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Mari Dale Engen, Andrea Fagerstrøm Øye

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Master Thesis

The relationship between Extraversion and Affective Well-Being in light of Telecommuting and Open Plan Offices – A Facet Perspective

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Best regards,

Mari Dale Engen

Mari Dale Engen

Andrea Fagerstrøm Øye

Andrea Fagerstrøm Øye

Abstract

The purpose of this study was to investigate the relationship between extraversion and affective well-being for employees working both in an open plan office setting and telecommuting (working from home). Existing research have investigated related topics and many assumptions have been hypothesized, but few relationships have been investigated and the research is still scarce. In the present study, we identified that individuals with lower scores on the Extraversion facet sociability experience lower affective well-being when working in open plan offices compared to those with higher sociability scores. Similarly, we found that individuals with lower scores on the energy level facet of extraversion experience lower affective well-being when working in open plan offices than those with higher energy level scores. These findings indicate that introverts experience less affective well-being than extraverts when working in open plan offices. Although this previously has been hypothesized in literature and in the popular press, the research has been scarce. Moreover, we found that individuals with lower sociability scores experience higher affective well-being than those with higher sociability scores when telecommuting (working from home), indicating that introverts experience higher affective well-being when working from the comfort of their own home than do extraverts. This was especially interesting as this presumption has been debated in the research field. However, we were not able to demonstrate a statistically significant relationship between energy level-score and affective well-being. Overall, the findings may have important practical implications for organizations, concerning potential positive and negative consequences for facilitating flexible working schemes and telecommuting, which is a current topic of debate for practitioners in the aftermath of the COVID-19 pandemic.

Keywords: Affective Well-Being; D-FAW; Personality; Extraversion; Facets; Sociability; Energy Level; BFI-2; Telecommuting; Open Plan Office

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PART 1: Introduction

1.1 Purpose

The purpose of this study was to investigate how the relationship between the extraversion-facets sociability and energy level affect employee's affective well-being when working in an open plan office environment vs. when they telecommute (working remotely from home). Previous research has found correlations between differences in workplace design and workers performance and well-being (Lindberg et al., 2018; Danielsson & Bodin, 2008). We therefore wish to build on this by investigating individual differences concerning extraversion at a facet level and how these differences influence affective well-being when telecommuting and in an open plan office setting.

Organizations worldwide are approaching work-life post COVID-19, and the pandemic has impacted the way we work substantially. Most people working in offices had to telecommute and work remotely, and many organizations are now facing decisions regarding whether employees should return to the office, continue working from home, or a flexible working scheme with either a combination of the two, or giving the employee full access to decide for themselves. Some often-highlighted benefits of open-office environments is said to be collaboration and more formal and informal spontaneous interactions. With no physical barrier between workers, there is clearly an open invitation for informal interaction (Haynes et al., 2017, p. 130).

As we will argue, these highlighted benefits of open plan offices might not be perceived as beneficial for all individuals. This might be a part of the equation and some interesting aspects to consider when organizations are implementing new ways of working post-pandemic. Furthermore, the big five-dimensions of personality has been broadly investigated, but the narrower facets have received significantly less attention in research – especially in organizational settings. In this study, we will investigate the connection between two facets of the extraversion-dimension in the BFI-2-model (sociability and energy level) and affective well-being for employees both telecommuting and working in an open plan office-setting. We hope that this will provide new theoretical knowledge and a better understanding of the extraversion-dimension and two of the facets it

consists of, as well as its relationship to affective well-being in the two different work settings.

1.2 Gaps in the literature and contribution to the research field

When doing a literature search and analysis for this thesis, we investigated several approaches to the topic of introversion and open plan office environments and telecommuting. We read articles covering topics like job satisfaction, job performance, subjective well-being, productivity, different office styles, personality traits and facets, etc. This was to map out existing research and identify any gaps where we possibly could make a theoretical contribution to the research field. We will further map out the literature by mentioning some studies that were related to our topic.

Seddigh et al., (2016) studied benefits and penalties from open plan office landscapes, and the benefits of extraversion in relation to well-being on a trait level. The authors also looked at the joint-effect of office type (cell, shared room, open plan and flex) and measured personality with the Big Five traits. It has also been found that individuals experienced higher degrees of positive emotions and lower degrees of negative emotions when working from home (Anderson et al., 2015; Redman et al., 2009, as cited in Charalampous et al., 2019), but extraversion is little researched in this context.

Langvik et al., (2021) hypothesized that extraverts would suffer more than introverts in a home-office setting. The authors found no association with personality and the home-office setting, but they state that the topic of personality and satisfaction with telecommuting requires further research. This is also supported by Wei (2020). Wijngaards et al., (2020) suggest that extraverted individuals might suffer more from COVID-19 related restrictions than introverts, but that more research is required.

Meymandpour & Bagheri (2017) found that a positive relationship between extraversion and telecommuting burnout, and a negative relationship between introversion and telecommuting burnout. They suggest that a higher degree of telecommuting could be an opportunity for employees with lower extraversion scores. They also suggest that introverts may be more sensitive to stimuli than extraverts, and that stimuli can be a result of noise, light, interactions among other factors. Further, they identified that individuals with

lower sociability-score likely have less need for extensive socializing and interaction (Meymandpour & Bagheri, 2017).

Several researchers have investigated personality and how it affects performance and job satisfaction using the Big Five model (Barrick & Mount, 1991; Seddigh et al., 2016; Needle, 2019). Notably, a meta-analysis from Judge et al., (2002) looked at the Five Factor Model and job satisfaction. They found that the relationship of the five-factor model to job satisfaction is little studied, and that many traits do correlate significantly with job satisfaction, but most personality research has done little more than demonstrate relations without offering much theoretical explanation (Spector, 1997, p. 51; Judge et al., 2002, p. 531).

Moreover, Young et al., (2018) found in their meta-analysis that personality accounts for much of the variance in engagement, and specifically that positive affectivity explains the most unique variance in employee engagement, followed by proactive personality, conscientiousness and extraversion. The authors further state that prior research indicated a moderately strong relationship between positive affect and engagement, but that their meta-analysis suggest that the relationship is substantially stronger than previously thought (Young et al., 2018, p. 1339). The study of Young et al., (2018) yielded important and interesting findings that is of relevance to our research, but in contrast to their study, our study investigates extraversion facets (not the broad trait) and affective well-being rather than employee engagement.

Summing up the literature search, there exists an extensive amount of research focusing on the broad Big Five-dimensions on a trait level, and looking at job satisfaction, job performance, engagement, and other related topics. There are also some more recent studies investigating telecommuting, open plan offices and affective well-being. However, we were unable to identify any studies that specifically had investigated affective well-being, telecommuting & open plan offices, and with a facet approach to extraversion (specifically the sociability and energy level facets). There exist studies focusing on these topics separately, but not in combination and with the facet approach we have employed. Furthermore, several recent articles (for instance, Wei, 2020; Langvik, 2021; Wijngaards et al., (2020), suggest that research on this topic is scarce and should therefore be

investigated further. As the COVID-19 pandemic likely have sparked interest in several research topics, new studies investigating work settings, personality and related topics might be focus of other researchers as well. However, as of the time this study is being conducted, no study investigating our combination of topics have been identified. We hope that our research may contribute to the research field to possibly provide new insights into how individuals are affected by these narrow facets in the two different work settings mentioned.

This research is also important in a practitioner perspective. Many articles in the popular press publish articles concerning the topic of returning back to the office post pandemic. “Returning to the Office Sparks Anxietyand Dread for Some” (The New York Times, 2021a) is one of many examples. Organizations also debate this issue – The chief executive of Goldman Sachs, David Solomon stated that remote work is “an aberration that we’re going to correct as soon as possible” (The New York Times, 2021b). In contrast, Salesforce says its work-from-anywhere approach would “unlock new growth opportunities and drive greater equality” (Salesforce, 2021), while Spotify describes their flexible work policy as “a jewel in their Talent Attraction crown” (Spotify HR Blog, 2021).

1.3 Research Question

As discussed above, there seems to not yet exist any “best practice solution” regarding physical work setting, specifically whether it is the most advantageous to work in the open plan office, to telecommute and work remotely, or a combination of the two. Hopefully our research can contribute to present a scientific and theoretical perspective that also can be a positive contribution for organizations.

Based on the presented literature research and research contribution, the research question for this masterthesis will be:

What is the relationship between the extraversion facets sociability and energy level, and employees’ levels of affective well-being in the open plan office vs. in a telecommuting setting?

PART 2: Literature

2.1 The Extraversion – Introversion Dimension

Over the past decades, the Big Five Inventory (BFI) has been a widely used and accepted measure of personality. It is said to be a well-validated model for the description and assessment of personality and has demonstrated considerable validity, reliability, and utility (Goldberg, 1990; John, et al., 2008; McCrae & Costa, 2008, as cited in Soto & John, 2017). Individual differences can be summarized in the model's robust personality trait domains – Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness (McCrae & Costa, 2008).

Within these five broad factors, lie more narrow facets. Facets are supposed to reflect a discrete trait and, according to Costa and McCrae (2008), contribute to something above and beyond the five factors. Different approaches mention different traits, for instance, the NEO Personality Inventory mentions six facets within Extraversion (warmth, gregariousness, assertiveness, activity, excitement seeking and positive emotions) (Costa & McRae, 1992, as cited in Soto & John, 2017), while the BFI-2 extraversion trait consist of three facets (sociability, energy level and assertiveness) (Soto & John, 2017). The BFI-2 inventory will be utilized for personality assessment in this study.

A well-known personality dimension, and also argued as being the most agreed upon in the literature, is the Extraversion – Introversion dimension (Matthews et al., 2009; Digman, 1990). Additionally, Cain (2012) argued that this might be the personality dimension that defines us the most. The NEO-PI(R) inventory states that the more the extraverted trait dominates, the more "intense and frequent the interpersonal interactions are, as well as being energized and optimistic" (Marshall et al., 2005).

Costa and McCrae (1980) suggested that extraversion correlates more strongly with positive affect than with negative affect. This has been supported by other studies, i.e., a meta-analysis by Steel et al., (2008), who found that on average, extraversion had a positive correlation with positive affect r =.44 and a negative correlation with negative affect r = -.18. The link between Extraversion and positive affect is so well studied that there is even

experimental evidence, a rarity in personality research (Margolis et al., 2019, p. 478).

Blevins et al., (2022, p. 78) mention that the topic of extraversion has generated a substantial amount of research, and that there seems to exist a positive bias towards extraversion and its characteristics that may be described as socially desirable, while the (positive) focus on introversion has been relatively neglected in comparison. Commonly described in dichotomic terms, introverts and extraverts are often differentiated by the sources where they draw their energy (internal vs. external, respectively) (p. 78). Adjectives traditionally associated with introversion include "inhibited," "reserved," and "undemonstrative," while those associated with extraversion include "outgoing," "friendly," and "enthusiastic" (Eysenck, 1991, as cited in Wei, 2020, p. 2).

Traditionally, the term extraversion has been used to describe a person that is "outgoing, candid, and with an accommodating nature that adapts easily to a given situation, quickly forms attachments, and sets aside any possible misgivings, and often ventures forth with careless confidence into an unknown situation" (Jung, 1961, as cited in Condon 2015, p. 17). Extraverts have also been described as "someone with an energetic approach towards the social and material world" (John et al., 2008, p. 120). Thus, those with a high level of extraversion are likely to engage socially in the workplace, through communicating with others, attend social events, and engage in behavior that draws attention and/or social rewards (Ashton et al., 2002).

In contrast to this perspective on extraversion which generally is perceived and described as positive and socially desirable, introversion has been defined to describe a person with "a hesitant, reflective, retiring, nature that keeps to itself, shrinks from objects, is always slightly on the defensive, and prefers to hide behind mistrustful scrutiny" (Jung, 1961, as cited in Condon, 2015, p. 17). This description arguably holds more negative connotations in comparison with the description of extraversion. Since such operationalizations negatively characterize introverts, little is known about the potential benefits garnered from introversion in the workplace - Rather, the currently measured form of introversion appears more useful in understanding states like depression (Blevins et al., 2022).

It has also been hypothesized that introverts and extraverts prefer different levels of cortical arousal. Extraverts are typically less aroused than their optimum level, typically making them seek more stimulating environments, so that they achieve their respective optimum level of cortical arousal. Contrariwise, introverts' level of arousal typically exceeds their optimum level, making them more prone to seek environments that are less stimulating than those extraverts typically to prefer. It has also been demonstrated that when introverts are in situations where the degree of stimulation exceeded their optimum level, it reduced their performance. It has therefore been suggested that introverts need different environments and stimulation than extraverts to perform well (Eysenck, 1967, as cited in Geen, 1984).

2.2 Introverts vs. extraverts during COVID-19

Anecdotal evidence seems to illustrate a common belief among the general public and in the popular press that introverts are flourishing during the pandemic, while the extraverts are experiencing more difficulty and hardship. For example, a "How to Survive Social Distancing as an Extravert" guide on a popular psychology website begins with the following statements:

"For introverts, being stuck at home without social interaction for long periods of time really isn't the worst thing at all. They are accustomed to this time spent alone and feel energized and recharged by it. When it comes to extraverts, the idea of social distancing can feel like somewhat of a death sentence" (Personality Growth, 2020, as cited in Wei, 2020, p. 2).

Furthermore, Langvik et al., (2021) mentions that there is a general opinion that extraverted people suffer more than introverted people in home-office arrangements and the social distancing regulation imposed by the government during the COVID-19 pandemic. However, the research concerning how extraversion is associated with satisfaction with home-office arrangement is scarce (Langvik et al., 2021, p. 1), and this is what we aim to assess in our survey.

The perception and assumption that extraverts are struggling more than introverts during the pandemic can also be found in the field of research. It has been theorized that extraverts experience more negative consequences compared to introverts during COVID-19. This might be especially prevalent during

stringent restriction regarding social distancing (Wijngaards et al., 2020), and therefore, extraverts might be more prone to be affected by the demand for social distancing and telecommuting (Langvik et al., 2021, p. 2). The sociability component is the very core of extraversion (Smillie et al., 2019), and extraverts often engage in social activities to a larger degree than introverts do (Lucas et al., 2008). Interestingly, Langvik et al., (2021) found no significant association between extraversion and general satisfaction with home office arrangement. Further, although scarce, there is some evidence suggesting that those more extraverted suffer more from the restriction posed upon them due to COVID-19 than introverts (Wijngaards et al., 2020).

However, in general, higher scores on extraversion is associated with good mental health (Lamers et al., 2012), and association with lower odds of social isolation (Whaite et al., 2018), more successful coping (Morales-Vives et al., 2020) and more active seeking of socio-emotional support during COVID-19 (Volk et al., 2021). Results from a recent meta-analysis support a robust, negative association between loneliness and extraversion, where the association is explained by the role of extraversion in contact-seeking (Buecker et al., 2020). The evidence suggest that extraversion is negatively associated with detrimental mental health impact of COVID-19 (Wei, 2020).

As mentioned, earlier studies have found that introverts tend to prefer less stimulating environments (Myers, 1962; Cattell, 1965; Eysenck, 1967; Hathaway, 1982; McCrae and Costa, 1999, as cited in Wei 2020, p. 5), and thus one might hypothesize that introverts experience the psychological impact of COVID-19 related circumstantial changes less severely than what is expected of extraverts (Wei, 2020, p. 2). Nevertheless, higher introversion (i.e., lower extraversion) has been associated with higher loneliness, depression and anxiety experienced as a function of COVID-19. The finding that introverts experience the psychosocial and affective impact of social distancing and lockdown measures more severely than their extraverted counterparts highlights some contrasting perspectives in the literature. Firstly, the finding is in line with previous studies demonstrating that introversion is associated with more psychological problems in general (Janowsky, 2001; Jylha et al., 2009; Fadda and Scalas, 2016), and adjustment problems specifically (Pinder, 1977; Bauer and Liang, 2003; Löckenhoff et al., 2009; Robinson et al., 2010; Davidson et al., 2015, as cited in Wei, 2020, p. 5). However, this finding appears to be in disagreement with the notion that

introversion is associated with a preference for less stimulating environments (Myers, 1962; Cattell, 1965; Eysenck, 1967; Hathaway, 1982; McCrae and Costa, 1999, as cited in Wei, 2020, p. 5) such as those created in everyday life following the implementation of social distancing and lockdown measures (like working remotely from home). In turn, this assumption has fueled the lay belief that introverts are coping better during the COVID-19 pandemic compared to extraverts, but this claim lacks empirical research (Wei, 2020, p. 5).

Due to these contrasting viewpoints, we aim to investigate this further. Introverts might experience worse mental health in general (and during social restriction-interventions) than extraverts, but perhaps investigating the home office setting specifically would provide new insights, as the research is scarce. We are curious about whether introverts experience higher affective well-being than extraverts when working from home, or not.

2.3 Big Five Model - BFI2

It has been 30 years since the original BFI was developed (Soto & John, 2017, p. 117). A widely used and important contribution in the Big Five literature is the NEO inventories (Costa & McCrae, 2010). More recently, Soto and John (2017) introduced another new version of the BFI, called the BFI-2. Unlike the original BFI, the BFI-2 was designed to feature a well-defined facet structure (Margolis et al., 2019, p. 479). The BFI-2 present a 60-item hierarchical scale structure where each of the five domains consists of three facets. The extraversion domain, which is our focus in this research, consists of the following facets; sociability (i.e., the extent to which someone is outgoing, talkative,), assertiveness (dominant, leader-like, assertive) and energy level (active, energetic, enthusiastic) (Soto & John, 2017).

Research has proven that the facet approach to the Big Five traits produce higher criterion-related validity than the broad-trait of the dimensions. Hence, we see these facets as a positive and valid way of measuring in psychological research, and since it has been found reliable on both the domain and facet levels (Soto & John, 2017, p. 76), we find itmeaningful for our research on extraversion. The facets can predict behavior on a different level than the original BFI, and we have not succeeded in identifying any studies that investigate the facets of extraversion in relation to affective well-being in the open office or when telecommuting in the literature.

Even though the BFI-2 is to some extent recent, it has already been translated to several languages (Halama et al., 2020; Rammstedt et al., 2020; Føllesdal & Soto, 2022,). This presents an important advance in relation to the original BFI, minimizing the influence of acquiescent responding. This provides higher predicted power than the BFI, while still retaining the original measures' conceptual focus, ease of understanding and brevity (Soto & John, 2017, p. 139). This supports its reliability and internal consistency at both the trait level and facet level. Additionally, it increases the validity of the BFI-2. The BFI-2 thrives to ensure appropriate balance between fidelity and bandwidth (John et al., 1991, as cited in Soto & John, 2017), through adopting a hierarchical approach by using facet level scales and domain scales. While domain scales are construed with greater breadth (i.e., high bandwidth), facet scales provide more-detailed personality description (i.e., high fidelity). We therefore believe that the BFI-2 could offer new findings in research examining outcomes of personality traits, by focusing on the facets.

The sociability facet of extraversion describes the interpersonal warmness of individuals. Individuals high in sociability (affiliation), according to Watson and Clark (1997, as cited in Moon et al., 2008) are those who have warm feelings towards others, consider their interpersonal relationships of particular importance, and are strongly attracted to frequent social interaction. The authors also note that sociable individuals place 'a high value on close interpersonal relationships' and 'enjoy the company of others and are strongly motivated toward frequent social interaction' (p. 776, as cited in Moon et al., 2008, p. 149). The sociability and assertiveness facets are rather straightforward and seem to be two of the most internally consistent of the measure's 15 facets. In contrast, the energy level facet is relatively less internally consistent due to its wider scope (Soto & John, 2017). This facet includes items that reflect general energy ("is full of energy" and "is less active than other people"), as well as feelings relating to positive anticipation ("shows a lot of enthusiasm" and "rarely feels excited or eager") (Margolis et al., 2019, p. 479). In their study, Margolis et al., (2019) found that the energy-level facet correlated with well-being to a greater extent than the sociability and assertiveness-facets. Combined, their results suggest that the energy-level facet of the BFI-2 almost fully accounts for the relationship between trait extraversion and affective well-being. This finding is particularly notable in light of Soto and John's (2017) suggestion that some facets are likely to be more central to

Extraversion (and other traits) than others. The authors suggest that the link between Extraversion and well-being should not be attributed to the trait level (i.e., Extraversion), but rather to the facet level (Mõttus, 2016; Margolis et al., 2019, p. 482).

Soto and John (2017a, as cited in Føllesdal & Soto, 2022, p. 1) stated that one facet is considered factor pure, in that it has been identified as central to its own domain and independent from the other four domains (p. 5). The other two facets are complementary facets, meaning that they "are prominent in the personality literature and represented in the original BFI's item content" (Soto and John, 2017a, p. 5, as cited in Føllesdal & Soto, 2022, p. 1). These complementary facets should conceptually broaden each domain and provide continuity with the original BFI and previous research on personality structure (Soto & John, 2017, p. 121). Building on this, previous research on personality structure has consistently identified sociability (desire to socially approach and engage with others) as a facet central to Extraversion and orthogonal to the other Big Five domains (Goldberg, 1999; Hofstee et al., 1992; Costa & McCrae, 2010; Saucier & Ostendorf, 1999, as cited in Soto & John, 2008). In addition, we reflected that socializing is an important part of open plan offices (and lack thereof in telecommuting), and thus sociability was interpreted both as a relevant facet to investigate in light of our topic of telecommuting and open plan offices.

Furthermore, based on the previously mentioned arguments from Margolis et al., (2019) concerning that the association between extraversion and well-being was limited to the energy level facet, we decided to further investigate this facet in addition to sociability. We did however decide to exclude the investigation of assertiveness in this study. We have been unable to identify any previous studies that investigate or highlight the relevance of assertiveness in relation to affective well-being (and furthermore, neither in open plan offices nor in a telecommuting-setting). If we were to research other topics, for instance job performance, career development or similar, assertiveness may have been a more relevant facet to investigate (willingness to express personal opinions and goals in social situations, and asserting oneself might perhaps be a tool for realizing career opportunities), but as we are measuring affective well-being, we considered sociability and energy level to be the two most relevant facets. Additionally, if we were to investigate all three extraversion facets in both physical work settings, we

would produce six hypotheses, which would present a too extensive scope for this assignment.

2.4 Affective well-being

Research on affective well-being in an organizational perspective has grown rapidly over the past decades (Ilies et al., 2015), and affective well-being (AWB) is however considered to be the most important component of psychological well-being (van Horn et al., 2004; Warr, 1990, as cited in Russel & Daniels, 2018). It is an important construct from an organizational perspective due to its proven relationship with several workplace constructs, like job satisfaction, job burnout, work–family conflict, occupational success and income (Hofmann et al., 2014; Ilies et al., 2015, as cited in Russel & Daniels, 2018), employee turnover (Wright & Bonett, 2007) and employee performance (Wright & Cropanzano, 2000).

Affective well-being is additionally important at the individual level, as it has been found to affect other life domains outside of work (Ilies et al., 2009; Sirgy et al., 2001) and is also related to mental health and health risk behaviors (Wilson et al., 2004). When an individual experience low affective well-being at work, it can spill over to well-being outside of work which can result in a negative spiral due to the reciprocal relationships among work-related stressors, exhaustion, and work–home interference (Demerouti et al., 2004). These arguments illustrate the importance of AWB at the individual level.

Several studies have demonstrated relationships between the Big Five dimensions and AWB (John & Srivastasava, 1999; DeNeve and Cooper, 1998, as cited in Zhang & Tsingan, 2013). It has been suggested that the relationships are more complex rather than only a direct association, but specifically, it is argued that neuroticism and extraversion have a direct effect on well-being (McCrae and Costa 1991). These findings indicate that there is evidence for a possible relationship between the big five dimensions, specifically extraversion, and AWB. Therefore this dimension is of particular interest in our study, when investigating the relationship between AWB and different work situatitions.

Several well-established questionnaires available to assess AWB exists (Van Katwyk et al., 2000; Watson et al., 1988, as cited in Russel & Daniels, 2018), but since contemporary organizational study designs require brevity, these are often too lengthy to use (Russel & Daniels, 2018, p. 1482). Further,

several of the established measures of AWB have flaws in their psychometric construction or are criticized for an incomplete sampling effect (Diener et al., 2010; Barrett and Russell, 1998; Larsen and Diener, 1992; Van Katwyk et al., 2000, as cited in Russel & Daniels, 2018). In other words, well-being questionnaires are often met with a dilemma; how to ensure that the measure comprehensively samples affect, without being prohibitively long (Van Katwyk et al., 2000; Warr, 1990, as cited in Russel & Daniels, 2018). Since using short-form measures of AWB can reduce the burden on participants in applied settings, we have chosen to apply a short-form measure of AWB by Russel & Daniels (2018), called the Daniels five-factor measure of affective well-being (D-FAW).

The structure and measurement of AWB has been debated in the research field. Some theorists assert that AWB is best represented by two independent dimensions of positive and negative affect that include terms at differing levels of activation (Tellegen et al., 1999; Watson and Clark, 1997, as cited in Russel & Daniels, 2018). However, others argue for the superiority of a circumplex model, whereby specific terms can be differentiated by two orthogonal dimensions of hedonic tone and activation (Barrett and Russell, 1998; Larsen and Diener, 1992; Russell and Carroll, 1999, as cited in Russel & Daniels, 2018). In both cases, affect is considered to comprise two components – one related to the hedonic tone or valence of the emotion (e.g., how positive or negative it is), and the other related to the activation or intensity of the emotion (e.g., whether it relates to a high or low arousal state) (Warr, 2003; Weiss and Cropanzano, 1996, as cited in Russel & Daniels, 2018).

Building on this, Watson and Tellegen (1985, as cited in Russel & Daniels, 2018) proposed that affect can be represented in a two-dimensional circular space or circumplex by two orthogonal factors labelled negative affect and positive affect. High negative affect is represented by anxiety and hostility; low negative affect is represented by calmness and relaxation. High positive affect is represented by a state of pleasant arousal (e.g. enthusiasm) and low positive affect is represented by a state of unpleasantness and low arousal (e.g. dull, sluggish). Further, Larsen and Diener (1992, as cited in Daniels, 2000) suggest affects such as ‘bored’, ‘dull’ and ‘sluggish’ represent states of unactivated, unpleasant affect opposite to activated pleasant affects such as ‘enthusiasm’ (Daniels, 2000).

As mentioned, we will employ the D-FAW, which consists of 5 dimensions; anxiety–comfort (AC), angry–placid (AP), displeasure–pleasure (DP), tiredness–vigour (TV) and bored–enthusiastic (BE). The five factors of D-FAW can be mapped onto the second-order solution of Positive Activated Affect (PA) and Negative Activated Affect (NA) (Barrett and Russell, 1998, as cited in Russel & Daniels, 2018). AC and AP load onto NA, and TV and BE load onto PA. DP can be a standalone factor or can load onto either PA or NA (Daniels, 2000, as cited in Russel & Daniels, 2018).

Additionally, as we will mention more in depth in the results-segment of this study, we conducted a factor analysis to investigate whether AWB would load onto two factors (PA & NA) or if it was best captured rather as one dimension capturing both positive and negative affect at each end of the dimension – we found support for the latter and identified that one dimension (PANA) worked best.

2.5 Focal instruction

Different time-bound focal instructions can be used when assessing AWB (Russel & Daniels, 2018, p. 1480). There are three different levels (presented in Figure 1) of affect, and in this study, we are interested in affect at level 1. At the highest level (1), researchers focus on trait-based aspects of affect – relatively stable constructs that are highly correlated with (and possible sub-factors of) personality constructs (e.g., Extraversion) (Beal and Ghandour, 2011; Costa and McCrae, 1980; DeNeve and Cooper, 1998; Steel et al., 2008, as cited in Russel & Daniels, 2018).

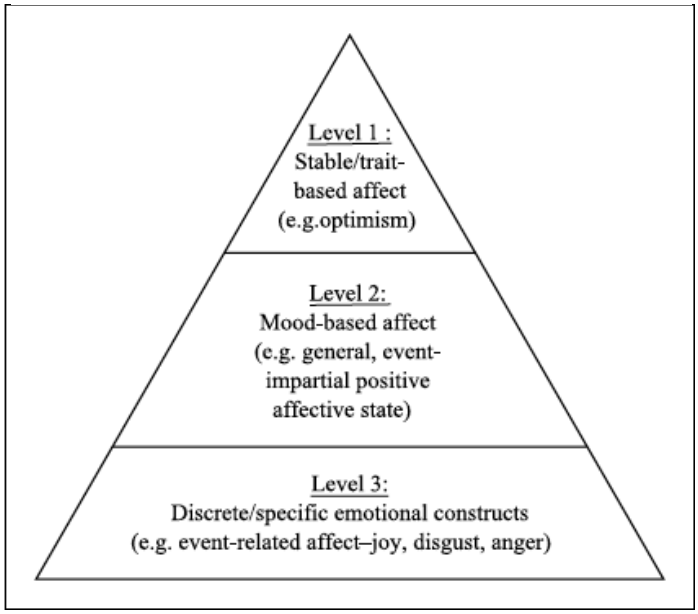
Level 2 is mood based affect, and the duration of the mood state can range from several days to several minutes (Weiss and Cropanzano, 1996, as cited in Russel & Daniels, 2018). At the lowest level, level 3, affect is experienced in terms of discrete and specific emotional constructs, e.g., joy, disgust and anger, which are tied to an object or event in time (Frijda, 1993, as cited in Russel & Daniels, 2018). Affect at the lowest level is more likely to fluctuate and be experienced as a transient state (Xanthopoulou et al., 2012).

The focal instruction of a measure is designed to direct the rater's attention to the temporal and contextual boundaries of the construct being rated. For example, focal instructions that ask participants to consider how often they generally experience their moods or emotions are tapping into higher constructs

(Figure 1: level 1) at a trait level (Watson et al., 1988, as cited in Russel & Daniels, 2018), which is what we have chosen to utilize in this study. To direct participants to the level of affect of interest, the focal instruction within the scale needs to indicate whether ratings are being made as a general indication of stable affect (i.e., 'how you usually feel'). In contrast, level 2 accesses summative affect over e.g. the past day or week, while level 3 accesses momentary AWB tasks how an individual feels "right now" at a moment in time (Russel & Daniels, 2018, p. 1481). We formulated the question to participants in the following way; "when you work in the home office, how do you usually feel…?", and "when you work in the open plan office, how do you usually feel…?", (followed by the items in the D-FAW shortscale; happy, gloomy, etc., with a 6-point likert scale ranging from "never" to "all the time").

Since we are interested in how introverts and extraverts generally feel when working in the home office vs. working in an open plan office, we employed Level 1 as the focal instruction in this survey.

Figure 1 *Different levels of affect (Russel & Daniels, 2018)*



2.6 Open Plan offices

It is shown that different workplace designs can impact workers well-being and performance (Lindberg et al., 2018; Danielsson & Bodin, 2008). A popular workplace design is the open plan office, which is said to act as an effective facilitator of knowledge creation and collaboration through spontaneous

interactions (Openshaw, 2013; Cummings and Oldham 1997; Dunbar, 1995, as cited in Haynes et al., 2017). There is a financial benefit involved with open-plan offices – they are more space-effective than cellular offices because less space is provided to each person. There are also organizational benefits involved with this office type, like greater knowledge sharing and facilitation of team work (Heerwagen et al., 2004; Lansdale et al., 2011, as cited in Haynes et al., 2017).

There is a growing body of research evidence suggesting that open-plan office environments increase employees' dissatisfaction (Danielsson & Bodin, 2008; Kim and de Dear, 2013). Certain work activities require disruption-free working and a deep level of concentration. Performing such tasks can be challenging in an open-office environment, for instance through physical interruptions from co-workers and auditory interruptions caused by background noise (Haynes et al., 2017, p. 114). Further, noise has been identified as one of the variables in which open-plan office workers have the least satisfaction (Frontczak et al., 2012; Hongisto et al., 2008; Pejtersen et al., 2006, as cited in Haynes et al., 2017), and can also have a negative impact on the productivity levels of office occupiers (Hongisto, 2005; Mak and Lui, 2012). Office noise can be disruptive and detrimental to people's ability to focus and concentrate on their work activities (Banbury and Berry, 2005; Seddigh et al., 2014).

Several studies have revealed open plan office layouts and their negative relationship with job satisfaction - compared to working in cellular offices (Otterberg et al., 2018; Maher & Von Hippel, 2005). Research from Otterberg et al. (2018) revealed that employees who work in either a small or medium-sized open plan office are consistently reporting a lower level of job satisfaction, subjective well-being, and ease of interaction with their coworkers compared to those who work in cellular offices. Enclosed private offices are perceived by many to be more productive than open-plan offices. These results are in general agreement with previous research based on office satisfaction (Danielsson and Bodin, 2009; Kim and de Dear, 2013) and could suggest that the productivity penalties of open-plan working may outweigh the productivity benefits (Haynes et al., 2017, p. 115).

Moreover, in contrast to employees working in private offices, employees working in open-plan office environments rarely have an extensive amount of control over factors like level of privacy and noise (among other factors like lighting and temperature) which can increase the degree of dissatisfaction with the

office environment. When working in a private office or from home, one can typically more easily reduce the levels of interruptions and have longer periods of uninterrupted, focused work than employees in open-plan environments (Kim and de Dear, 2013; Samani, 2015). The combination of social interactions and decrease of personal space are found to expose employees for over-stimulation (Desor, 1972; Paulus, 1980, as cited in Maher & von Hippel, 2005). When an individual's stimulation levels exceed a comfortable level, it usually evokes a negative response in regard of both behavior and attitude, which in a workplace setting could result dissatisfied employees (Oldham, 1988; Paulus, 1980, as cited in Maher & von Hippel, 2005).

Furthermore, empirical evidence has confirmed that individuals vary as to how severely they experience the negative reactions from working in open plan offices (Wineman, 1986, as cited in Maher & von Hippel, 2005); some individuals are better suited to cope with the amount of stimulation that are found to appear in the open plan office environment than others. Since it is known that the open plan office facilitates social interactions and noise pollution, one can hypothesize whether individuals who thrive in social environments (i.e., extraverts) are to experience the open plan office layout differently than those who are less extraverted (Lindberg et al., 2018). Building on the mentioned argument that introverts experience greater cortical arousal than extraverts and that they often are over stimulated, this might make them inclined to seek less stimulating environments compared than those extraverts typically prefer (Eysenck, 1967, as cited in Cassidy & Macdonald, 2007, p. 520). Introverts may experience a degree of aversion of such conditions where arousal exceeds their optimal level, while in contrast, extraverts may show stimulation seeking behavior (Cassidy & Macdonald, 2007, p. 520). As open offices typically involve big groups of people being crammed into a relatively small amount of space, and thus a lot of noise from people talking, telephones ringing, coffee machines, etc. – an open office might contribute to excessive stimulation for employees with low extraversion scores. These findings are quite interesting when investigating individual differences in different work constructs focusing on their affective well-being. We therefore hypothesize that those with a lower score of sociability and energy level experience lower level of AWB in the open plan office.

Hypothesis 1: Individuals with a lower sociability score experience lower affective well-being when working in open plan offices compared to those with a higher score.

Hypothesis 2: Individuals with a lower energy level score experience lower affective well-being when working in open plan offices compared to those with a higher score.

2.7 Telecommuting

The umbrella term "distributed work" refers to arrangements that allow employees and their tasks to be shared across settings away from a central place of business or physical organization location, and has also been referred to as telecommuting, telework or remote e-work (Bélanger & Collins, 1998, as cited in Gajendran & Harrison, 2007, p. 1524). Telecommuting intensity refers to the extent or amount of scheduled time that employees spend doing tasks away from a central work location. When telecommuters spend the majority, versus a minority, of their scheduled time away from a central location, it crosses a psychological threshold; in a sense, creating two classes of employees in telecommuting arrangements. High-intensity telecommuters spend the majority (or all) of their workdays away from a central location. Low-intensity telecommuters spend the majority of their workdays at a central (conventional) location (i.e., office), working remotely for only 1 or 2 days a week. (Gajendran & Harrison, 2007, p. 1529).

Telecommuting is proposed to have several positive outcomes (Baruch, 2000; Hilbrecht et al., 2008; Maruyama and Tietze, 2012; Troup and Rose, 2012, as cited in Bosua et al., 2017). It has been found to mostly have beneficial effects on outcomes like work-family conflict, job satisfaction, performance, turnover intent, and role stress (Gajendran and Harrison, 2007, p. 1524). Gajendran and Harrison (2007) also propose that high-intensity telecommuters are likely to receive and perceive a greater sense of autonomy relative to those who telecommute less frequently. High-intensity telecommuters have more opportunities to exercise control over scheduling work for peak productivity times, exercising greater control over their availability to other organizational members, and therefore better managing interruptions to their work. High-intensity telecommuters also experience greater savings of time and energy from reduced time spent commuting and less time spent in transitions to and from work

relative to low-intensity telecommuters. Reducing conflict between domains, this could mean more time and energy available to attend to family responsibilities, exercise hobbies etc. (Gajendran & Harrison, 2007, p. 1529). In addition, performing one's tasks at home allows increased control and autonomy regarding breaks, clothing, layout, decoration, lighting, ventilation, music, and other ambient elements that can contribute to increased feelings of autonomy (Elsbach, 2003; Standen, 2000, as cited in Gajendran & Harrison, 2007).

Certain concerns regarding negative effects of telecommuting have also been proposed, mostly regarding the potential for relational impoverishment. As telecommuting involves a reduction in face-to-face interactions, it has been suggested that telecommuters (especially high intensity telecommuters) could experience a weakening of the interpersonal bonds they have with coworkers or supervisors (Daft & Lengel, 1986; Short et al., 1976; Golden, 2006b; Nardi & Whittaker, 2002, as cited in Gajendran & Harrison, 2007, p. 1527). Because coworkers cannot readily see telecommuters' efforts or their contributions, they might also perceive telecommuters as antisocial, rather than present and working, and less instrumental to shared goals (Duxbury & Neufeld, 1999; Lombard & Ditton, 1997; McCloskey & Igbaria, 2003, as cited in Gajendran & Harrison, 2007, p. 1527). It has also been suggested that in turn, this could be harmful for telecommuter's career prospects, as visibility at a central location is thought to be critical for outstanding performance evaluations, and such evaluations are pivotal for career success (O'Mahony & Barley, 1999 as cited in Gajendran & Harrison, 2007, p. 1527). Gajendran and Harrison (2007) did however find that moderate telecommuting had no generally detrimental effects on the quality of workplace relationships, except for the finding that high intensity telecommuting (more than 2.5 days a week could harm relationships with coworkers (p. 1524).

Moreover, it has been argued that introverts could be well suited for unsocial jobs in which they can find themselves in hereditary isolation, jobs that could be uninspiring for their extraverted counterparts, because telecommuting might require an introverted employee (Whitehead, 1999; Blau & Barak, 2012, as cited in Meymandpour & Bagheri, 2017). Hannay (2016, as cited in Meymandpour & Bagheri, 2017) mention that introverts should be more suited to telecommute than extraverts, because the social isolation involved with telecommuting fits the introverted personality. Additionally, as previously discussed, Meymandpour & Bagheri (2017) found that extraversion had a positive

relationship with burnout, whereas introversion had a negative relationship with burnout. They imply that their findings might be of value to organizations so that they can match employees' personality, to their degree of telecommuting, to prevent or decrease burnout (p. 5).

Hypothesis 3: Individuals with lower sociability scores experience higher levels of affective well-being when telecommuting compared to those with higher sociability scores.

Hypothesis 4: Individuals with lower energy level scores experiences higher levels of affective well-being when telecommuting compared to those with higher energy level scores.

PART 3: Methodology

3.1 Research Design

The aim of this study is to investigate the relationship between different scores of sociability and energy level, and levels of AWB in two different work settings. Therefore, a cross-sectional design was chosen as the research method for this study (Bryman & Bell, 2011). We issued our survey through an online site, Qualtrics. The survey consisted of three main parts. First, we assessed whether the respondents matched the criteria to be able to participate in the survey; they had to have worked both in an open plan office and from home during the COVID-19 pandemic. Second, we measured the independent variable, *personality* through measuring items from the sociability and energy level facets from the BFI-2. Third, we measured the dependent variable, *affective well-being*, through utilizing the D-FAW in two different settings; one time to assess the telecommuting-environment and one to assess the open office-environment. We employed a Level 1 focal instruction when assessing AWB (Russel & Daniels, 2018).

3.2 Sampling and Data collection

The data was collected over a relatively short time period specifically from March 31st, 2022 until April 30th, 2022. All of our data was collected through convenience sampling techniques (Bryman & Bell, 2011), such as sending out the survey to fellow students, co-workers and others in our network. Additionally, we distributed the survey through social media channels (LinkedIn and Facebook). The total group of respondents was N = 340. If respondents did not match the criteria of having had to have worked both in an open plan office and from home (telecommuting), or if any questions were blank and not filled out, that participants' response was excluded from further analysis. Furthermore, after cleaning the data and excluding those who were not eligible to participate, the total batch of participants included in the survey ended up being N = 228.

Ethical considerations are important when conducting research and ensuring participants anonymity was an important priority when creating the survey. We also issued their consent as part of the data collection. Participants were in no way put in harm or risk when participating in our survey and were informed that they could exit the survey if and whenever they wanted to do so.

As mentioned, the data collection resulted in N = 228 fully answered questionnaires, 159 (70%) females, 67 (29%) males and 2 (0,88 %) who chose not to give information about their gender. The mean age was 39. We had satisfactory variation in age, but less variation in gender. The majority of respondents where between the ages of 21-50 (86 %).

Table 1 *Distribution of Participants*

Measure	Item	Frequency	Percentage
Gender	Female	159	29 %
	Male	67	70 %
	No information on gender	2	1 %
	Total	228	100 %
Age	21-25	30	13 %
	26-30	57	25 %
	31-35	29	13 %
	36-40	25	11 %
	41-45	24	11 %
	46-50	31	13 %
	51-55	17	7,46 %
	56-60	7	3,07 %
	61-65	7	3,07 %
	66-70	1	0,44 %
	Total	228	100 %

3.3 Survey design

Both inventories (BFI-2 and D-FAW) used in our survey were Norwegian translations of the original English measures. The process of translating the BFI-2 to Norwegian was conducted in collaboration with the authors of the original BFI-2, who had developed detailed translation guidelines for this purpose. The BFI-2 items were translated to Norwegian by the principal author in cooperation with a translator, and back-translated to English by a bilingual psychologist, and then the final translation was reviewed by the authors of the original BFI-2 (Føllesdal & Soto, 2022, p. 2). We decided to use the Norwegian adaptations of the inventories since the majority of the people in our networks are Norwegian. To appeal to as many respondents as possible, it would be most comprehensible for respondents to participate in a survey in their native language (Eden et al, 1992, as cited in

Bryman & Bell, 2011). Both inventories can be found in Appendix 1 and 2, respectively.

3.3.1 Preparation

Before issuing the survey, we conducted a pilot-survey to a small sample of 10 people close in our network and asked for feedback on different topics such as wording or misunderstanding of items and questions, if anything was confusing or unclear, if the survey was perceived as too long etc. One item from the energy level facet of BFI-2, "is less active than other people", has been found to be less predictive of AWB items than the other energy-level items ("rarely feels excited or eager," "is full of energy," and "shows a lot of enthusiasm") (Margolis et al., 2019, p. 482). Interestingly, all respondents commented that the aforementioned "active"-question was confusing – participants were confused of whether they were to answer if they were physically active (in terms of exercise and training), or if the question was directed more towards whether one typically engage in different activities more generally in life (e.g., social activities, hobbies, etc.) Hence, in collaboration with our thesis-supervisor, who also happens to have translated the Norwegian version of the BFI-2, we decided to create an alternative formulation of the question "is less active than other people" in addition to the original item. We formulated the alternative statement to "har et lavere aktivitetsnivå enn de fleste" (would translate to "has a lower activity level than most" in English).

In addition, in the pilot-version, we also included the full D-FAW (not the short scale), as we initially intended to utilize the long-scale version. We received feedback that the survey was perceived as very lengthy and answering it resulted in fatigue and annoyance. This has also been reported as a challenge regarding measuring of affective well-being in the literature; several well-established questionnaires measuring AWB exists, but these are often too lengthy to use in organizational settings, proposing a dilemma; how to ensure that the measure comprehensively samples affect, without being prohibitively long (Van Katwyk et al., 2000; Watson et al., 1988; Warr, 1990, as cited in Russel & Daniels, 2018). After careful considerations based on feedback from the pilot-survey and the arguments from the literature, and the fact that shorter measures is beneficial in organizational research (Russel & Daniels, 2018), we decided to employ the Daniels Five Factor: Short-Scale to measure AWB. Finally, we chose an online

design that was the best fit for both answering on a mobile device and on a computer. A matrix-table was found to be the most suitable one after running a pilot on both our computer and mobile device (Bryman & Bell, 2011).

3.3.2 Introduction

The online survey was presented as a self-completion questionnaire (Bryman & Bell, 2011). At the beginning of the survey, respondents were presented with guidelines and general information about the research project. In the same overview, we emphasized that participation was both voluntary and anonymous and it was highlighted that the study was purely for research purposes.

3.3.3 The Big Five Inventory-2.

Further, respondents were presented with 9 different questions to assess personality. We used a Norwegian translation (Føllesdal & Soto, 2022) of the BFI-2, and employed items measuring two facets, of the extraversion-dimension, *energy-level and sociability* (See Appendix A). In addition, we also included the alternative formulation for the new activity-item related to the energy level facet. Participants were asked to indicate to which degree they agreed to different statements regarding personality. By using a 5-point Likert Scale, responses ranged from 1 ("Strongly disagree") to 5 ("Strongly agree").

3.3.4 Daniels Five Factor (D-FAW): Short-Scale.

Next, we measured AWB using the short scale of the Daniels Five Factor Inventory. In the short scale, each of the five dimensions consist of two items aimed to measure that dimension (See Appendix B). These short scale dimensions contained ten items to measure respondents' AWB in the open plan office and at the home office. We therefore included the short scale twice, one where respondents were to answers how they generally felt when working from home and one when working in the open office. The measure contained a 6-point Likert scale. Respondents were asked to rate their answers from 1 = Never to 6 = All the time.

3.3.5 The use of short scale rather than long scale to measure AWB

As mentioned, and previously discussed, we chose to utilize the short-scale D-FAW-version to measure AWB. Several well-established questionnaires available to assess AWB exists (Van Katwyk et al., 2000; Watson et al., 1988, as

cited in Russel & Daniels, 2018), but since contemporary organizational study designs require brevity, these are often too lengthy to use (Russel & Daniels, 2018, p. 1482). Well-being questionnaires are often met with a dilemma; how to ensure that the measure comprehensively samples affect, without being prohibitively long (Van Katwyk et al., 2000; Warr, 1990, as cited in Russel & Daniels, 2018).

We argue that the use of the short-scale measure was the right choice in this setting, seen as it was in an organizational setting, and because we employed the measure twice (once in the home office-setting, and once in an open-office setting). If we were to use the long scale, we would risk burdening respondents with answering 60 items measuring AWB (the long scale consists of a total of 30 items, and the measure is repeated twice). Further, as the items are identical in both settings, respondents could possibly experience "answering fatigue" or boredom when having to fill out identical questions twice (potentially resulting in respondents exiting the survey halfway).

We also considered an alternative approach; to utilize the long-scale version, but to exclude some dimension to shorten the measure while still capturing affective states more thoroughly. After all, researchers who assess AWB in organizational studies frequently extract single items of affect or devise piecemeal short scales to measure the isolated constructs they are interested in (Beal and Ghandour, 2011; Beal et al., 2006, 2013; Dockray et al., 2010; Elfering et al., 2005; Fisher et al., 2016; Ouweneel et al., 2012; Parkinson et al., 2016, as cited in Russel & Daniels, 2018, p. 1482). However, such an approach could entail excluding dimensions without necessarily considering how this approach impacts measurement protocols or whether items reflect the valence/activation balance of underlying affect structures. Such an approach is not seen in other fields and has been advised against by measurement theorists (Boyle, 1991; Kline, 1986; Stanton et al., 2002, as cited in Russel & Daniels, 2018, p. 1482). Taking these arguments into consideration, employing the short-scale seemed like the right decision.

3.4 Reliability and validity.

Both inventories used in the survey was chosen based on their validity, robustness, and reliability. Especially, the importance of acquiescence was an important factor when choosing the BFI-2 (John et al., 1991, as cited in Soto &

John, 2017). For the BFI-2; Føllesdal & Soto (2022, p. 12) assessed whether the good psychometric properties of scores from the original, English-language BFI-2 could be replicated with the Norwegian adaptation of BFI-2, and found support. Overall, the scores from the Norwegian BFI-2 showed very good structural validity and reliability (Føllesdal & Soto, 2022, p. 12).

Both the BFI-2 and D-FAW has been tested for their validity. In other words, both inventories measure what they intend to measure (Heale & Twycross, 2015). As for the focal instruction, we have chosen Level 1 for our survey when assessing the D-FAW, which is said to measure stable, trait-based affect (Russel & Daniels, 2018). Regarding reliability of the data, we conducted several reliability analyses to ensure a high degree of internal reliability. We will elaborate these results when presenting our findings. These tests were applied to address if there was consistency in the measurement that we applied to our concepts.

3.5 Response bias and faking.

Respondents could distort their answers by rating themselves in a way that is perceived as more positive and in a socially desirable way, as a way of faking on the personality assessment (Cooper, 2015, p. 234). When personality assessment is contextualized in a work-related environment, it has been suggested that participants may obtain a higher score compared to what they would score if the assessment was centered towards a general, non-contextualized situation (Robie, 2001). Nevertheless, the issue of faking may occur more often in relation to job applications, where applicants rate themselves in a way they perceive as to be socially desirable for the employer in hopes if increasing chances of being hired (Viswesvaran & Ones, 1999). Although our study is centered in a work-related context, it is less likely that participants would feel the need to extort their responses on the personality assessment in a more socially desirable way in this case, as the assessment is for research purposes rather than in an actual job-related assessment.

This challenge does not only occur during personality assessments. In measuring AWB, response bias can become an issue when participants rate constructs that differ in terms of the favorableness (Russel & Daniels, 2018). Response biases are usually directed towards responding favorably to questions

about feeling positive (e.g. happy, contented, joyful), and people are often less willing to admit to feeling angry, lonely or tormented (Gotlib and Meyer, 1986).

Furthermore, as extraversion often is perceived as a socially desirable trait, (Costa and McCrae, 1980; Steel et al., 2008; Blevins et al., 2022) we decided to not specify in the survey that we were measuring extraversion specifically (in fear that respondents might rate themselves inaccurately high and positive on the items measuring this trait). We only stated that we measured "personality", in more broad terms. In the instructions, we specified (directly translated); "Personality assessment - Here are some characteristics that to some extent can describe you. Please indicate the extent to which you agree or disagree with the statements". If we were to inform participants that extraversion was the trait to be measured, this might direct their answers towards higher ratings on items measuring extraversion, answering in a more sociably desirable manner than what is true.

PART 4: Data Analysis

For our data analysis we have used the statistical software platform SPSS. The first steps of the analysis were to export the datafile from Qualtrics to SPSS to clean the data (excluding responses with missing data cells and incomplete responses). When exporting the datafile to SPSS, the data was presented as words and sentences (string data). To further assess the data in relevant analysis, they were altered from words and text into numbers (numeric data). Some of the items in BFI-2 are reverse (where 1 = strongly agree; 5 = strongly disagree), meaning that we had to reverse score them (so that 1 = strongly disagree; 5 = strongly agree). In other words, it is the formulation of the measure that is reversed, which means that it describes a low score on that measure. The following items from the BFI-2 (specifically from the sociability and energy level facets) were reverse scored; "rarely feels excited or eager"; "tends to be quiet"; "is less active than other people"; "is sometimes shy and introverted", and finally our alternative formulation "has a lower activity level than most".

Moreover, we needed to conduct an exploratory factor analysis (EFA) twice with an oblique rotation (promax), one for home office and one for the open office for the D-FAW. The intention with the EFA was to reduce the number of variables to gain one factor for each of the utilized D-FAW measures (i.e., from the two different settings). We investigated what the best-fitting factor structure for the short-scale D-FAW would be. Specifically, we assessed whether the items would map onto two factors; a second-order solution of Positive Affect (PA) or Negative Activated Affect (NA), or rather as a one-factor model; a first-order single factor structure (Daniels, 2000, as cited in Russel & Daniels, 2018).

Furthermore, we conducted a reliability analysis and descriptive statistics to estimate the internal reliability. This was done to establish which of the "active"-items in BFI-2 was the most suitable to include in further analyses. Interestingly, the original item translation yielded the best reliability and Cronbach Alpha (CA), and so our suggested item was excluded from further analyses. We also conducted reliability tests for the BFI-2 and D-FAW to be thorough (although this might not have been necessary as they are well established measures), and all the items yielded good CA and internal reliability.

Next, the new latent variables that resulted from the factor analysis were used in an Independent Sample T-test. The t-test was conducted after dividing

both sociability and energy level into high (>.0) and low (<.0) scores, with a cut point = 0. We then compared the means of "AWB at the home office and sociability"; "AWB at the home office and energy level"; "AWB at the open office and sociability" and lastly "AWB at the open office and energy level. The T-test determined whether there was statistical evidence that the associated population means was significantly different to each other.

To further investigate our variables, we conducted several bivariate correlation analyses to explore the relationships between the variables to search for evidence that variation in one of the variables coincides with variation in another variable. This type of test is also used as a robustness test, to explore the possibility of multicollinearity. To explore the relationship, we conducted several intercorrelations among the variables using the Pearson product-moment correlation coefficient. These correlations provides information about the direction and strength of a relationship between a pair of variables (Pallant, 2013), as well as detecting multicollinearity among predictor variables (Field, 2009).

PART 5: Results

5.1 Descriptive Statistics

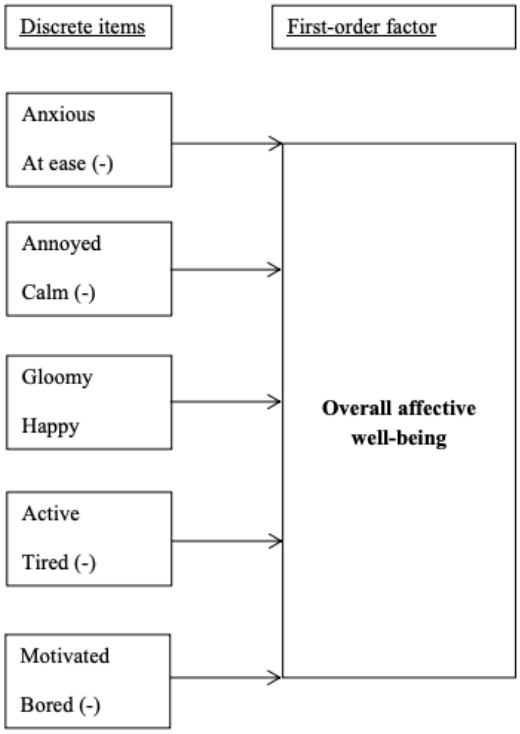
Means (*M*) and standard deviations (*SD*) reliability estimates (α), and intercorrelations among the variables are depicted in Table 2.

5.2 Exploratory Factor Analysis.

The factor matrix was constructed to one factor and resulted in both positive and negative estimates. By performing a principal axis factoring, we found measures that were (+) and (-). Thus, the measures could be represented in a two-dimensional circular space by two orthogonal factors labelled negative affect (-) and positive affect (+). Both factors constructed was comprised of 10 items reported on 6-point Likert scale. The factor analysis regarding home office explained 40.43 % of the variance with factor loadings from (-).641 to .801. While at the open plan office the factor analysis and factor 1 explained 35.08 % of the variance with factor loadings from (-).642 to .747.

After conducting an EFA (principal axis factoring) to investigate the best-fitting factor structure for the short-scale D-FAW, we created two new latent variables (one factor) which maps Positive Affect (PA) and Negative Affect (NA) on one dimension ("PANA") as exemplified in Figure 2 (from Russel & Daniels, 2018). In other words, a one-factor model, representing an overall single well-being factor (Berkman, 1971; Cropanzano et al., 2003; Wright and Staw, 1999, as cited in Russel & Daniels, 2018), and with a Level 1 focal instruction (Russel & Daniels, 2018) was found to yield the best-fitting factor structure for our analysis. Such a latent variable was created on both AWB at the home office and open plan office representing both Positive Affect (PA) and Negative Affect (NA) into a single factor structure.

Figure 2 *The first order single factor structure of Daniels Five-factor measures of affective well-being (D-FAW) (Russel & Daniels, 2018)*



5.3 Reliability analysis

Reliability analysis was used to estimate internal reliability. The Big-Five Inventory-2 (BFI-2) has been proven to contain a high degree of internal reliability (Soto & John, 2017).

Furthermore, as previously discussed, we tested an alternative formulation of the activity level in the energy level facet. Interestingly, the alternative formulation yielded a lower Cronbach´s alpha (α) than the original item; the original item, "is less active than other people"/ "er mindre aktiv enn andre" (α =.758), while the alternative item, "has a lower activity level than most"/ "har et lavere aktivitetsnivå enn de fleste" (α = .736), illustrating that the original item is the optimal one out of the two formulations, even though both items yielded acceptable CA scores. Based on these results, we decided to continue the analysis with the original BFI-2 energy level facet items sociability and energy level. The Sociability subscale consisted of 4 items (α = .801), and the Energy level subscale consisted of 4 items (α = .758), which indicates an acceptable Cronbach Alpha. The analysis gave indications that by deleting one item, the Cronbach Alpha would not differ considerably.

Additionally, Cronbach Alpha values were tested for the Daniels Five Factor Inventory consisting of 10 items. Both the D-FAW for home office (α = .865) and in the open office (α = .836) where found acceptable according to Nunnally (1978), which argues that the value of the Cronbach's alpha (α) should be minimum at the .7. Since the inventories all exceeded the .7 level, both measures were found to be highly reliable.

5.4 Independent Sample T-test

To further test our hypotheses an independent sampled t-test was performed to investigate the relationship between the two different facets and work settings in order to determine whether there is statistical evidence that the associated population means are significantly different from each other. By testing the different facets up against the different work settings, we found several positive significances for the different hypothesis.

Testing *HI*: *Individuals with a lower sociability score experience lower affective well-being when working in open plan offices compared to those with a higher score,* we divided the groups into high (>.0) and low (<.0) score on sociability. The respondents who scored a higher average level on sociability (*M* = 2.83, *SD* = .66) was compared to those with a lower average level on sociability (*M* = 2.43, *SD* = .56). Therefore, in the open office, AWB was higher for people with high score on Sociability (*M* = 2.83) compared to people with low scores (*M* = 2.43), and the difference was significant (*t*(226) =4.96, p = <.001), as illustrated in Figure 3.

Further, we tested *H2*: *Individuals with a lower energy level score experience lower affective well-being when working in open plan offices compared to those with a higher score.*, with the same grouping: high (>.0) and low (<.0) score on energy level. The respondents who scored a higher average level on energy level (*M* = 2.84, *SD* = .67) was compared to those with a lower average level on energy level (*M* = 2.40, *SD* = .54). Therefore, in the open office, AWB was higher for people with high score on Energy Level (*M* = 2.84) compared to people with low scores (*M* = 2.40), and the difference was significant (*t*(226) =5.41, p = <.001), as illustrated in Figure 4.

In regards of testing *H3*: *Individuals with lower sociability scores experience higher levels of affective well-being when telecommuting compared to those with higher sociability scores,* we used the same cut point when grouping

the different level of sociability: into high (>.0) and low (<.0) score on sociability. The respondents who scored a higher average level on sociability (*M* = 2.51, *SD* = .67) was compared to those with a lower average level on sociability (*M* = 2.71, *SD* = .76). At the home office, AWB was higher for people with low score on Sociability (*M*=2.71) compared to people with low scores (*M* = 2.51), and the difference was significant (*t*(226) = (-).216, p = .036), as illustrated in Figure 3.

Lastly, we tested *H4*: *Individuals with lower energy level scores experiences higher levels of affective well-being when telecommuting compared to those with higher energy level scores.*. with the same grouping: high (>.0) and low (<.0) score on energy level. The respondents who scored a higher average level on energy level (*M* = 2.56, *SD* = .65) was compared to those with a lower average level on energy level (*M* = 2.67, *SD* = .78). At the home office, AWB was higher for people with a low score on energy level (*M* = 2.67) compared to those with a high score (*M* = 2.56), the difference was however not significant (*t*(226) = (-)1.10, p = .n.s), The t-test result are illustrated in Figure 4.

Our result confirmed *H1*, *H2* and *H3* and rejected *H4*.

Figure 3 *Illustrating T-test Comparing affective well-being with a high and low level of Sociability*

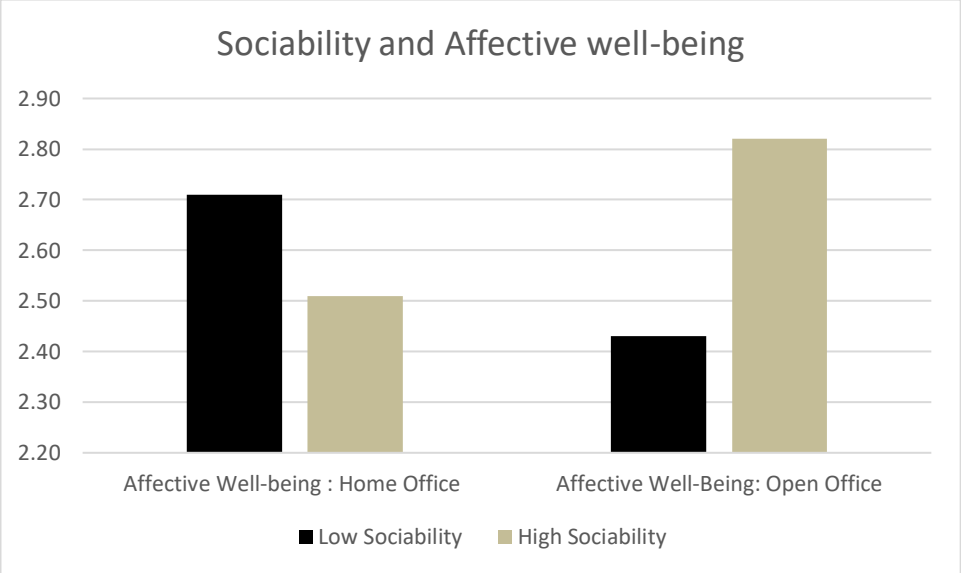
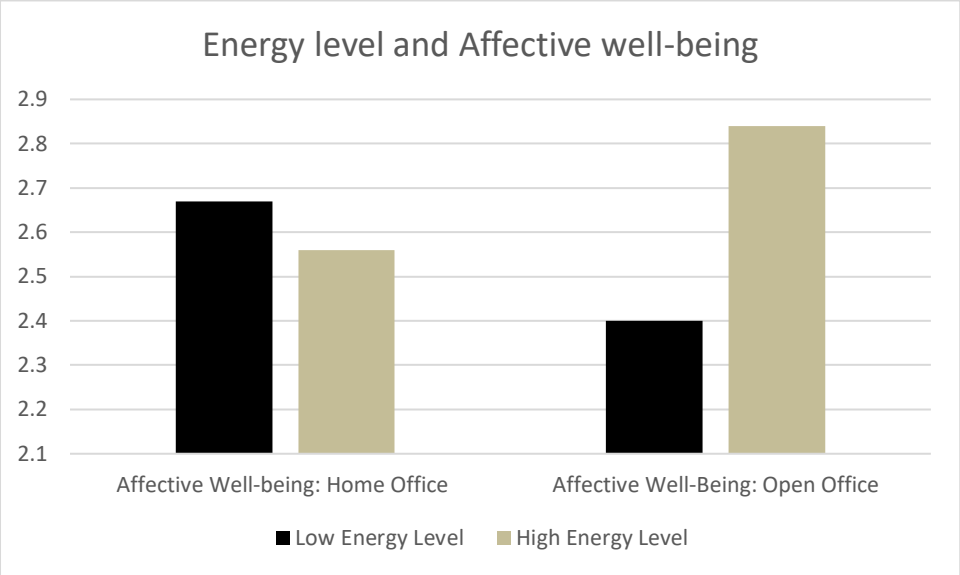


Figure 4 *Illustrating T-test Comparing affective well-being with a high and low level of Energy Level*



5.5 Correlation analysis: facets and affective well-Being in the open plan office

In the intercorrelation analysis there were no strong correlation exceeding .8 or .9 between the predictor variables, which could have indicated multicollinearity (Field, 2009). Therefore, this is not an issue in regards of our findings. The study aimed to explore whether the facets of sociability and energy-level were correlated with AWB in the open plan office. To test this relationship, three bivariate correlations analysis were employed. The facet of sociability and AWB in the open plan setting were significantly correlated, r =. 431, p <.01. The facet energy level and AWB in the open plan setting were significantly correlated, r = .461, p <.01, as presented in table 2 Both were expected to be positively correlated with open plan office in relation to the presented literature.

5.6 Correlation analysis: facets and affective well-being at the home office.

As for the latter intercorrelation analysis, we found no strong correlations exceeding .8 between the predictor variables, which would indicate that multicollinearity is not an issue (Field, 2009). The study aimed to explore whether the facets of sociability and energy-level were correlated with AWB at the home office. To test this relationship, a bivariate correlations analysis was employed. There was a negative correlation of .086 (p = n.s) between sociability and AWB at the home office. Additionally, there was a nonsignificant correlation of .011 (p = n.s) between energy-level and AWB at the home, as presented in table 2.

Table 2 *Descriptive Statistics & Intercorrelation: Sociability, Energy Level and Affective Well-Being*

Variables	M	SD	1	2	3	4
1 Energy level	2,35	.79	(.758)			
2 Sociability	2,55	.89	.706**	(.801)		
3 Open Office	3,99	.33	.461**	.431**	(.836)	
4 Home Office	3,96	.34	.011	(-).086	(-).015	(.865)

Note. N = 228. Chronbach Alpha displayed in parantheses. **p <. 01

1 = The facet Energy Level

2 = The Facet Sociability

3 = Affective Well-being at Open Office

4 = Affective Well-being at Home Office

PART 6: Discussion

The primary objective of this study was to gain better theoretical understanding of the relationship between extraversion, specifically the energy level and sociability facets, and AWB in a telecommuting- and an open plan office-setting. We yielded support for three out of four hypotheses. The following discussion will highlight our findings, how they relate to existing literature in the field and the implications they can have both in literature and in organizations.

The discussion will consist of three themes. One concerning the assumption that introverts experience lower AWB in the open plan office compared to extraverts; one concerning the assumption that introverts experience higher AWB compared to extraverts when telecommuting; and finally, a more general discussion covering the implications of our findings in an external context. The discussion will highlight our findings and its implications in the field of literature.

First, the discussion will focus on findings related to the open plan office – specifically concerning the assumption that introverts experience lower AWB in the open plan office compared to extraverts. Our hypotheses 1 (*Individuals with a lower sociability score experience lower affective well-being when working in open plan offices compared to those with a higher score.)* and 2 (*Individuals with a lower energy level score experience lower affective well-being when working in open plan offices compared to those with a higher score*) were aimed to investigate this assumption. As anticipated, we found support for both hypotheses. Specifically, both the sociability- and energy level-facet scores illustrate that extraverts experience higher AWB in the open plan office, whereas introverts experience lower AWB in the open plan office. This finding was largely in line with existing literature.

Building on H1 and the sociability facet. Our findings demonstrate that individuals with lower sociability scores experience lower AWB in open plan offices compared to those with higher sociability scores, as supported by literature. The open plan office environment provides a limited physical barrier between workers to encourage collaboration and both formal and informal spontaneous interactions (Haynes et al., 2017, p. 130). Extraverts often engage in social activities to a larger degree than introverts do (Lucas et al., 2008), and the sociability component is the very core of extraversion (Smillie et al., 2019). Open

offices act as an effective facilitator of spontaneous interactions (Openshaw, 2013; Cummings and Oldham 1997; Dunbar, 1995, as cited in Haynes et al., 2017). The high degree of social interactions occurring in open offices have also been found to expose employees to over-stimulation (Desor, 1972; Paulus, 1980, cited in Maher & von Hippel, 2005). These arguments from other studies might be part of an explanation concerning why individuals with low sociability were found to experience lower AWB in open office environments in our study. For individuals with low sociability scores, it seems logical that environments where large amounts of spontaneous social interactions occur can be experienced as distressing. This findding was anticipated based on the literature and previous studies.

Further, extraversion as a broad trait is generally associated with good mental health (Lamers et al., 2012), lower odds of social isolation (Whaite et al., 2018), and more active seeking of socio-emotional support (Volk et al., 2021). There has also been identified a robust, negative association between loneliness and extraversion, where the association is explained by the role of extraversion in contact-seeking (Buecker et al., 2020). It has also been found that extraversion correlates more strongly with positive affect than with negative affect (Costa & McCrae, 1980; Steel et al., 2008), and there even exists experimental research (a rarity in personality-research) supporting the link between extraversion and positive affect (Margolis et al., 2019, p. 478). In other words, extraversion is generally associated with positive affect, good mental health and other various positive outcomes. Thus, the finding that extraverts experience a higher degree of AWB when working in open-plan office environments is largely in line with the literature on the field.

Second, we build on H2 and the energy level facet, illustrating how individuals with lower energy level scores experience lower AWB when working in open plan offices than those with higher energy level scores do. Again, this finding is supported by literature. The open plan office can arguably be energy depleting in its nature. Open office environments often entail stimuli in the form of physical interruptions from co-workers and auditory interruptions caused by background noise (Haynes et al., 2017, p. 114). Noise has been identified as one of the variables in which open-plan office workers have least satisfaction (Frontczak et al., 2012; Hongisto et al., 2008; Pejtersen et al., 2006, as cited in

Haynes et al., 2017). Additionally, social interactions and noise contribute to exposing employees to over-stimulation in open offices (Desor, 1972; Paulus, 1980, as cited in Maher & von Hippel, 2005). When an individual's stimulation levels exceed a comfortable level, it usually evokes a negative response in regard to both behavior and attitude (Oldham, 1988; Paulus, 1980, as cited in Maher & von Hippel, 2005). Seen as introverts' level of cortical arousal typically exceeds their optimum level, this would make them more prone to seek environments that are less stimulating than those extraverts typically prefer (Eysenck, 1967, as cited in Geen, 1984). Based on this, working in open plan offices might thus be especially detrimental for introverts due to uncomfortably high levels of stimuli and cortical arousal. This assumption seem to be supported by our findings revealing introverts' lower AWB scores in open plan offices.

Our results also indicate that extraverts seem to experience working in open plan offices differently than introverts. Explanations could perhaps be found in the literature (although more research is needed to fully establish these relationships) (Langvik et al., 2021). Empirical evidence has confirmed that individuals vary as to how severely they experience the negative reactions from working in open plan offices (Wineman, 1986, as cited in Maher & von Hippel, 2005); some individuals are better suited to cope with the amount of stimulation that are found to appear in the open plan office environment than others. Since the open plan office-environment facilitates social interactions and noise pollution, and it has been suggested that individuals who thrive in social environments (i.e., extraverts) are to experience the open plan office layout differently than those who are less extraverted (Lindberg et al., 2018). As open plan offices often are characterized as being stimulating and busy, our findings might therefore support the notion that extraverts seek towards more stimulating environments to achieve their respective optimum level of cortical arousal (Eysenck, 1967 as cited in Geen, 1984). This can be reflected in higher AWB for extraverts in a stimulating environment such as the open plan office. This could contribute to explain the relationships we identified concerning both sociability and energy level, because open offices involve both social interaction and stimuli.

A discussion concerning the assumption that introverts experience higher AWB than extraverts when telecommuting will follow next.

Our hypotheses 3 (*Individuals with lower sociability scores experience higher levels of affective well-being when telecommuting compared to those with higher sociability scores)* was supported. Hypotheses 4 *(Individuals with lower energy level scores experiences higher levels of affective well-being when telecommuting compared to those with higher energy level scores.)* was not supported.

Building on Hypothesis 3 and the sociability facet, if given the flexibility and opportunity to do so, we hypothesize that introverts would perhaps choose to telecommute to a relatively high degree. This assumption is based on our findings, illustrating that this is the environment where they experience the highest degree of AWB, compared to when they work from the open plan office. Gajendran & Harrison (2007) propose that high-intensity telecommuters in general (i.e., regardless of personality) are likely to receive and perceive a greater sense of autonomy compared to low-intensity telecommuters. This is because they typically have more opportunities to exercise control over scheduling work for peak productivity times, exercising greater control over their availability to other organizational members, and therefore would be more able to manage interruptions to their work (Gajendran & Harrison, 2007, p. 1529). This could also be beneficial for extraverts, but it may have especially positive effects for introverts.

It is interesting to note that the finding that introverts experience higher AWB when telecommuting than extraverts do, both is in line and in contrast with previous literature. As mentioned, seen as extraverts tend to socialize to a larger degree than introverts typically prefer (Lucas et al., 2008) it is anticipated that compared to introverts, extraverts would experience lower AWB when telecommuting as it is a more anti-social work setting than the open office. In this sense, it is also logical to assume that introverts (especially those with low sociability) experience higher AWB than extraverts when working from home, simply because the telecommuting setting is less social. However, there are also arguments suggesting the contrary. Introversion (i.e., lower extraversion) has been associated with higher loneliness, depression and anxiety experienced as a function of COVID-19-related circumstantial changes. Additionally, some previous studies demonstrate that introversion is associated with more psychological problems in general (Janowsky, 2001; Jylha et al., 2009; Fadda and Scalas, 2016), and adjustment problems specifically (Pinder, 1977; Bauer and Liang, 2003; Löckenhoff et al., 2009; Robinson et al., 2010; Davidson et al.,

2015, as cited in Wei, 2020). In contrast, it has been found that extraversion correlates more strongly with positive affect than with negative affect (Costa & McCrae, 1980; Steel et al., 2008). These arguments might lead to the assumption that extraverts typically would experience higher affective well-being than introverts even regardless of setting, whereas introverts typically would experience lower affective well-being than extraverts regardless of setting. However, this notion is not supported by our hypotheses.

Our findings are quite interesting and deviates from what is popularly believed – that extraverts tend to be happier (seemingly, regardless of contexts). According to our findings, low sociability scores indicate that these individuals are happier than extraverts in more solitary surroundings. This implies that the context and level of sociability might play an important role as to where individuals experience higher AWB – we suggest that although extraverts generally experience more positive affect than introverts, they might not necessarily always experience more AWB regardless of context. This is also illustrated in Hypothesis 1, where we found that extraverts experience more well-being when working in an open office-environment, whereas introverts (individuals with low sociability scores) experience more AWB than extraverts do when working from home (according to Hypothesis 3). In other words, it seems like context matters.

On the other hand, our findings are also in line with other literature; for instance the suggestion that introversion is associated with a preference for less stimulating environments (Myers, 1962; Cattell, 1965; Eysenck, 1967; Hathaway, 1982; McCrae and Costa, 1999, as cited in Wei, 2020);, i.e., working from home. First, it may be highly convenient and comfortable for an introvert to have the opportunity to detach and disengage themselves socially from the workplace (to some extent) more effectively. When telecommuting, one would be able to separate oneself from the social environment to a greater extent than one would be able to do in an open office, where countless social interactions constantly occurs. Moreover, telecommuters also have greater autonomy to control the level of external stimuli compared to open office workers (Gajendran & Harrison, 2007, p. 1529). Second, telecommuting provides employees the autonomy necessary to alter their working environment in line with their preferences for lower levels of stimuli. For instance, working from home would typically involve a reduction in noise. Exceptions could of course be made, for instance if a telecommuter also has

a telecommuting partner/ spouse, if they have children at home demanding their attention, etc. Nonetheless, one can logically assume that open plan offices usually facilitate higher levels of noise than what one typically can expect to experience from home. Hence, the home office would logically seem like a work setting where introverts more effectively can conserve their energy through reducing stressors that typically would be involved in an open office.

Additionally, and again regardless of personality, high-intensity telecommuters also experience greater savings of time and energy through having to spend less time and energy to commute and transition to and from work compared to low-intensity telecommuters. This might result in more time and energy available to family responsibility and free time off work (Gajendran & Harrison, 2007, p. 1529). This would allow them to avoid the considerable amount of stimuli that can occur from open offices (noise, people, distractions, interruptions, etc). Furthermore, it could even allow them to avoid stimulating occurrences outside of work (although related to work), for instance the commute to and from the office. This is of relevance seen as public transport during rush hours undoubtedly could facilitate great amounts of cortical stimuli that can be especially detrimental to introverts (Eysenck, 1967, as cited in Geen, 1984). Avoiding this aspect of the workday entirely would assumably allow them to conserve their energy and resources more effectively, consequently allowing them to feel energized both through the workday and after work. This could possibly allow them to have a surplus of energy after work rather than a feeling of deficiency and energy depletion. In turn, this may allow individuals (especially introverts, assumably) to have a greater capacity to engage in quality time with their friends and families, and actually enjoy their free time rather than needing that time to recover after work.

These theoretical notions might be part of the explanations as to why introverts (low sociability) experience higher AWB than extraverts when telecommuting, whereas extraverts (high sociability and energy level) experience higher AWB than introverts when working in an open office landscape. Moreover, following is a more general discussion concerning implications of our findings in a wider context.

Our findings might also be of relevance in the light of selection and the nature of jobs. For jobs where employees are required to spend the majority (or all) of the time present in an open plan office, having extraverted employees can

possibly have a slight advantage. This is based on the assumption that AWB is considered to be the most important component of psychological well-being, due to its proven relationship with several workplace constructs like job satisfaction, job burnout, work–family conflict, occupational success and income (van Horn et al., 2004; Warr, 1990; Hofmann et al., 2014; Ilies et al., 2015, as cited in Russel & Daniels, 2018). As our findings demonstrate that those high on sociability and energy level experience more AWB in the open plan office compared to those with low scores, and if the job requires physical attendance in an open plan office, it can be argued that it would be beneficial and profitable to select extraverted employees. In contrast, if a job is solitary and unsocial in its nature, and/ or requires an extensive amount of telecommuting, then having employees with scores indicating introversion might be beneficial. This assumption can be built upon arguments from several authors.

First, the same argument as mentioned in the paragraph above, concerning the proven relationship between AWB and several positive organizational outcomes, as listed in the article of Russel and Daniels (2018). Other authors, like Hannay (2016, as cited in Meymandpour & Bagheri, 2017) mention that introverts likely would be more suited to telecommute than extraverts, because the social isolation involved with telecommuting fits the introverted personality. Meymandpour & Bagheri (2017) also found an interesting relationship between extraversion and telecommuting burnout – mainly that extraversion and telecommuting burnout had a positive relationship (the higher the degree of extraversion, the higher was the increase in telecommuting burnout), and that introversion had a negative relationship with telecommuting burnout (more introverted, decreased telecommuting burnout). Based on this, they imply that their findings might be of value to organizations so that they can match employees' personality, to their degree of telecommuting, to prevent or decrease burnout (p. 5). However, even though personality assessments are becoming increasingly popular in recruitment and selection processes, and we have stated that selecting for extraverted or introverted employees could be beneficial in some contexts (i.e., selecting introverts for jobs that are unsocial and solitary in their nature), we will be careful in suggesting exclusion of candidates exclusively based on their extraversion score in relation to physical work setting. A candidate for a job entailing full-time work in open plan offices might have slightly low scores on sociability and energy level facets (indicating lower AWB in open plan offices),

and excluding that candidate based only on extraversion score might be a little extreme and unnecessary.

Moreover, our findings might be of more importance as of how organizations can facilitate flexible working arrangements for their employees. If an organization decides to allow employees high-intensity telecommuting (allowing to work from home for most of/all of, the week) it might be valuable to implement some interventions to prohibit a decrease in interpersonal relationships between co-workers. Gajendran and Harrison (2007) offer some suggestions of interventions. One such intervention might be to designate one day a week as co-located, scheduling face-to-face meetings, working lunches, and informal social activities with the telecommuter's work group (Gajendran & Harrison, 2007, p. 1537). Allowing full flexibility for employees to choose the extent they wish to telecommute could allow for a great perception of autonomy and several positive outcomes both for the organization and the employee (Gajendran & Harrison, 2007; Meymandpour & Bagheri, 2017). Future research should investigate this further, but based on previous studies, we anticipate that it might be due to the home office typically being less stimulating than the open plan office, seen as introverts typically prefer less cortical arousal and lower levels of stimuli than extraverts (Eysenck, 1967, as cited in Wei, 2020). Other factors like increased autonomy, flexibility with other aspects in life, fewer disruptions etc. could also be investigated further.

However, allowing full flexibility could also propose negative consequences. It is possible and perhaps logical that employees would choose the working arrangement where they experience the highest AWB (hypothetically, that extraverts would choose to work full-time in the office while introverts may choose to telecommute full-time), and this may have negative consequences for interpersonal relationships between co-workers. When telecommuters spend the majority, versus a minority, of their scheduled time away from a central location, it crosses a psychological threshold; in a sense, creating two classes of employees in telecommuting arrangements. High-intensity telecommuters spend the majority (or all) of their workdays away from a central location, while low-intensity telecommuters spend the majority of their workdays at a central (conventional) location, working remotely for only 1 or 2 days a week. (Gajendran & Harrison, 2007, p. 1529). If given the flexibility to do so, presumably, individuals might be likely to choose the working arrangement that they enjoy the most or allow for

them to feel the greatest degree of AWB (although further research is needed to conclude). Building on this, it has also been suggested that in turn, this could be harmful for telecommuter's career prospects, as visibility at a central location is thought to be critical for outstanding performance evaluations, and such evaluations are pivotal for career success (O'Mahony & Barley, 1999 as cited in Gajendran & Harrison, 2007, p. 1527). Finally, this might result in introverts working from home experiencing less career opportunities than extraverts working at the office.

Therefore, based on our own findings and literature in the field, we would encourage organizations operating within open plan office-settings to allow employees to telecommute to *some* extent. As our findings demonstrate, those with high sociability and energy level scores experience more AWB in the open plan office than those with lower scores, whereas those with low sociability scores experience more AWB when working from home than those with high scores. We build upon our arguments by referring to Gajendran and Harrison (2007), who suggest several positive outcomes of telecommuting, while also stating that telecommuting for more than 2.5 days a week could harm relationships with coworkers. Therefore, allowing employees a moderate degree of telecommuting can allow full optimization of the positive benefits of telecommuting, without harming interpersonal relationships or damaging career prospects for employees involved in high-intensity telecommuting (p. 1525), and according to our own findings, resulting in higher AWB for employees.

PART 7: Conclusion

We found that individuals with lower scores on the sociability and energy level-facets experience lower affective well-being (AWB) in open plan offices compared to individuals with higher sociability and energy level-scores (in support of hypotheses 1 and 2). We also found that individuals with low sociability scores experience higher AWB when telecommuting than those with higher sociability scores (in support of hypothesis 3). We did not find support for hypothesis 4, stating that individuals with lower energy level scores experience lower AWB when telecommuting compared to those with higher scores.

Most interesting was the fact that introverts experience higher AWB than extraverts when working from home, as this finding is both in line with, and in contrast to, several studies. This finding may contribute to illustrate a more positive view of the introvert, seen as both societal ideals and the research literature tend to focus on the benefits and social desirability of extraversion, whereas introverts often are described in terms of more negative connotations. Contrary to this general belief, our studies illustrate that introverts actually experience higher AWB than extraverts when telecommuting. Considering that we also found that extraverts experience higher AWB than introverts in open plan offices, our findings indicate that certain situational or contextual factors also influence the degree of AWB for individuals (in addition to their extraversion-score). The connection between extraversion and preference for social situations, and introverts and preference for solitary situations has been suggested (and assumed), but as mentioned, research demonstrating these links have been scarce. We therefore sought to investigate this topic further and found both support for this assumption, and new findings concerning situational contexts, allowing us to hopefully make some valuable contributions to the research field on this topic. We hope our findings can inspire other researchers to explore the topic further, and that our findings are of relevance to organizations transitioning to new ways of working after COVID-19.

PART 8: Limitations, strengths, and future research

Our research faces some limitations, which will be discussed in the following paragraphs.

8.1 Sample size

One limitation to our study is the sample size. Initially we got a sample size of 340 respondents, but after conducting data cleaning and having to exclude 112 responses from the data material, we were left with a smaller sample size (N=228). This may result in insufficient statistical power (Pallant, 2013). Luckily, we were able to find statically significant relationships and the sample size was considered decent but having an even bigger sample would strengthen our study further and improve robustness.

8.2 Lack of generalization and internal validity.

Since we used convenience sampling to recruit participants, it cannot be stated that our findings are representative for a general population (Bryman & Bell, 2011). The data was conducted from a group of random individuals that have come across our survey after we posted it in different social media channels (LinkedIn, Facebook, etc.). Therefore, we cannot ensure that our findings can be representative for the general population.

Additionally, since we employed a cross-sectional design, we can only examine relationships between variables. Even though we have identified relationships between the variables, we cannot be certain if there is a causal relationship between them. We can only emphasize the relationships. Hence the problem of internal validity (Bryman & Bell, 2011). We therefore suggest that to better address causality, a longitudinal study might be suited in future research (Bryman & Bell, 2011).

8.3 Testing new formulation of activity question

As mentioned, we examined whether an alternative formulation of the activity-question would yield a better Cronbach alpha for the energy level-facet. The CA for both formulations were acceptable, however, our reliability analysis showed a better Chronbach Alpha for the original formulation compared to the alternative one. The reason for this could perhaps be an issue of semantics. Our alternative item was formulated as; “has a lower activity level than *most*”/ “har et

lavere aktivitetsnivå enn *de fleste*". This question yielded a lower CA than the original item ("is less active than others"). In retrospect, we reflect that we could have formulated our alternative question as "has a lower activity level than *others*"/ "har et lavere aktivitetsnivå enn *andre*". The formulation we chose might give negative connotations and could possibly result in respondents rating themselves in a more socially desirable manner, as they might be hesitant to rate themselves as less active than *most*, which is a stronger reference group than *others*. Further research could possibly investigate our suggested formulation ("has a lower activity level than *others*"/ "har et lavere aktivitetsnivå enn *andre*"), this might yield a better CA than we were able to demonstrate with our initial alternative formulation. The suggested formulation could perhaps provide even stronger relationships, or perhaps statistical significance on hypothesis 4, where we did not find statistically significant support as we predicted.

8.4 Exclusion of assertiveness from BFI2

A limitation of this study is that we only assessed two out of the three facets in the extraversion-dimension from the BFI-2. We have previously argued for the reasons for doing so, in short that sociability is considered the factor pure facet of extraversion (Soto and John, 2017a, as cited in Føllesdal & Soto, 2022, p. 1), and it being identified as a facet central to extraversion (Soto & John, 2008). Furthermore, we also included the energy level-facet because it has been found that the correlation between the energy level facet and well-being was solely responsible for the association between extraversion and well-being (Margolis et al., 2019). However, we have identified no studies arguing for assertiveness as central to AWB in open plan offices/ telecommuting, and we did not consider this facet as equally relevant to sociability and energy level in this setting. If we were to investigate for instance job performance or career advancement, assertiveness (being able to assert oneself) might be more central to investigate than for instance energy level, but we did not find it as relevant for our research question. Furthermore, if we were to include all three extraversion facets (investigating two physical settings) we would have produced six hypotheses, which would have been a little excessive and out of scope. Additionally, we only identified the facets separately and isolated to AWB. Based on these arguments, we only assessed sociability and energy level in this survey. Nonetheless, retrospectively, we reflect that investigating all three facets would have been ideal for an even more

thorough and exhaustive investigation of the extraversion dimension and its traits, and AWB. Therefore, we suggest that future research should investigate all facets of the dimension they are to study.

8.5 Measuring the other dimensions in the BFI-2

For future research, we would suggest researchers to conduct research including the other dimensions and facets of the BFI-2. This would highlight whether there are other personality dimensions/facets that could explain for whom the different office environments are best suited in regards of AWB. Our research has given a contribution that there might be more detailed explanations to an individual's personality trait and where one is most satisfied to work – either in the open plan office or at the home office. To our knowledge, the research on facets in different work settings are limited, as much research we have identified focus on the broad traits of the BFI-2. Further, we would suggest that future research on the topic should include all the 3 facets in the extraversion dimension. Our research included the facets sociability and energy level, excluding assertiveness. As mentioned, there are some arguments supporting our decisions to only focus on two facets (like shortening the survey, scope of assignment; we would perhaps need to produce 6 hypotheses to examine all three facets in the two physical work settings, etc.). We do however reflect that retrospectively; we would also include assertiveness in the survey if we were to do it again. Therefore, we suggest that future research investigates all the facets of the trait they will examine.

8.6 Different contexts

As our findings may indicate, it seems that certain situational or contextual factors present also influence the degree of AWB for individuals. Further research should investigate this phenomenon further; possibly investigate several situations that involve varying degrees of socializing, noise, and other stimuli to see if the tendencies found in our survey can be replicated in other (but similar) contexts, e.g., other social contexts.

PART 9: Practical implications

When considering the practical implications of our study, it is important to note that our findings are not generalizable as we have employed convenience sampling to recruit respondents to our survey (Bryman & Bell, 2011). Nonetheless, our findings are clear and consistent and much in line with theory and research on the field and might thus be of practical importance for organizations and individuals. We recommend that other (and more generalizable studies) investigate this topic further, as it would create a stronger foundation before discussing practical implications.

First, our findings may have practical implications for selection purposes. If a job is solitary and unsocial in its nature, then having an introverted employee might result in higher AWB at work for that individual, as our findings suggest (and also as suggested by other researchers like Meymandpour & Bagheri, 2017). This also applies for the opposite situation, where an organization that offer employees little flexibility regarding alternative work settings (meaning that employees would spend the majority or all of the time in an open plan office), extraverts would probably experience more AWB at work than introverts would, based on our findings. This might be of importance for organizations because AWB is considered to be the most important component of psychological well-being, due to its proven relationship with several workplace constructs like job satisfaction, job burnout, work–family conflict, occupational success and income (van Horn et al., 2004; Warr, 1990, Hofmann et al., 2014; Ilies et al., 2015, as cited in Russel & Daniels, 2018). Selecting employees based on personality and the nature of the job might thus result in higher AWB and in turn several positive organizational outcomes. However, it is important to note that one must be considerate when choosing exclusion criteria in selection processes, and we would advise organizations to be careful with excluding candidates simply based on their extraversion score.

We further suggest that our findings would be of relevance for organizations establishing flexible working arrangements for their employees. Based on our own findings and literature in the field, we would encourage organizations operating within open plan office-settings to allow employees to telecommute to *some* extent. As our findings demonstrate, those with high sociability and energy level scores experience more AWB in the open plan office than those with lower scores, whereas those with low sociability scores

experience more AWB when working from home than those with high scores. We build upon our arguments by referring to Gajendran and Harrison (2007), who suggest several positive outcomes of telecommuting, while also stating that telecommuting for more than 2.5 days a week could harm relationships with coworkers. Therefore, allowing employees a moderate degree of telecommuting can allow full optimization of the positive benefits of telecommuting, without harming interpersonal relationships or damaging career prospects for employees involved in high-intensity telecommuting (p. 1525), and according to our own findings, resulting in higher AWB for employees.

Finally, we hope that our findings are of relevance to organizations, hopefully resulting in new flexible working arrangements benefitting all employees, regardless of their extraversion score.

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Appendix

Survey Inventories

Appendix A, The Big Five Inventory-2 (BFI-2)

Soto & John (2017)

Extraversion

Sociability items

Tends to be quiet (R) (Norwegian = Tendens til å være stillferdig)

Is talkative (Norwegian = er pratsom)

Is outgoing, sociable (Norwegian = er utadvedt, social)

Is sometimes shy, introverted (R) (Kan være sjenert, innadvendt)

Energy Level items

Is full of energy (Norwegian = er full av energi)

Shows a lot of enthusiasm (Norwegian = viser mye entusiasme)

Rarely feels excited or eager (R) (Norwegian = Blir sjeldent begeistrert eller ivirg)

Is less active than other people (R) (Norwegian = er mindre aktiv en andre mennesker)

	Svært enig (1)	Litt enig (2)	Nøytral (3)	Litt uenig (4)	Svært uenig (5)
Er utadvendt, sosial (1)	○	○	○	○	○
Blir sjeldent begeistret eller ivrig (2)	○	○	○	○	○
Har en tendens til å være stillferdig (3)	○	○	○	○	○
Er mindre aktiv enn andre mennesker (4)	○	○	○	○	○
Kan være sjenert, innadvendt (5)	○	○	○	○	○
Er full av energi (6)	○	○	○	○	○
Er pratsom (7)	○	○	○	○	○
Viser mye entusiasme (8)	○	○	○	○	○
Har et lavere aktivitetsnivå enn de fleste (9)	○	○	○	○	○

Model 1: *BFI-2 Inventory Survey*

Appendix B, Daniels Five Factor: 10-item Short-Scale.

Russel and Daniels (***2019)***

Norwegian	English
Glad	Happy
Bekvem	At ease
Rolig	Calm
Motivert	Motivated
Aktiv	Active
Trist	Gloomy
Engstelig	Anxious
Irritert	Annoyed
Kjed (kjedet seg)	Bored
Trett	Tired

	Hele tiden (1)	Mesteparten av tiden (2)	Mye av tiden (3)	En del av tiden (4)	Av og til (5)	Aldri (6)
Glad (1)	○	○	○	○	○	○
Trist (2)	○	○	○	○	○	○
Bekvem (3)	○	○	○	○	○	○
Engstelig (4)	○	○	○	○	○	○
Irritert (5)	○	○	○	○	○	○
Rolig (6)	○	○	○	○	○	○
Motivert (7)	○	○	○	○	○	○
Kjed (Kjedet seg) (8)	○	○	○	○	○	○
Trett (9)	○	○	○	○	○	○
Aktiv (10)	○	○	○	○	○	○

Model 2: *Daniels Short Scale Affective Well-being Inventory*