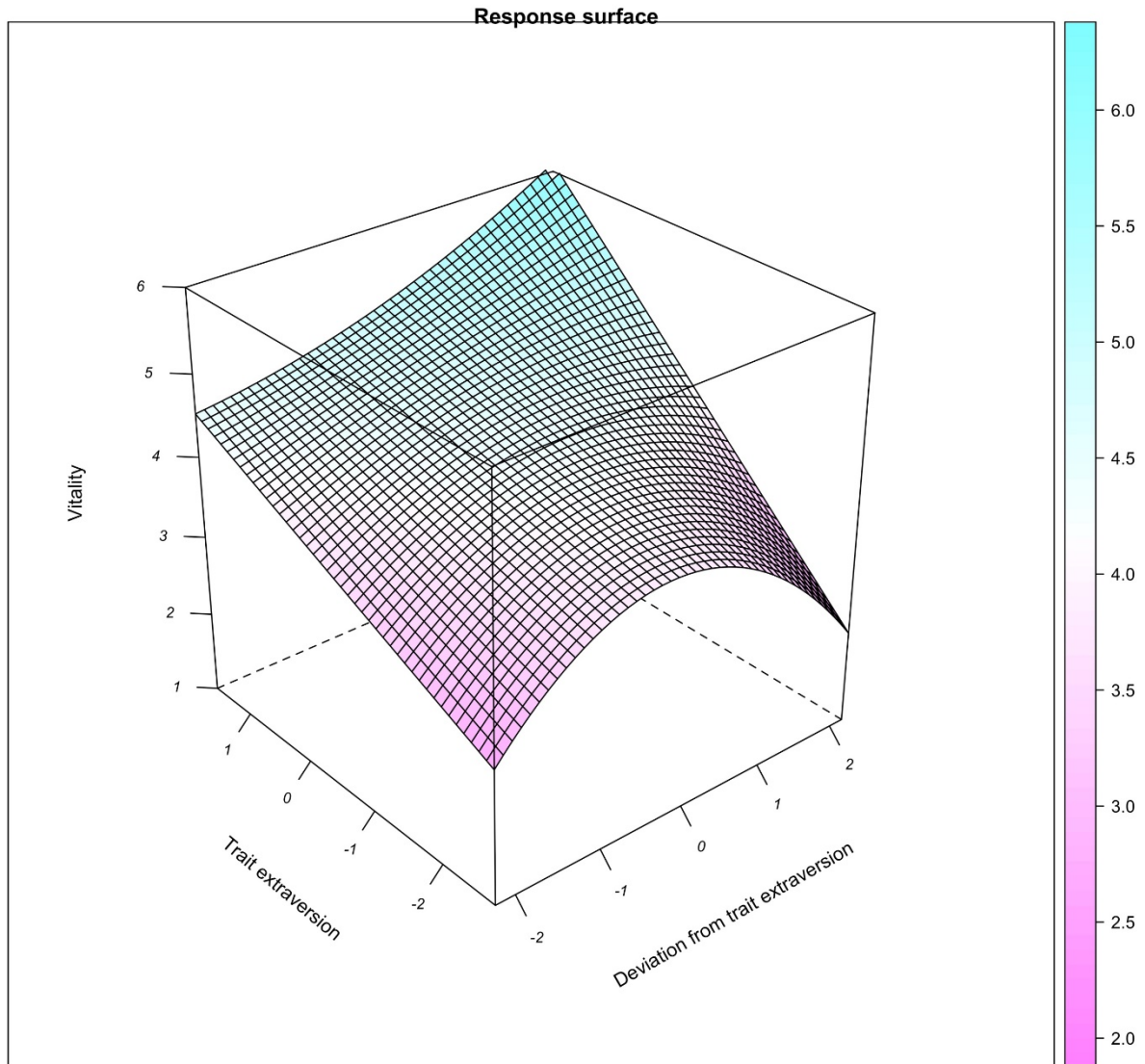
In the next analysis, we looked at delayed effects. For testing those delayed effects—and based on the observation that the average work episode lasts 61 minutes (Kahneman, et al., 2004)—, we only examined observations that were separated by at least half an hour and at most one hour and a half ( $N = 699$  unique observations). We found that counterdispositional



extraversion was—again— positively associated to within-person variation in vitality ( $\beta_{10} = .18; p = .007$ ). Unlike the findings for the concurrent effects, however, also the quadratic effect of counterdispositional extraversion was statistically significant ( $\beta_{20} = -.08; p = .029$ ). Moreover, when testing whether these effects held true across different trait extraversion levels, we found that trait extraversion did (marginally) interact with the quadratic ( $\beta_4 = .08; p = .078$ ) but not the linear effect of counterdispositional behavior ( $\beta_3 = .12; p = .143$ ). As can be seen in Figure 2, this means that for people low on trait extraversion (i.e., dispositional introverts) the relationship between counterdispositional behavior and vitality is—as expected—inverse U-shaped, while it is—against our expectations—positive and near-linear for people high on trait extraversion. In other words, dispositional introverts' vitality suffers when they deviate from their dispositional level of extraversion, while for dispositional extraverts, higher levels of state extraversion are related to more vitality.

Figure 2.

*Surface plot relating trait extraversion (on the X-axis) and the person-centered extraversion scores (on the Y-axis) at Time t to state vitality (on the Z-axis) at Time t+1*



#### 4.1 Discussion

The aim of this study was to look into the seemingly contradictory findings on counterdispositional extraversion, with some studies showing that behaving more extraverted is better, regardless of one's trait extraversion level (Fleeson, et al., 2002), while others found that engaging in counterdispositional extraversion is associated with important wellbeing- and energy-related costs (Gallagher et al., 2011). Our findings seem to reconcile both perspectives

in the sense that, while we did find that acting in an extraverted way increased one's level of vitality at the moment, high momentary levels of extraversion backfired when one is low in trait extraversion. Importantly, such depleting effects were not observed for people high in trait extraversion, for whom deviations from one's trait level in the direction of more extraverted behaviors over time were still associated with higher levels of vitality. It is interesting to note that such asymmetric effects were also observed for conscientiousness, where people high on trait conscientiousness suffered more from negative deviations from their trait level than people low on trait conscientiousness (Pickett, Hofmans, Debuscher, & De Fruyt, 2019).

By revealing such a double-sided story, our findings make several contributions to the literature. First, we extend the findings of Leikas and Ilmarinen (2017), who found that the effects of behaving in an extraverted way might not only show immediately, but also in a delayed fashion. However, Leikas and Ilmarinen (2017) only tested linear associations, and such linear associations do not allow testing the idea that deviations from the trait level matter. By simultaneously looking at linear *and* curvilinear effects, we demonstrated that deviations from the trait level negatively affect one's energy resources, though not always and not for everyone. The awareness of the complicated nature of the functioning of extraversion concerns our second important contribution. That is, we demonstrated that, in order to more fully understand the effects of extraversion, the between-person and the within-person approach to personality need to be integrated. By only looking at either the trait or the state level, it is not possible to get a good grasp on the consequences of personality in everyday life. Thirdly, we contribute to research on the consequences of extraversion by adding a temporal lens to investigating the outcomes of counterdispositional extraversion. That is, we demonstrated that looking at the differential effects across time is one way to disambiguate the quagmire of seemingly contradictory results.

## **4.2. Limitations and future research**

Despite the contributions of this paper, the sole use of self-reported data makes our finding susceptible to common-method bias. However, such concerns are lessened because of two reasons. First, we person-centered our data, and one of the consequences of person-centering is that it eliminates individual differences in response biases (Beal & Weiss, 2003). Second, common-method variance is less problematic when investigating higher-order effects or interactions, which is specifically what we do in this study (Siemsen, Roth, & Oliveria, 2010). Finally, there is simply no better way to repeatedly measure variations in state levels of extraversion and vitality other than with self-reported measures.

The present study puts temporal dynamics in the spotlight, and we feel that future research can benefit from an explicit focus on temporal dynamics when studying personality. At present, several novel dynamic models of personality are being suggested, allowing to look at the dynamic, fluid aspects of personality. One such example is the recently developed Personality Dynamics (PersDyn) model of Sosnowska and colleagues (2019), which looks at individual differences in people's typical pattern of changes in personality states.

## **4.3 Conclusion**

Our results nuance the idea that acting extraverted is as “good” as being extraverted. Rather, we found that engaging in extraverted behaviors is associated with high vitality in the short-term, however if these extraverted behaviors are not congruent with one’s trait, they backfire, leading to depleted levels of vitality later on. Thus, our findings allow a glimpse of the complicated interplay of trait and state extraversion.

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## CHAPTER 4

### **Stressors, coping mechanisms and uplifts of commercial fishing in Alaska: A qualitative approach to factors affecting human performance in extreme environments**

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Pickett, J. & Hofmans, J. (2019). Stressors, coping mechanisms and uplifts of commercial fishing in Alaska: A qualitative approach to factors affecting human performance in extreme environments. *Journal of Human Performance in Extreme Environments* 10(1).



## **Abstract**

We depict the physical and psychological challenges of commercial fishing in Alaska as well as the uplifts, or positive experiences fishermen report. We describe an array of coping methods that are utilized during the fishing season and the contexts in which they occur. Our findings help clarify the link between human behavior, stressors, coping mechanisms employed and uplifts experienced when working in extreme conditions. By doing this, we provide a better understanding of the effects that severe conditions have on wellbeing, such as working for long periods of time in cramped quarters in remote, extreme environments and how Alaskan fishermen cope with them.

## Introduction

Commercial fishing is a stressful and dangerous occupation. Even though it has improved over the years, commercial fishing in Alaska is still 29 times more dangerous than any other occupation in the US (Lazakis, Kurt, & Turan, 2015; Rezaee, Seiler, Pelot, & Ghasemi, 2016; Syron et al., 2017). A total of 179 fishing related fatalities occurred during the 15-year period of 2000-2014, averaging 12 deaths a year (Syron et al., 2017). Vessel disasters, such as sinking, capsizing, running aground or fires that forced crew to abandon ship were the number one cause of fatality (31%), while the second leading cause was drowning due to falling overboard (27%) (Syron et al., 2017). Unlike in the 1980s and 1990s, when Alaska's crab fishery caused the most injuries and fatalities, nowadays, the salmon fishery has become Alaska's deadliest catch (Case, Lincoln, & Lucas, 2018).

Exposure to the occupational hazards of the maritime sector, such as safety risks and dangerous weather, is inherently demanding and stressful (Carotenuto et al., 2013; Leszczńska, Jeżewska, & Jaremin, 2008; MacLachlan, Cromie, Liston, Kavanagh, & Kay, 2013; Slišković, 2017). The psychological response to these dangers and hazards is stress, which transpires when there is a discrepancy between the demands of the situation and an individual's capability to meet those demands (Johnson et al., 1998). In addition to extreme and dangerous demands, there are also other requirements of fishing that can be characterized by a plethora of physical and psychological stressors that include, but are not limited to, isolation, confinement, boredom, monotony, social frictions, long-hours, arduous and complex workloads, noise, sleep deprivation and disturbances, financial difficulties, limited access to medical evacuation and being away from family and friends (Carotenuto et al., 2013; MacLachlan et al., 2013; Palinkas, 2003; Pollnac, Monnereau, Poggie, Ruiz, & Westwood, 2011). Research shows that such stressors negatively impact health and wellbeing and correlate with high work-related morbidity

and mortality rates (Johnson et al., 1998). Yet, many fishermen return year after year to fish another season.

So why is it that fishermen persist in fishing, despite the high stress occupation, the adversities and negative outcomes that come with fishing? Part of the story is that fishermen are able to cope with those stressors by employing psychological defense mechanisms to minimize the subjective perception of threats (Pollnac & Poggie, 2008) such as denial or minimizing of risks (Pollnac et al, 2011). At the same time, they might also continue to fish because of the positive aspects of fishing that fishermen experience, also known as uplifts (Kanner, Coyne, Schaefer, & Lazarus, 1981). Uplifts are positive experiences that help reinforce one's sense of wellbeing (Kanner, et al., 1981). These positive elements in this context include the pristine nature of the area, pride in their profession and in providing a healthy food source as well as the comradery felt amongst crew members. The psychological wellbeing of fishermen is important because, not only are fatality rates high due to their dangerous occupation (Case et al., 2018; Syron et al., 2017) but depression and suicide is also rampant among seafarers (Carotenuto et al., 2013; Roberts, Jeremin, Chalasani, & Rodgers, 2010).

In the present paper, we study stressors (occupational and environmental), coping mechanisms (i.e., how people deal with the stressors), and uplifts (i.e., positive, health-promoting experiences) among a sample of Alaskan fisherpoets, a group of commercial salmon fishermen who share their experiences working on the sea through stories, poems and songs<sup>5</sup>. Although the different commercial fishing types and areas in Alaska are distinct, they all involve working in isolated, confined and extreme (ICE) environments. By studying not only the challenges but also the positive aspects of commercial salmon fishing in Alaska, we aim to understand which aspects of the job help fishermen stay psychologically healthy, despite the many hazards and stressors of fishing. This is important to consider when tackling industry

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<sup>5</sup> For more on fisherpoets see: <http://www.fisherpoets.org/2019-fisherpoets-gathering.html>

issues such as the greying of the fleet (Donkersloot & Carothers, 2016) or social isolation, depression and suicide amongst seafarers (Seafarers' Trust, 2017).

The rather narrow focus of this research on stressors, coping mechanisms and uplifts is intended for three reasons. Firstly, to our knowledge, this is the first study to cover both the challenges and the positive aspects of the Alaskan commercial fishing industry from a psychological perspective. Hence, our findings can be of use when selecting, training and informing people willing to engage in the industry. Second, as noted above, certain stressors and uplifts experienced by fishermen are shared with other occupations in extreme environments, such as those who work in the Arctic and Antarctic (i.e., Palinkas & Suefeld, 2008; Smith, Kinnafick & Saunders, 2017) or astronauts (Golden, Chang, & Kozlowski, 2018; Ihle, Ritsher, & Kanas, 2006), which makes our findings useful for these areas of application. Third, we hope to provide a framework of stressors, coping mechanisms and uplifts to draw from for future research on working in extreme environments.

### **1.1 Characteristics of working in ICE**

In this section we describe the characteristics of working in an ICE environment, considering both the physical and psychological environment in which fishermen work. Commercial fishing boats are hard places to work. There is constant noise, vibration and noxious fumes from the engine and generator, coupled with working long and often wet hours, treacherous weather, financial insecurity, physical and mental fatigue and threat of injury or death. These occupational stressors, in turn, parlay into psychological stress (Johnson et al., 1998). In this context stressors can be either environmental or physical in nature (e.g., slippery decks, foul weather, getting tangled in gear, noise, being swept overboard, falling into a hold) or they can be psychological (e.g., isolation, confinement, social monotony, lack of personal space, interpersonal conflict).

### **1.1.1 Isolation**

Isolation is the physical separation from others or civilization, the reduction of psychologically and socially meaningful stimuli (Leach, 2016) and living or working in a remote location that is an impractical distance to travel on a daily basis (Roma & Bedwell, 2017). In Alaska, some of the salmon fisheries are more remote than others and as a result, physical, social and psychological isolation are frequently encountered. Cell phone coverage at sea is limited and even if making a call is possible, fishermen are often so engrossed in finding and catching fish during a fishing opener, frequent or long conversations may be impractical. Therefore, outside communication is often limited to other boats in the area, listening to fisheries management announcements, monitoring weather conditions and current sea states.

Physical isolation can be both a positive or negative experience. On the one hand, fishing in a remote location is a reprieve from the hassles of everyday life and can be rewarding. However, isolation can also generate negative emotions such as loneliness or guilt of long-term separation from loved ones (Carotenuto et al., 2012; Slišković, 2017; Smith & Barrett, 2018). Social isolation is a characteristic of life at sea and refers to an absence of other people (Slišković, 2017) whom offer supportive communication (Seafarers' Trust, 2017). A lack of social connections can impair coping in difficult situations (Leach, 2016; Smith & Barret, 2018), and can lead to loneliness, boredom and feelings of exclusion, anger or despair (King, et al., 2019; Mellbye & Carter, 2017; Seafarers' Trust, 2017). Moreover, isolation can lead to anxiety, fright and panic in ICE environments (Suedfeld & Steel, 2000). This is also true for fishermen. Social isolation is known to be major cause of psychological issues such as depression (Carotenuto et al., 2012; Slišković, 2017) or even suicide (King, et al., 2019; Mellbye & Carter, 2017; Seafarers' Trust, 2017). Like others who work in ICE environments, fishermen can be prone to emotional deprivation (Palinkas, 2003) because of the infrequent communications with the outside world. The difficulty of these prolonged separations can be amplified by personal

crisis such as relationship difficulties, financial issues, illnesses or the death of a loved one. Additionally, if joyful milestones happen to fall within the fishing season, these events too are also frequently missed, such as weddings, births and graduations. Some of these events are even missed on an annual basis, such as birthdays and anniversaries, adding guilt and or depression to the list of grievances fishermen can experience at sea.

### **1.1.2 Confinement**

In addition to seasonal isolation from the outside world, life on board is often cramped with little to no personal space. Fishing vessels in Alaska are designed to either cut through or glide on the water efficiently, capture and hold large quantities of fish (8,000-65,000 lbs./ 3600-30,000 kg) as safely as possible, provide protection in high seas while allowing for a small measure of creature comforts. Boat type (covered or uncovered), size (15'-58'/ 4.6-17.7 m), and crew size (1-5) can vary and are determined by area or fishery.

Confinement is characterized by limited physical mobility and is often accompanied by limited exercise and muscle atrophy in the lower extremities, which has been shown to lead to irritation, depression and decreased morale (Suedfeld & Steel, 2000). Factors of the individual psychological component of confinement include limited sensory stimulation as well as a lack of personal and physical space (Roma & Bedwell, 2017; Smith, Sandal, Leon, & Kjaergaard, 2017), experienced after prolonged periods of time on a small vessel with the same few individuals. For instance, crew sleep in the small confines of the fo'c'sle (bow of the boat where the crew quarters are located) and some bunks are so short, the feet of crew members' touch. With such limited physical space, there is typically little room for personal belongings (e.g., clothing, gear, books), which is sometimes simply tucked in any free space in the bunk, hung somewhere in the bunk or used as a pillow. With living space in such close proximity and lack of comforts (such as in Bristol Bay where 4-5 people work and live on a 32' (9.75 m) boat for

six weeks), social problems arise such as lack of privacy, territoriality and interpersonal conflicts regarding the use of resources (Suefeld & Steel, 2000; Swift, 2019).

Fishermen typically live on the vessel during the fishing season, the lack of personal space combined with isolation, confinement and working long hours in harsh environmental conditions can have a negative impact on social relations. Fishermen might experience social monotony, caused by the lack of diversity of social contacts (Peldszus, Dalke, Preltove, & Welch, 2013) which can cause increased rumination and disagreements (Wu et al., 2015). During the course of the fishing season, the line between work and leisure can become blurred with little variance or choice of individuals to interact with. This continual social contact increases impending conflict (Palinkas, 2003), compounded with lack of sleep and working long, sporadic, arduous hours. Often going to shore, even for a brief escape, is seldom feasible and in some cases not even an alternative because of the remoteness of the fishing grounds. This implies that physically removing oneself from social conflicts on board is not always a possible solution or option. Moreover, there is limited free time or recreation, such as sports, that could improve health and social relations (Carotenuto et al., 2012). The presence of all these psychosocial stressors are due to the peculiarities of the profession (Zolotas, Kalafati, Tzannatos & Rassias, 2017).

### **1.1.3 Extreme physical environment**

An extreme environment is one with harsh and challenging conditions in which an individual needs to adapt to in order to survive. Characteristics of Alaska as an extreme environment includes glaciers and glaciated rivers, summer time ocean temperatures that typically range from 46-54 °F (8-12 °C), many hours of daylight in the summer (+ 20) and big weather. Even though the salmon fishing season (May-September) is not in the winter when the conditions are more severe, (unlike crabbing, cod, pollock and halibut), foul weather is still experienced.

Maritime summer temperatures typically average in the 40s and 50s °F (4-10 °C). Gales and storms can hit with winds up to 50-75 mph (80-120 kph) (World Meteorological Organization, 1970) with the average blow around 20-30 mph (32-48 kph) and sea states vary between flat calm to 18' (5.5 m) or so. Storms make fishing exceedingly difficult or render it impossible to deploy and retrieve fishing gear while gales (a lesser wind speed) typically just make fishing tediously demanding.

Physiological responses to these environmental conditions can may include discomfort to injury, nausea, and/or seasickness, which can bring on symptoms such as fatigue, headache, dizziness, nausea and other adverse effects due to constant noise and vibration (Golding, 2017). Foul weather can also negatively affect fishermen psychologically. A boat in constant motion, either while running or anchored, can result in creating a general grating feeling (i.e., it is tiresome to be in constant motion) and can be physically fatiguing after long periods of time (Zolotas et al., 2017). Extreme weather makes simple duties difficult and problematic or even dangerous, such as cooking food. Moving pots of boiling water can cause third degree burns while items such as pots, pans, knives, canned goods torpedo around the galley. Opening the refrigerator in a storm can be a disaster. Even leisure activities (e.g., reading, watching movies) can be difficult or unbearable because of the constant movement of the boat. Disruption of sleep can occur when big waves launch crew members from bunks or the noise of the storm and the constant motion can make sleep challenging or impossible.

The fisheries we studied all lie between 58-60 degrees north and enjoy 17-20 hours of daylight. Rigorous fishing methods and near around the clock daylight tend to disrupt circadian rhythms. This circadian disruption, coupled with long, grueling 12-18 hours or more workday demands can cause fatigue, impaired performance, negative affect, interpersonal tension and psychic stress (Pattyn, Van Puyvelde, Fernandez-Tellez, Roelands, & Mairesse, 2018; Slišković,



2017). Once the season begins, most fishermen work every day and about 20-hours a day during the peak of the season, causing cumulative fatigue.

## 1.2 Coping Mechanisms

Research shows that employees in high stress occupations and in high-risk settings are candidates for the debilitating effects of stress. However, fishermen may not suffer from these stressors to the same extent as other employees (Riordan, Johnson, & Thomas, 1991). The ability to be open to new experiences and to be mentally flexible can help minimize and cope with stress, as well as employing uniquely effective coping mechanisms. Undoubtedly, fishermen can and do cope with these occupational and environmental stressors, for instance, by use of coping mechanisms that have been adapted to suit their environment (Riordan et al., 1991).

Coping is the appraisal process of a demanding situation and the utilization of a variety of mental and behavioral strategies to manage stressors or to manage the demands of stressful situations as they transpire (Folkman & Moskowitz, 2004; Litman, 2006; Van Wijk, 2017). According to Lazarus's cognitive-motivational relational theory (CMRT) of coping, emotions lie at the very core of the stress appraisal process (Lazarus, 1991). In particular, CMRT argues that, when goal progress or attainment goes smoothly, positive emotions result, while negative emotions result from goal thwarting or delay. Moreover, those emotions not only result from goal pursuit, but also influence the appraisals one makes regarding goal attainment or thwarting. As emotions tend to be recursive and contagious, identifying positive antecedents that lead to positive outcomes of coping is key in ICE (Wagstaff & Watson, 2014).

Two typical approaches to cope with an environment that is perceived as taxing or exceeding one's resources are *problem-focused* coping strategies, intended to solve the problem, modify or avoid the course of stress, and *emotion-focused* coping strategies, intended to

minimize or manage the emotional distress caused by the stressor (Litman, 2006; Van Wijk, 2017). The former is typically used when one feels that they have some level of control over the situation whereas the latter is usually used when one feels all they can do is endure the stressor(s) because they have no other choice (Riordan et al., 1991; Van Wijk, 2017). When one has a measure of control over a stressful situation, such as dealing with the risk of drowning when falling overboard, fishermen can either decide to wear a personal flotation device (i.e., problem-focused coping) or not. On the other hand, if a fisherman is not aware of the benefits of wearing a personal flotation device or if one is not available, they can simply tell themselves that the odds of falling overboard are not that high anyway (i.e., emotion-focused coping).

In ICE environments, some aspects of the job simply make it impossible to manage the stressor directly due to the constraints of the environment coupled with the fact that most stressors of confinement, isolation or the environment are fixed and constant (Riordan et al., 1991). As a result, emotion-focused, rather than problem-focused, coping strategies are commonly used. Such emotion-focused coping strategies include minimizing, avoidance coping, appreciation and positive reappraisal (Folkman & Lazarus, 1988; Pavani, Le Vigouroux, Kop, Congard, & Dauvier, 2016). Unlike denial, which represses the existence of a risk, minimizing is a coping mechanism in which one refuses to ruminate on a risk while continuing on in a stoic manner, as if there was little threat at all (Aldwin & Revenson, 1987). In a similar vein avoidance, while doing little to change the stressor like problem-focused coping does, could be useful in such situations where interpersonal conflict may be risky and circumventing the stressor is the safest strategy (Riordan et al., 1991). Conversely, appreciation pertains to emphasizing and treasuring features of a situation or an environment that results in creating a meaningful link (Pavani et al., 2016), for instance, appreciating the magnificent glaciers of Alaska opposed to lamenting the cold, northerly wind. Supporting the idea that appreciation is an important coping mechanism in fishermen, previous research found that fishermen are more

optimistic than a comparison group of land-based employees (Riordan et al., 1991). Finally, positive reappraisal entails cognitively reevaluating negative events by focusing on the optimistic characteristics (Pavani et al., 2016) such as good fishing in bad weather. By using such coping strategies, individuals are able to broaden their thought-action inventory, which leads to discovery of novel techniques to assess the situation (Fredrickson, 2001; Pavani et al., 2016). These novel techniques then serve to help appraise and cope with future challenges. Supporting this idea, research has shown that a sense of control combined with a positive perspective increases people's ability to cope with the stressful situation (Smith, Barrett, & Sandal, 2018).

Studying the coping mechanisms employed by fisherfolk is valuable because some coping strategies are more efficient than others in ICE. In particular, problem-focused coping is typically better at solving the problems which cause stress than emotion-focused coping because it is aimed at eliminating the source of the stress (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986; Strutton & Lumpin, 1994). Yet, in specific situations, even coping mechanisms that require minimal effort may be very adaptive to deal with stressors (Aldwin & Revenson, 1987). Knowing which coping mechanisms are typically utilized is important because coping strategies can be (re)trained (Skinner & Zimmer-Gembeck, 2007; Van Wijk, 2017), implying that the insights of this paper might be used to school fishermen on how to effectively deal with the stressors they encounter in an efficient and effective manner.

### **1.3 Uplifts**

Despite the arduous work, long hours, variable weather and other stressors encountered when working in ICE, it is also important to note that there are positive and enjoyable experiences. The wildlife, for instance, the marine life and the natural beauty are advantageous facets of working in ICE (Blackadder-Weinstein, Leon, Norris, Venables, & Smith, 2018; Kjaergaard,

Leon, & Venables, 2015; Suedfeld, 2001) as well as comradery, pride in one's profession, positive emotions, resilience and a sense of community.

Whereas previous research has predominantly focused on the negative aspects of working in ICE and understanding the risks to health continues to be important, people may also benefit from their ICE experiences. In fact, the very concept of uplifts was created to counter the dominant focus on hassles in the stress literature and to be able to examine the impact of positive life experiences (Kanner, et al., 1981).

Important to note is that positive and negative experiences are not mutually exclusive. People can enjoy an experience even though they are—in that same situation—subjected to psychological or environmental stressors (Palinkas & Suedfeld, 2008). Fishermen, for example, typically experience joy and pride in catching a sustainable, nutritious food source even when the weather is nasty. The study of the positive effects is not intended to diminish the negative effects, but in order to present a complete assessment of experiences of commercial fishing, both need to be considered.

This study was designed to explore the positive and negative characteristics of working in ICE by specifically looking at the experiences of fisherpoets commercial fishing for salmon in Alaska. By doing so, we hope to advance the knowledge of the dominant stressors, coping mechanisms and uplifts prevailing in such settings while contributing to better understanding, selection or training of people willing to engage in or enter the industry. Interpretative Phenomenological Analysis (IPA) is a qualitative methodology which examines how individuals make sense of their life experiences (Smith & Osborn, 2003; Smith, Flowers, & Larkin, 2009). IPA emphasizes researching individuals idiographically (as opposed to nomothetically, where the focus is on researching samples or populations) and focuses in depth on the particular, rather than the general (Larkin & Thompson, 2012). Specifically, IPA focuses on how people perceive and discuss their own experiences (Pietkiewicz & Smith, 2014), how

they interpret and make meaning of the events they encounter, while allowing for the researcher's own interpretation of the participant's experience (Smith & Osborn, 2003).

The latter is of particular importance as the first author has over 20 years' experience in Alaska's commercial fishing industry. This benefit of combining a personal understanding of the industry with a researcher's perspective allows for a more informed combination of knowing what to tell outsiders (etic) about what matters to insiders (emic).

In order to obtain rich, detailed and reflective data, IPA requires a small sample size and a homogenous group (Larkin & Thompson, 2012). This particular sample of fisherman was selected because as fisherpoets, they can offer a valuable perspective on their commercial fishing encounters since they are typically reflective (through writing prose, poems and songs) about their experiences fishing.

IPA provides insightful analysis by way of the quality, rather than the quantity of data (Larkin & Thompson, 2012). Patterns of meaning or themes are identified in the data from detailed, line-by-line analysis of and commentary on the data. Below, we present the reader with an overview of analysis by producing a narrative account and giving examples of experiences or situations that are of significance to our participants (Larkin & Thompson, 2012).

### **2.1.2 Sample**

To better understand commercial fishermen's experiences at sea, we studied a sample of fisherpoets. The reason for this particular type of fisherfolk is that: a) they have experience with being interviewed, b) they are reflective about their experiences (e.g., their thoughts, feelings and behaviors) of working on the water, and c) they are generally articulate and expressive of their emotions and behaviors. Alaskan fishermen are well suited to study the connections between stressors, coping mechanisms and uplifts experienced since they work for long periods of time in cramped quarters and in remote, extreme environments.

A total of nine interviews were conducted with commercial fishermen. Pseudonyms were used to ensure confidentiality. To achieve a highly homogeneous data source, we only interviewed skippers who fish for salmon in Alaska during the summer months and who also participate in Astoria's Fisherpoets Gathering in Oregon, US. Fisherpoets were 23 to 70 years old ( $M = 57.2$ ;  $SD = 15.10$ ; *Median age* = 61). Job tenure ranged from 4 to 60 years ( $M = 33$ ;  $SD = 19.0$ ; *Median tenure* = 30). 78% of the participants are male. All were employed in the Alaska salmon fishery at the time of the interviews and all four different gear types (seine, gillnet, setnet and troll) are represented. The fishing season typically runs from four weeks to five months (May-September), all in remote areas of Alaska (from southeast to Bristol Bay in the Bering Sea). Most work off-shore from two days to six weeks at a time (except the setnetters who fish along remote beaches). All typically work seven days a week, 12-20 hours a day throughout the season and work 18-20 hours a day for the peak of the season (one-four weeks). 67% of the fisherpoets fished with a crew ranging from one to four, 22% fished alone while 11% fished either alone or with crew. Fishing vessels ranged from 15' to 58' (4.6-17.7 m) in length, the smaller vessels are open skiffs and used for setnetting.

### **2.1.3 Data Collection**

We applied IPA to semistructured, in-depth interviews of fisherpoets, along with collecting demographic information such as age, tenure, fishery and gear type. The interviews are further described below. Memos were written subsequent to the interviews and were used to engage in the first author's self-reflection about potential personal biases (Suddaby, 2006).

### **2.1.4 In-depth Interviews**

All of the nine interviews were conducted by the first author in Oregon, US. Consent for the study was granted by the Vrije Universiteit Brussel Ethical Committee (ECHW\_125). In-depth

interviews were based on semistructured interview guides from current IPA literature (Smith et al., 2009). Interviewees were asked open-ended questions, such as how they experience their living and working conditions at sea and being alone or in a group for long periods of time. Interviews ranged from 30 to 90 minutes ( $SD = 17.00$ ) and were audio recorded for transcribing.

### **3. Results**

In line with previous research on stressors and coping in ICE, we categorized the stressors, coping mechanisms and uplifts along the three high-order ICE categories: confined space, isolation and environment. Each category was then further divided into two subcategories, a physical and a psychological subcategory. In what follows, we first review the stressors and coping mechanisms that were reported by the participants for each category. An overview of these stressors and coping mechanism can be found in Table 1. After having discussed the stressors and coping mechanisms per ICE category, we review the uplifts characteristic of professional Alaskan fisherfolk.

Note that our overview is not exhaustive as other stressors, coping mechanisms and uplifts were mentioned during the interviews. We chose, however, to focus on the themes that occurred most often.

Table 1.

*Environmental and occupational stressors, coping mechanisms and effects of commercial fishing in Alaska*

	Stressor	Coping Mechanism
Confined- Physical	<ul style="list-style-type: none"> <li>• No Space</li> <li>• Little comfort / spartan</li> </ul>	<ul style="list-style-type: none"> <li>• Internal communication</li> <li>• Coordinate / organize</li> <li>• Escapism</li> </ul>
Confined- Psychological	<ul style="list-style-type: none"> <li>• No privacy</li> </ul>	<ul style="list-style-type: none"> <li>• Escapism</li> <li>• Self-monitoring</li> <li>• Complacency</li> </ul>
Isolation- Physical	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Isolation- Psychological	<ul style="list-style-type: none"> <li>• Loneliness</li> <li>• Boredom / monotony</li> </ul>	<ul style="list-style-type: none"> <li>• External communication</li> <li>• Self-entertain</li> <li>• Socialize (on shore)</li> </ul>
Environmental- Physical	<ul style="list-style-type: none"> <li>• Foul weather</li> <li>• Danger</li> <li>• Arduous / long hours</li> <li>• Physical discomfort</li> </ul>	<ul style="list-style-type: none"> <li>• Normalize/ minimize dangers</li> <li>• Reappraisal</li> <li>• Compensate</li> <li>• Stretch / exercises</li> </ul>
Environmental- Psychological	<ul style="list-style-type: none"> <li>• Foul weather</li> <li>• Fatigue / lack of sleep</li> <li>• Circadian disruptions</li> </ul>	<ul style="list-style-type: none"> <li>• Compartmentalize</li> <li>• Reappraisal</li> </ul>

### **3.1 Confined Space - physical**

#### **3.1.1 Stressors**

Being confined on a small vessel with cramped quarters and restricted mobility was the most frequently voiced stressor among the fisherpoets, more so than foul weather, fatigue, sleep disturbances or even the dangerous nature of the work itself. A boat is an isolated, confined environment which contains basic amenities, the crew as well as the crew's whole realm, both



occupationally and socially, since fishermen are at their workplace 24 hours a day during working and nonworking hours (McVeigh et al., 2017; MacLachlan, Cromie, Liston, Kavanagh, & Kay, 2013). Specifically, the most common grievance was lack of physical, personal space since most fishing boats are small and crowded (Pollnac et al., 2011). During the fishing season, most fishermen employ either one or two people on a 28' (8.5 m) boat for three to five months or three to five people onboard a 32' (9.75) boat for nearly two months, depending on the fishery. Interestingly though, those who fished alone on the same sized vessels for the same amount of time or longer did not voice concerns of confinement or lack of personal space. Specific examples articulating this particular stressor are provided in these quotes below from the fisherpoets:

*The boat is little. So, everything has to be kind of in its place and organized. And so, when someone, a lot of times people will bring too much gear. And I don't want to try to inflict upon them what they need but I got to, I say, 'You know this is how much space we have'. And I've got to usually I get rid of most of my stuff and get by with this minimal possible.*

– Morgan (28'/8.5m boat)

*Oh, my boat, it's Spartan. It's an aluminum skiff, so we live down below. The greenest crewman lives in what is called the "dog bunk" and you have to crawl up through another bunk to get to it. And his feet are constrained. And his head is up by another crewman's feet, so he gets kicked occasionally at night. But they signed for that and they know about that before they come on board. There's a tiny little cook stove, there's a sink that leads to a bucket for draining, the fridge is the cooler. We keep our food right there, there's no space. Because it's an aluminum boat, it sweats. So, people living down there plus boiling water,*

*making coffee, often we'll get a little rain from the overhead. It drips on your face at night.*

*These things build character. – Kelly (32'/9.75m boat)*

### **3.1.2 Coping mechanisms**

In order to cope or manage with the lack of personal and/or physical space aboard the fishing vessels, fishermen try to provide personal space, a sense of privacy and a level of civility among themselves, which is reflected in the following quotes:

*Everyone gives one another privacy, when there's time, by reading privately and not pestering one another and by sleeping. – Kelly*

*When it comes time for cooking on the boat, the quarters are very small so you got stay out of the way. One guy will go to the bunk and get out of the way and I'll sit in my chair, get out of the way while the cook is cooking. – Chris (32'/9.75m boat)*

*We share a lot. We communicate a lot... I mean it's a small space, so it's might be 'Are you going to sit there? Can you pass me this?' You know, just constant... communication. Giving each other space... when it's needed or when it's possible... What I look for [in a crewmember] is someone I really respect who really respects me. Because that mutual respect is like, I respect your personal space... – Skyler (32'/9.75m boat)*

*Shower. Booze. Sleep. Good book. But we don't usually have time for the good book. So, that's three kinds of escape. – Kelly*

## 3.2 Confined Space – psychological

### 3.2.1 Stressors

Due to the vast fishing areas and remote locations, boats are often at sea for days or weeks at a time. In Bristol Bay, for example, the tides are so large that there are essentially no harbors. Once a boat launches, they are typically at sea for the next six to eight weeks without a chance to go ashore (with the exception of the setnetters who fish along the remote beaches). Because of this, fishermen spend a significant amount of time together on a small boat, with little to no separation between work and leisure (Palinkas, 2003). This confinement, accompanied by perpetual isolation and prolonged exposure to a monotonous environment makes the behavioral and psychological reactions to confinement evident by impairment of thinking, depression, irritability and hostility (Fraser, 1966). These outcomes can result in interpersonal conflict and the lack of personal space, which was the most reported stressor amongst all fisherpoets:

*Personal space? There's none... there's just no space, so... It can be irritating. In a tight space, I've really got to watch myself... It's just there are so tight quarters you know, you really have got to be conscious the whole time... I try to think about making it easy on them [the crew]. And sometimes it tests me. It really tests me. But, I mostly just try to hold myself together. – Morgan*

*... I will be like 'Wow, this place is crazy and I can't stand it for another second'. I definitely felt those kinds of frustrations. There are issues that were really small issues that got blown up to a point where we couldn't even stand being around each other. – Skyler*

Lack of personal space tends to be a common stressor amongst those who work in ICE. The identified stressors of not having enough alone time seems to gnaw on the majority of the fisherpoets. The psychological aspect of the lack of space was not noted by those fisherpoets who fished alone, even though their boat size is just as small, nor was it noted by the setnetters,

who have the smallest boat (15' / 4.6 m) though they can retreat at the end of their shift to a small cabin on a remote beach. This implies that confinement is not only stressful because of the actual lack of space (i.e., the physical aspect), but also about the continuous lack of “me-time” (i.e., the psychological part of confinement).

### **3.2.2 Coping mechanisms**

As previously mentioned, fisherfolks are on boats with cramped, shared physical and psychological space for weeks or months. Long-term exposure to a restricted environment can take its toll on the fishermen, psychologically. Below are examples of coping mechanisms utilized to negotiate and manage these stressors, including isolating oneself from the others (both physically and mentally) or taking other’s needs into account:

*Personal space is hard... We will often time take “naps”... it just means... you can go into your bed... you can't hear other people...and close the curtain and that is your “nap”. It's also a time when you don't have to be near anyone else or talk to anyone else. – Skyler*

*A good fisherman understands, I mean, you can be in close proximity to somebody and working side-by-side and still have terrific personal space. You know, silence is as good as another room. – Taylor (15'/4.6 m boat)*

*I'm more concerned with making the other person comfortable. So, I got to spend a lot of time thinking about ... trying to make it work... Takes some time and effort. – Morgan*

The above excerpts illustrate both problem-focused (first citation) and emotion-focused (second and third citation) approaches to coping with creating personal space and attempting to get along with others, despite the lack of physical space onboard and prolonged togetherness.

### **3.3 Isolation - physical**

#### **3.3.1 Stressors and Coping mechanisms**

Interestingly, there were no reports that fell into the category of physical isolation and therefore there were no reports of coping mechanisms. Most stressors and coping mechanisms for isolation were related to the psychological effects of isolation rather than the physical effects.

### **3.4 Isolation – psychological**

#### **3.4.1 Stressors**

Despite the fact that there are often other boats in the area, which provides a chance to socialize, socializing with other boats typically only occurs during the closures when the fisherfolk are not working. When actually fishing, their only in-person contact is with whoever is already on board as crew, which is obviously no one if they fish alone. Often, operating a smaller fishing operation is not very lucrative. There is a saying that “there is too much work for one, but not enough money for two”. So, even if a fisherman wanted to hire crew, it is not always financially justifiable. Below are excerpts that envelop some of the mindsets surrounding fishing for salmon in remote, isolated areas of Alaska:

*Sometimes, I find myself lonely and I want to go to town but after a short time then I'm jonsing to get back out there by myself... And I really love people. I need to be around people. But I think I love people and need to be around people more because of my isolation. – Morgan*

*Mostly you just get bored of the people you are around. – Skyler*

*It would be nice to have somebody on the boat, you know, some of the time... I'd rather have company, I guess, but I just can't afford it. There's no money in it. – Finley*

### **3.4.2 Coping mechanisms**

A recurrent theme is that being alone is not the same thing as feeling alone or lonely. Despite being the only one aboard a vessel, these fishermen tend to feel comforted simply by the fact that there are often other boats around them. Even if these boats are not physically near them, knowing that other fishermen are communicating on the VHF radio seems to be enough to stave off loneliness:

*For me, it's not solitary work. Even when I was gillnetting by myself, it wasn't solitary work. You had your, your friends on the radio, and, and if you got into a pickle, they could help you. You got, you know, on the way out to the grounds, you would tie up with each other on the way out, you'd, you would hang in the harbor together so, it wasn't ever solitary. – Taylor*

*I might not talk on the radio... for several days but I have it on, I would listen to it. – Kim*

*And then I spend a lot of time ... communicating with members of my radio group about where we think the fish are. Which is, I think basically in exchange of ignorances usually. We call it our "radio group therapy". – Kelly*

*There's this whole community that hangs out on Channel 14. So, you're not actually fishing alone. You're fishing with all these other people. People you don't even know by name ... you know? – Finley*

The above quotes express the collective feelings of the fisherpoets regarding fishing in isolated regions, which is one aspect of their job they have no control over. All reported that, while they may be alone on board, they do not necessarily feel alone because of being able to communicate through the VHF radio. These findings lend themselves to what is found in previous literature in that fishermen recognize there is nothing to do to change this aspect of their job, with the exception of possibly hiring a crew member, if it were lucrative to do so.

### **3.5 Environmental – physical**

#### **3.5.1 Stressors**

Working conditions on a fishing vessel can vary extensively depending on the type of boat, the fishery, type of gear and often, the weather. Common factors reported among all participants were lack of personal space, long hours with arduous workload and repetitive work, which corresponds with stressors other fishermen have reported (Johnson et al., 1998; Riordan et al., 1991). Sometimes the weather is pleasant but often this is often not the case. Even the summer weather in Alaska can frequently be nasty. Water temperatures are low enough that raingear and gloves are always worn to protect from the cold, hypothermia or the salty water. The repetitive nature of the work, such as picking fish out of the net, often leads to sore fingers, shoulders or muscle fatigue. The following quotes illuminate how these environmental stressors affect the fishermen:

*We were caught in a hundred-mile an hour gale and the waves were higher than the mast and the boat was trying to sink... One guy got religion and the other guy quit [Laughing]. – Kim*

[The working conditions] *Variable... Sometimes it's the most pleasant thing in the world and sometimes it's the grubbiest job that you can imagine. Well, sometimes we're just picking fish in good weather at our leisure and sometimes we're hanging on in lousy weather. And, of course it's muddy, we spend a lot of time in the mud. So, that takes some getting used to... And everybody is prepared to go, you know 24 even 30 hours probably without a break, if they have to. But the conditions are pretty grim I think, lots of times. – Taylor*

*The working conditions are long hours. If it's nice and the sun is shining, a sunshiny day, it's a walk in the park. But if it's a real ugly day it's not a walk in the park... But the working conditions are very hard, very long and the more fish you pick your hands become sore and your fingertips become numb. – Chris*

### **3.5.2 Coping Mechanisms**

Working in ICE can be physically challenging and of course, fishing in bad weather is more difficult and more dangerous than fishing in good weather. Hence, foul weather is always more physically and mentally taxing than good weather. The following accounts underscore the repeating themes of minimizing and reappraisal to cope with the effects of the physical environment on fisherpoets:

*...And I mean the bad weather can beat us up. But at the same time, we're usually smiling by the end of it because you feel like you accomplished something. So, you can get through it and still be in one piece. So, there's satisfaction in making it through the storms even though you*



*don't wish for them. But in some ways, there's an aspect of the storm that makes it kind of fun, too. – Brook*

*I hurt, sometimes a little bit ...mostly, when picking [fish], I work, work by myself. I try to do it in the same routine, the same way... so it becomes more automatic. Because, I get tired. I have to exercise. I have to stretch. I have to do certain things like that otherwise my shoulder starts hurting on me. But if I do that, I'm usually fine. – Morgan*

Fishermen know there is nothing they can do about the weather, so they tend towards either reappraisal of the situation, such as “...*bad weather can beat us up. But at the same time, we're usually smiling by the end...*” or minimizing its effects, such as laughing because a crew member quit after a bad storm. At the same time, each one recognizes that fishing in bad weather is more demanding. Of course, if the weather is too terrible, they will stay on anchor or in the harbor. However, if it is ‘fishable’ they cannot financially afford not to fish, so they tend to accept it as part of the job and deal with it accordingly.

### **3.6 Environmental – psychological**

#### **3.6.1 Stressors**

Although experienced fishermen are typically aware of the hazards of fishing, it can still take a psychological toll. These types of stressors are not uncommon when working in a maritime environment. The following quotes demonstrate a few of the ways the threatening and depleting environment of commercial fishing can take its toll:

*I feel relief after an intense moment because I have survived them all... I mean there are times when it's obviously dangerous, but I don't get scared... I just do something about it. Or try to. Or endure, you know? – Finley*

*It's just, typically exhausted days. I've developed a 1000-yard stare... And I contribute that to the constant sleep schedule and the lack of sleep. – Kelly*

*It's, sometimes, you know, the weather conditions are pretty nice. But, for the most part it's, the weather is awful. And [the] sea is rough so it kind of beats you up... It grinds people down. – Kelly*

*[Working conditions] They're hard physically and mentally. It is really variant on weather and the day and the sleep, it can be pretty brutal... The working conditions... mentally I think is more than is healthy on my mind. – Skyler*

### **3.6.2 Coping Mechanisms**

In addition to foul weather, the length of the season and the long hours tend to grind a person down. The accumulation of lack of sleep day after day, arduous work that is both physically and mentally draining, foul weather, being cooped up on a small boat with others, all saddled with the financial stress of the season tends to take its toll as the season wears on. The following quotes capture some of the coping mechanisms employed by one skipper to get through the season:

*I'm kind of trying to change my personal narrative. ... Like weather plays a really good role, smiles, just like inner peace and inner, I think whether or not you are catching a lot of fish, feeling like you are catching a lot of fish is really important... Weather, I already said that but it plays a big role in if it's easy to feel safe. And... its, just makes it..., everything is just so much harder when it's rough. – Skyler*

*I try to take time. I try to journal. Um... I kind of try to change the narratives in my head and kind of have goals or focuses for each day. I make a plan of how I'm going to fish each day...And at the end of the season I get to just, I just let it rest for like four months. – Skyler*

Again, as with many of the other stressors reported, these fishermen cannot do anything to change the fact that fishing is psychologically demanding, however this skipper employs reappraisal as a way to cope with the demands of the occupation. This shows that when a problem-focused coping mechanism is not possible, fisherpoets automatically turn to emotion-focused coping mechanisms.

### **3.7 Uplifts**

After having reviewed the stressors and coping mechanisms characteristic for Alaskan fisherfolk, we now turn our attention to the positive elements of the profession. This focus on positive components is important because previous research on uplifts has shown that positive experiences can buffer against stress and help play a role in coping (Kanner et al., 1981). A sense of cohesion, for instance, might provide a mental orientation that enables the fisherpoets to respond to stressful situations as a series of events collectively, or as a structured, manageable and meaningful or coherent event (Eriksson & Lindström, 2005). By not only focusing on the stressful features associated with working in ICE conditions but also the positive aspects, we demonstrate that what is commonly accepted as stressful can also offer an opportunity for psychological growth (Kjaergaard et al., 2015; Leon, Sandal, Larsen, 2011; Palinkas & Browner, 1995; Suedfeld, 2001).

### **3.7.1 Confined Space - physical**

This next set of quotes shows that the lack of personal space, while being constricted to a small vessel for an entire fishing season, can also appeal to the fisherpoets:

*I really like it, it's really simple... There's just three of us... it's a really small space, it's a one burner cook-stove, we go to the bathroom in a bucket on the back deck... it's kind of like camping. But, for six weeks. And we live really close, really close together. – Skyler*

*What boat life is like? It's a freedom. It's a freedom, you know? A mobile home on the ocean. In fact, when I'm in town on the closures, I live on my boat in the harbor. And I like it. It's simple. You know, everything has been reduced to simplicity ... on a small boat. – Morgan*

### **3.7.2 Confined Space – psychological**

Although exposure to only the same handful of people day after day, week after week can tend to get monotonous, the following are examples of regarding that same situation from a more positive point of view:

*I really enjoyed it as a time to really get to know people and to really get silly. – Skyler*

*You might have a conversation ... we would resume it four hours later... without even any prompting whatsoever. He would answer your question or ask you, if that's the case, what about that? Four hours later you just picked up right where you were at the time. It's funny that way. – Taylor*

*Some of my best friends are people that I only see those for that limited part of the year. Working together, you know what? It knits people together in ways that having fun together doesn't really knit them. – Taylor*

Indeed, one of the advantages fishermen found working in remote areas is the sense of community and the comradery since fishing lends itself to such experiences that can only truly be understood by those who experience it. This fellowship compiled with the solidarity felt by working together towards the common goal of catching fish and providing food can create strong bonds amongst fisherfolk.

### **3.7.3 Isolation – physical**

The effects of prolonged isolation in ICE is a common experience when working in remote locations, though these locations often come with beautiful scenery that is not commonly found in other places. The fishing grounds of Alaska are no exception with pristine waters, glaciers, mountains and marine life. These uplifting themes are present in the following quotes in addition to enjoying alone time and appreciating the natural beauty seen fishing in Alaska:

*We had whales playing around us and... we are catching fish, we were deck loading the boat.  
– Kim (58' / 27.7 m boat)*

*So, it goes from the mellowest of the mellow at low water ... say September low water, in the middle of the night and with the, you can see, the bright, the brightness of the aurora borealis is so good, you can actually pick you fish with the light of the borealis. – Piper (28' / 8.5 m boat)*

*...The feelings that you get on the fishing ground, they are so incredible. It's a rush that you have to be there in order for you to be able to really understand, you have to be there with your eyes, your ears, you smell, your touch. You've got to be there present to be able to witness what it's really like to be a fisherman. You can see it on TV, read it in the newspaper where there are stories about... Unless you're there and all five senses then, then you get the full sense of it. – Chris*

*...The fishing, the getting up before daylight, watching daybreak and watching the sun go down and watching it get dark in my skiff, the last set at night, maybe fading to the dark, before I call him [skiff operator] in, I just love that. I just love that. – Kim*

*When you have a beautiful sunrise and the ocean is glassy calm and it looks like a silver sheet... and the fish are coming, and you're loading the boat up... yeah. And even if you don't load the boat up, I've had some good days where it was pretty scratchy. I used to fish by myself off shore salmon trolling and tuna fishing, all by myself on the boat. And at night the perfect day is where I had a good, not too rough, pretty calm day, caught some fish, that evening I got the boat all cleaned up, washed up and the fish are all iced down, turn off all the lights, turned off the engine and get the last cup of coffee, I go out on deck and listen to the creak of the boat as she rolls in a gentle swell and watch the stars. That's as close to heaven as I'm ever going to need to get. – Kim*

#### **3.7.4 Isolation – psychological**

Social isolation can start to take its toll mentally when fishing. Separation from others can occur when there is a lack of satisfying social contact (Swift, 2015) and can attribute to feelings of loneliness, boredom, anger and/or sadness. The following quotes, however, demonstrate that

there can be a silver lining, if one chooses to look for it, such as enjoying the simplicity of living on the sea:

*I'm a loner. I, I don't look for another boat. I don't have any radio partners. I've always fished... totally on my own. – Piper*

*Well, I always say fishing is a lot like real-life. Only, only it's simpler in a way because you don't have.... There're so many superfluous things that are not going on so actually you get to think about... the situation you're in a lot more deeply than normal because you don't have that... extraneous influence of radio and television and email. – Finley*

*You kind of go through withdrawals after the season because every thought you had, every question, every joke, you know, you have so many inside jokes by the end of the season and then you turn and their like, not there. They're like living in another town or like on another street or even another room, which really isn't an option on the boat ... But yeah, it's really an intense friendship and relationships are built on the boat. – Skyler*

*It's enjoyable. I have my boat. – Kim*

*God there's no, no finer quality time than being alone on the ocean. It's just, it's just, for me, that's how, it's a meditation... To be alone on the ocean is, it's real special. ... A lone fisherman, perfect. – Piper*

*I'll be out there all by myself but I love the nature. I love when everyone splits when the seals show up and there is nature around me again. It's kind of sweet that way. – Morgan*

These uplifts reported by fisherpoets show the love and passion they have for their profession, that fishing alone is “a meditation”, “enjoyable” and “perfect”. The message here is quite plain that these fisherfolk do not mind the isolation and what comes with it, “quality time”, “intense friendships” and the simplicity of fishing, on the contrary, they prefer it.

### **3.7.5 Environmental – physical**

Fishing boats vary in the level of comfort but overall, they are typically quite simple. Sometimes the lack of creature comforts can have an effect on a person after an extended period of time. Yet, there can be splendor in the simplicity, freedom and the natural beauty of the landscape witnessed fishing in Alaska:

*Well the boats have gotten a lot better, uh... On, on the [boat name], we got hot and cold running water and a, and a microwave, all the amenities, pretty much. ... When I bought my first boat. There wasn't anything! We used a deck bucket. ...It was primitive. But, it was great!... It was the freedom that's there, and we would get on the boat and we would take off. Maybe not know quite where we were going to go even. We were going in search of fish. And wherever we found the fish is where we ended up... That kind of lifestyle, that semi-nomadic lifestyle I've always been really, really hooked on it. – Kim*

### **3.7.6 Environmental – psychological**

Despite the long hours and demanding work, fisherpoets expressed a great deal of sheer joy working on the sea. The following quotes encompass the pleasure and a happiness fisherpoets tend to treasure:



*It is a meditation as much as it is watching the ocean. Its more complete than that. It's a special time for me. It's like going to church for people. – Piper*

*You know, it's freedom. I can lift my finger and say okay; which way am I going? – Morgan*

*...It's just what gives me the most... joy in work...I made a vow. That I would never work for a living. So, I became a fisherman. – Piper*

The above quotes collectively suggest that, although there are risks, dangers and stressful demands of fishing, there are clearly rewards too, such as comradery, the pristine nature and marine life and most of all, freedom which clearly provides the fisherpoets with joy and spirituality.

#### **4. General Discussion**

The aim of this paper is to provide an overview of the stressors, coping mechanisms and the uplifts associated with commercial salmon fishing in Alaska. To the best of our knowledge, this is the first study that encompasses both the difficulties and the positive aspects of working in Alaska's commercial salmon industry from a psychological perspective. Using IPA to analyze semi-structured interviews, we found that while commercial fishing in Alaska is a difficult and demanding profession, these fisherpoets still return season after season. We divided the fishermen's experiences into the stressors they encountered, the coping mechanisms they used to endure such challenges and also the uplifts they reported encountering. Whereas physical and psychological stressors such as confinement, isolation and environment clearly have a negative impact on fishermen's wellbeing, the use of coping mechanisms and the experienced uplifts undoubtedly have a positive impact. Centering on how fishermen tend to perceive and

respond to the ICE environment they work in contributes to a growing body of knowledge that links human performance in extreme environments with resilience to stress.

Resilience, according to Carver, (1998) is the “homeostatic return to a prior condition” (p. 247). The central idea here is that when one successfully copes with a stressor, they benefit from that experience and can apply that gain to new experiences, leading to more effective functioning in stressful situations (Carver, 1998). This notion is also line with Frederickson’s broaden-and-build theory (2001) which states that positive emotions expand one’s cognizance and promotes psychological resilience. Resilience can be refined by fostering social support, finding meaning in adversity and using humor and/or meditation (Barrett & Martin, 2014). These suggestions may not be that difficult to cultivate, considering that fishermen reported that they enjoy the comradery found while fishing, like providing sustainable food, employ running jokes throughout the fishing season and being on the water is a form of meditation for some of them. Resiliency comes naturally for these fisherpoets. Just as seasons of physical labor have toned their muscles, the psychological labor of stressors has toned their psychological muscles as well.

#### **4.1 Practical Implications**

The insights we obtained give a realistic description of the profession and suggestions as to how fisherfolk can cope with the difficulties of their job in a sustainable way. This information can be useful when dealing with some of the industry’s issues such as the social isolation, depression and suicide rates among seafarers (Seafarers’ Trust, 2017; King et al., 2019). Providing an accurate account of some of the trials and tribulations of the fishing profession, and specific mechanisms used to surmount them can be beneficial and therefore, we include some practical implications that may help fishermen cope with their stressful environment.

One suggestion is to bring awareness to current coping strategies and to facilitate replacing dysfunctional ones. For example, one might try to minimize the use of rumination and catastrophizing, which are the least effective coping strategies and tend to sour morale by ways of emotional contagion (Wagstaff & Watson, 2014). What can instead be taught to fishermen is that the use of approach coping strategies (Lazarus, 1991; Folkman & Lazarus, 1988) is typically more effective than avoidance coping strategies, (denial, minimizing, escapism) (Palinkas & Browner, 1995) in certain situations. Equipping fisherfolk with a wide range of coping strategies might also be beneficial as research has shown that people who possess coping flexibility were better able to adapt to stressful situations (Galatzer-Levy, Burton, & Bonanno, 2012). Bringing fisherfolk's awareness to sustainable coping mechanisms by giving examples of how to identify stressors and how to match coping mechanisms could prove fruitful. Another strategy already mentioned is to cultivate social support on board, which has been found to moderate psychological stressors at sea (Golden et al., 2018; McVeigh et al., 2017). Since fishermen are isolated from their land-based social support of family and friends, their family and friends may not be able to relate to the conditions at sea fishermen are experiencing, much less provide necessary social support (Palinkas & Browner, 1995). Therefore, finding and fostering social capital, or connection to their crew members (King et al., 2019), is one tangible step towards coping with the stresses of seafaring as decreased social support is linked to decreases in approach coping and increases in avoidance coping (King et al., 2019; Palinkas & Browner, 1995). Yet another method that can be taught to fishermen or others working in ICE is job crafting. Job crafting pertains to small aspects of work that are redesigned by the employee him/herself to improve the fit of the job with one's own preferences and needs. Job crafting has been found to increase work engagement, job satisfaction and employee wellbeing (Tims, Bakker, & Derks, 2013) and a method already employed by these fisherpoets. Modifying small aspects of their job, for instance, when fisherpoets would go to

shore to increase socializing or when they use nap times to unplug for a few minutes, this is job crafting and can increase resources and allows fishermen to optimize their own wellbeing when possible.

## **4.2 Limitations**

Contributions notwithstanding, some limitations of this paper need to be considered. It is recognized that this sample represent a subset of fishermen, ultimately, those who reflect deeply upon their fishing experiences by ways of writing prose, poetry and/or songs about making a living on the sea. Reflecting allows for interpretation of one's story, especially stories that were dismissed as unimportant, taken for granted or even suppressed (Hovey, Khayat, & Feig, 2018). Furthermore, writing can be a cathartic process which grants access to expressing and exploring experiences at one's own pace in a safe environment, especially if the experience was negative. It allows time for the processing of events and is linked to wellbeing (Phillips & Rolfe, 2016). Writing also acts as a conduit for communicating events at sea, allowing fisherpoets to connect to others who otherwise may not be able to comprehend fishermen's experiences or reactions to their experiences on the water. Fishermen who are not fisherpoets may or may not be as proficient at processing, reflecting upon or articulating their experiences at sea. Therefore, future research might want to recruit a more diverse sample of fishermen. Another limitation is that we only included skippers in our study, opposed to crew. Being a skipper allows for more autonomy because skippers are, for example, not subject to menial tasks ordered by the skipper when there is down time, such as polishing the teak interior or degreasing the engines (Stuster, 2016). This is an important difference as previous research on Mars simulation missions has shown that high autonomy positively impacts crew's mood and self-direction (Kansas et al., 2011). A sense of control over the characteristics of work is necessary for ensuring high levels of quality of life and subjective wellbeing (Johnson et al., 1998). Another potentially important

difference is that skippers have different responsibilities than crew, which could result in a distinct attitude towards fishing in general. Skippers are responsible for not only their own lives, but that of their crew, as well as thousands of dollars and more likely, hundreds of thousands of dollars of capital (boat, gear and fishing permits) (Johnson et al., 1998). As it is not financially feasible to buy into fishing for only a short time due to the high costs, skippers invest into the industry for the long haul. Because of these reasons, future research might want to include both crew and skippers.

Despite the fact that the strategies discussed in the article are from the perspective of a unique set of fishermen – fisherpoets who fish for salmon in Alaska – the information presented regarding uplifts, stressors and coping mechanisms should benefit other individuals working in extreme environments, particularly commercial fishing of any variety. Overall, a better understanding of the experiences and challenges that fisherfolk face can improve the resources provided for them.

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## General Discussion

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The general aim of this dissertation was to study the consequences of counterdispositional behavior by focusing on the dynamic interplay of personality traits and states. By doing so, our hope is to cultivate a better understanding of the significances of how counterdispositional behavior affects employees at work. These consequences of counterdispositional behavior have been studied using five empirical studies, comprising the four chapters of this dissertation. In the following, we will briefly summarize the findings of each study, then take a broader stance for the rest of the discussion.

In Chapter 1, we build upon the behavioral concordance model of Moskowitz & Côté, (1995), and examined how counterdispositional extraversion related to performance approach goal orientation. Our findings were generally in line with the behavioral concordance model in the sense that they demonstrated that deviating from one's trait extraversion level was — in both directions — associated with lower levels of performance approach goal orientation. As such, our findings revealed that it is not trait nor state extraversion per se that predicts momentary approach goal achievement, but rather the distinct and unique interaction between the trait and state levels of extraversion.

Counterdispositional conscientiousness and its relation to positive and negative affect at work was the focus of Chapter 2. The results of this study provided only partial support for the behavioral concordance model, in that not all divergences from trait conscientiousness increased negative affect and decreased positive affect. Rather, we found that behaving less conscientiously is more impactful than behaving more conscientiously for wellbeing and that effect is stronger for those personalities who are high on trait conscientiousness, demonstrating that the interplay between personality traits and states is a complicated one.

In Chapter 3, we examined how counterdispositional extraversion related to vitality, both concurrently and in a delayed fashion. By looking at the temporal dynamics of counterdispositional extraversion, we hoped to unify two seemingly contradictory accounts (one claiming that more extraversion is better for everyone and the other one claiming that deviations from one's trait level are taxing and lead to mental fatigue). Our results showed that divergences from one's trait extraversion level were concurrently positively associated with vitality, however, when investigating delayed effects one hour later, counterdispositional extraversion related to decreases in vitality, and this was particularly true for people low on trait extraversion. By considering the temporality of the associations, we showed that, what at first glance seems to be competing accounts concerning counterdispositional extraversion, can and do actually co-exist.

Our final study, reported in Chapter 4, took a different approach to the concept of counterdispositional behavior by exploring the stressors and coping mechanisms of employees working in an extreme environment, a context which circumstantially, counters all personality dispositions. A high stress job in an extreme environment taxes emotional resources needed for optimal psychological functioning. When emotional resources are reduced, individuals are more likely to be less adequately equipped to cope with the stressors they face. In this fourth study, we presented an overview of the environmental and occupational stressors endured when working in the isolated, confined and extreme (ICE) environment of commercial fishing in Alaska, coping mechanisms employed to combat said stressors and the uplifts encountered. Our results revealed that, despite the harsh living and working conditions of those employed in ICE, people can and do cope in sustainable ways, despite the multiple stressors they endure. Moreover, in this study, we found that utilizing coping mechanisms and focusing on the uplifts experienced while fishing helps to foster resilience to the stressors they undergo at sea.

When considering the cumulative evidence across all five of our studies, the main take-home message would be that personality traits and states interact in complex, non-linear ways, with counterdispositional behavior occasionally having positive outcomes, yet more often having negative consequences for employee wellbeing. This implies that neither the behavioral concordance model, nor the “more is better” model always applies. In this context, three observations can be made.

A first relevant observation is that whether or not one or the other model applies seems to depend on the outcome under consideration. For example, whereas the relation between counterdispositional extraversion and performance approach goal orientation was fully in line with the behavioral concordance model, this was not the case when looking at its relationship with vitality. This can potentially be explained by the differences between both outcomes, with performance approach goal orientation being a motivational orientation that requires high levels of self-regulatory resources, while vitality pertains to one’s level of positive energetic arousal. Hence, whereas counterdispositional extraversion might momentarily deplete one’s self-regulatory resources and therefore negatively affect performance approach goal orientation, such depletion might in the moment be counteracted by the very act of behaving in an extraverted way (which implies behaviors such as outgoingness, assertiveness and activity) and therefore it might not show immediately when studying vitality. Thus, these findings can be explained by theorizing that counterdispositional extraversion is depleting (and therefore affects performance approach goal orientation), but that this depleting effect is counteracted by the active nature of extraversion, which is why it does not show in outcomes that directly tap into such energetic component. The fact that we did find evidence for a delayed depleting effect of counterdispositional extraversion on vitality aligns with this rationale.

A second observation is that the effects of counterdispositional behavior appear to be trait-dependent. That is, whereas the findings for counterdispositional extraversion were in line



with the behavioral concordance model (i.e., the relation with approach goal orientation) or a “more is better” model (i.e., the concurrent relation with vitality), the findings for counterdispositional conscientiousness were vastly different. Specifically, when investigating the relation between counterdispositional conscientiousness and positive and negative affect, we found that not all deviations from the trait level matter. Whereas positive and negative affect were clearly impacted by negative deviations from the trait level (i.e., behaving less conscientiously than normally), positive deviations (i.e., behaving more conscientiously than normally) had little to no effect. Apart from challenging the behavioral concordance model, these findings also nuance the idea that behaving in a more conscientious way is always better. In fact, the finding that people’s levels of positive and negative affect appear to be particularly sensitive to momentary reductions in their typical level of conscientiousness, implies that “less is worse” rather than “more is better” applies to this context. Particularly relevant for future research would be to focus on traits that are less valued by society, such as neuroticism. For such traits, the pattern of relationships might again differ since decreases in these traits below one’s typical level tend to be perceived as positive by one’s environment or society, which might impact the relationship with how the person feels about such behaviors.

A final observation is that the effects of counterdispositional behavior vary when tested on different time scales. This became clear in our study on the link between counterdispositional extraversion and vitality, where we found that the concurrent and delayed reactions to counterdispositional extraversion were very different. This is an important finding as it might explain previous seemingly contradictory findings, suggesting that, strictly speaking, the behavioral concordance model and the “more is better” model are not competitors but can both apply under specific circumstances. Moreover, our undertaking of looking at both concurrent and delayed reactions is in line with recent calls in the literature to pay more attention to temporal dynamics when studying (work-related) phenomena (Vantilborgh, Hofmans, & Judge,

2018). What's more, our findings invigorate this call by demonstrating differential reactions on different time schemes.

In sum, the collective results of Chapters 1 to 3 contribute to an improved understanding of counterdispositional behavior by showing that momentary, state deviations from one's stable, trait levels of personality do influence wellbeing-related outcomes. However, the associations seem to be influenced by the traits under consideration, the outcome(s) one researches, and the time scale one uses. It is therefore fair to state that the interaction between states and traits is a complicated matter that cannot be captured by a single model.

### **Critical Reflections**

The limitations of each individual study have previously been discussed in the corresponding chapters. In this section, we want to identify overarching limitations regarding our research on counterdispositional behavior as a whole. Additionally, we hope to provide useful insights for future research on counterdispositional behavior.

An important issue is the relatively small number of participants in four of our five empirical studies (with the exception of Study 2 in Chapter 2), which brings to light issues on the generalizability of our findings and their statistical power. Regarding the former, it is important to stress that, although the number of participants is relatively small, studying counterdispositional behavior implies a focus on within-person fluctuations (i.e., deviations from the trait level). Because we have ample repeated within-person observations in each of our studies, the question regarding generalizability thus becomes whether we can expect the within-person relations that we observed in our studies generalize to other participant groups as well. Without having a definite answer to this question, two aspects need to be considered. First, many of our findings were (at least partially) in line with previous research on the topic, even when these studies used different methods (e.g., Gallagher, Fleeson, & Hoyle, 2011; Study

1; Zelenski, Santoro, & Whelan, 2012) and vastly different participant groups (e.g., Fleeson, Malanos, & Achille, 2002; Zelenski et al., 2013;). This cross-method and cross-sample replicability definitely attests to the stability and generalizability of our findings. Second, the rationale for our findings most probably also generalizes to other populations. That is, the idea that overriding one's dispositions is effortful or the idea that engaging in extraverted behavior boosts vitality because of their shared energetic component are accounts that apply to most individuals, regardless of their gender, culture, occupational status, etcetera. Hence, there is little reason to believe that such findings would not apply in other groups of people.

Regarding the impact of the small number of participants on statistical power, the picture is — once again — a complicated one. As we mentioned above, because counterdispositional behavior refers to deviations from the trait level, it pertains to a within-person process. Because we had ample repeated within-person observations for each of our studies, such within-person associations were tested with sufficient statistical power, even after a careful pruning of the data. However, in all of these studies, we also tested whether the within-person associations between counterdispositional behavior and the outcome measures were different for people with different trait levels. For these tests, which materialize as cross-level interactions in our statistical models, statistical power was less high. The consequence is that small cross-level interactions might have gone unnoticed. Finally, for the interpretative phenomenological analysis, the sample size issue is not straightforward. In such studies, sample size requirements depend on the richness of the data obtained, with no strict guidelines regarding the number of individuals to interview per study. Despite these challenges, Smith, Flowers, and Larkin, (2012) note that it is the number of interviews rather than the number of participants that matters (note that in our case this number is the same) and that a good number of interviews is four to ten, which is fully in line with what we did.

Up until now, we have identified potential limitations and argued why these limitations are negligible. However, as recommended by Zhu, Barnes-Farrell and Dalal (2015), rather than simply defending our choices, we will also highlight the strengths these participants brought to our research on many levels. First, by using employee samples, we were able to conduct research in a real-life (work) setting. We consider the ecological validity that comes with such real-life research to be a valuable contribution to the counterdispositional behavioral literature since the majority of the previous studies are experimental studies done in a lab setting. Hence, the question whether the effects that were found in the lab would generalize to the actual world was still an open question, and we contributed to answering it. Moreover, our research as a whole echoes our work and organizational psychology values as researchers. Meaning, we strive to conduct research which is relevant to society as a whole, which does good and that benefits employees in particular by focusing on the psychological functioning and wellbeing of individuals in the workplace, rather than researching topics that are beneficial to organizations only.

While our approach in and of itself has many benefits, mainly conducting research in a real-life setting, an important disadvantage is that, by doing real-life research, causality of the relations cannot be determined. We consider this to be a relatively minor issue since our findings are put into a broader set of studies on counterdispositional behavior, and most of these studies have been performed in the lab. Thus, whereas our individual studies do not allow for the drawing of causal inferences, in combination with previous studies on the topic, they provide a rich description of the consequences of counterdispositional behavior, including evidence on its causal nature and ecologically valid nature.

## **Directions for future research**

In the following section, major lines of inquiry are identified that can further the understanding of the dynamic interplay of traits and states by investigating the effects of counterdispositional behavior. Underscored are key theoretical advancements that can expand the field of a dynamic approach to personality.

First, in this dissertation we solely looked at extraversion and conscientiousness, which are personality traits that are both highly valued in western society as well as in workplace settings. On the job, behaving more extraverted (i.e., outgoing) or more conscientiously (i.e., hardworking) also typically comes with external rewards of the company or boss, such a praise, promotion or a raise. It could therefore be interesting to examine counterdispositional behavior among other traits, and particularly traits that are not associated with such extrinsic motivations, such as openness or neuroticism. Neurotic personalities, for example, tend towards negative emotions and according to the behavioral concordance model, these negative emotions — in case they are aligned with their trait level — will lead to positive consequences (Moskowitz & Côté, 1995). So, if neurotic personalities veer from their trait and behave in a manner which elicits positive emotions, does this counterdispositional behavior balance each other out, or will it still lead to unpleasant affect in the same way that behaving extraverted gives one energy at the moment? If said behaviors are counterdispositional, however, will they eventually backfire leading to negative affect after a short period of time? Or, would counterdispositional neuroticism tend towards positive outcomes much in the same way we found for low conscientious personalities behaving counterdispositionally conscientiously (as in more conscientiousness than normal).

In addition to looking at different personality traits, future research could also include habitual versus non-habitual behaviors, with habitual behaviors consuming less self-control (Gallagher, Fleeson, & Hoyle, 2011; Vohs, Baumeister, & Ciarocco, 2005). This distinction

might potentially explain why some counterdispositional behaviors still lead to positive results. An interesting — and related — question concerns the outcomes if the behavior is both counterdispositional and non-habitual.

A second avenue for future research pertains to the compound measurement of counterdispositional behavior. The question at hand could be: do all Big five traits carry equal value like the spokes of a wheel or are some traits more dominant than others? To this end, it would be advantageous for future research to look at a composite of traits as a set, rather than each individual trait in isolation. As Barrick & Mount (2005, p. 362) states, “we must study people, not traits” in order to fully understand personality. If one trait supersedes another, for instance, does counterdispositional behavior still have the same effect? Meaning that, if an introvert is social to satisfy his or her high level of openness, will counterdispositional extraversion still have the same negative consequences? Or would it be less because there is intrinsic motivation to satisfy one trait over the other? Similarly, might behaving in line with some traits compensate for the effect of counterdispositional behavior on other traits? To address these questions, it is crucial to study multiple traits simultaneously, after which their unique effects can be analyzed.

The third and last recommendation for future research is related to time. Our research already shows that the effects of counterdispositional extraversion can be very different when looking at them using different temporal lenses. Future research can further capitalize on this knowledge by delving deeper into those temporal issues. One way to do so would be to explore cumulative effects, or the effects of sustained periods of counterdispositional behavior. In order to fully examine this possibility, one would have to research the progressive effects of counterdispositional behavior by collecting data several times a day over a time span of several weeks or more and create an index daily or weekly counterdispositional behavior. This can for example be done by calculating the extent to which the daily or weekly state measurements

vary around one's trait level, with this measure of variability around the trait being an index of daily or weekly counterdispositional behavior. Subsequently, one would be able to look at the extent to which within-person fluctuations in daily or weekly counterdispositional behavior relate to daily or weekly levels of wellbeing. Another research possibility along these same lines is to take a closer look at the delayed effects of counterdispositional behavior. In study 4, we examined the effects of counterdispositional extraversion on vitality, both concurrently and one hour later. Future studies using a more complex measurement grid (for example each ten minutes) could explore even more fine-grained delayed effects.

## **Conclusion**

The principal aim of this dissertation was to unravel the mystery behind counterdispositional behavior at work. Our empirical research illustrated that, although deviations from the trait level matter, interactions between one's traits and states can become very complicated and the relations with outcome variables cannot be captured using a single model. Although this dissertation is only one additional step towards an integrative approach to personality, we identified several key areas for future directions as well as issues that need to still be addressed. Our hope is that this research will help inspire scholars to further develop this line of research and uncover more potential mechanisms underlying the integration of personality states and traits.

The end.

Or, is it just the beginning?

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