THE SOCIAL FUNCTION OF EMOTIONAL CONTAGION: AN EXAMINATION OF THE ROLE OF IMPLICIT SOCIAL GOALS IN EMOTIONAL CROSSOVER.

By

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ABSTRACT

Emotions have a fundamental influence on core organizational phenomena ranging from team performance to psychological wellbeing. Findings from multiple independent research streams supports the notion that emotions can spread contagious between individuals, altering their behavior in important ways. Despite the importance of understanding the social spread of emotions, existing knowledge is limited in three core ways: (1) current understanding of emotional contagion does not adequately account for contextual influences on the spread of emotions, (2) existing theoretical work does not well-explain how emotional contagion can influence complex social behavior, and (3) research has not effectively examined differences in the role of different discrete emotions in the contagion process. To address these issues, this thesis integrates the social functional perspective of emotions with work on social perceptions and emotional contagion to propose and test theoretical predictions related to how contextual characteristics influence individuals' underlying social goals, which in turn are tied to the manner in which emotions spread between individuals. These predictions were testing in a daily diary study based on 82 participants. Results of the study suggest that the spread of different emotions has important associations with workplace behaviors, and are moderated by social perceptions, individual differences, and the context of coworker interactions. The results of this thesis provide a strong foundation for improving future work in relation to both theory and practice.

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INTRODUCTION

Every aspect of work is touched by the influence of emotions. Individuals' emotional experiences shape the most important organizational outcomes, from performance and citizenship behaviors to employee stress and organizational climate (Barsade & Gibson, 2007). Because the impact of emotions is so pervasive at work, understanding factors that influence employees' day-to-day emotional experiences is crucial for organizational success. One way to understand how these experiences are shaped is to examine how emotions are transmitted through interpersonal processes. A wide range of literature suggests that emotional experiences primarily relate to the social domain and serve to help individuals quickly respond to interpersonal events (Ekman, 1992; Keltner & Haidt, 1999). The function of emotions at work is fundamentally social and tied to how employees interact with one another. Understanding interpersonal influences is a powerful pathway for revealing how emotions impact individuals in social settings such as the workplace.

Emotions in organizations can function much like fire – in some cases spreading comfort and warmth while in other circumstances causing damage and pain (Vijayalakshmi & Bhattacharyya, 2012). An individual's emotions continually spread to other individuals via the process of emotional contagion (Hatfield et al., 1993). Several mechanisms have been proposed to explain emotional contagion, such as unconscious mimicry (Hatfield et al., 1992), social comparison (Barsade, 2002), and social appraisal (Parkinson & Simons, 2009). Via these processes, both positive and negative emotions spread rapidly between individuals at work (Barsade et al., 2018). Contagion functions as a type of interpersonal influence that alters how individuals feel and behave in social groups (Elfenbein, 2014). The spread of emotions between employees is one of the most important things for an organization to manage, due to the

widespread impact of these emotions on individuals' behaviors (Vijayalakshmi & Bhattacharyya, 2012). Emotional contagion can change an entire group's level of engagement and cooperation by impacting the group's positive and negative emotional states (Barsade, 2002). As a result, the crossover of emotions between individuals can be detrimental or beneficial for organizations. For instance, passion spreads from entrepreneurs to their employees during new endeavors, which can motivate and unify startup companies (Cardon, 2008). Research on teams also has long recognized that work groups tend to experience a convergence in affect over time, which can influence how willing members are to engage in organizational citizenship behaviors (OCBs) and how well the team performs (Tanghe et al., 2010). Other aspects of work, such as leadership, are driven by interpersonal emotional influences. The affect of a leader spreads contagiously to their followers (Johnson, 2008), and the emotions expressed by a leader can alter the way in which employees work (Li et al., 2020). Given empirical findings that the spread of emotions plays an important role in the functioning of organizations, it is of critical importance to understand exactly how and why certain emotions may spread between employees through the interpersonal processes.

Despite the importance of understanding social influences on emotions, certain gaps in our understanding of emotional contagion process exist, which limit our understanding of how emotions will spread between individuals. First, current research does not adequately account for how the social context may influence the contagion process. In contrast to the mimicry process where individuals catch one another's emotions, some research indicates that individuals may also diverge emotionally during a social interaction, experiencing 'counter contagion' (for a review, see Barsade et al., 2018). Importantly, research demonstrating counter contagion has found that this effect is driven by the nature of the social context. Weisbuch and Ambady (2008) found that individuals experienced counter contagion when viewing emotional expressions from others who belonged to a different social group (e.g., different political party affiliations). In addition, evidence also suggests that the relational context (such as prior friendship between individuals) influences both how individuals experience and perceive emotions (Fischer & van Kleef, 2010). For example, Van Kleef & Côté (2007) found that participant reactions to anger during negotiations differ based on information about the negotiation partner's relative status. Participants would punish lower status individuals for inappropriate anger while conceding more to higher status individuals displaying inappropriate anger. This indicates how social information, such as an interaction partner's status, can alter the meaning and consequences of emotions. Unfortunately, contagion researchers have had limited success in integrating the social information with the contagion process, with many existing studies resulting in mixed or weak findings (Hatfield et al., 2014). This may be partially because the majority of the empirical research on contagion relies on experimental designs, which inherently cannot account for preexisting relationships between the interaction partners that may serve as a rich source of social information (Fischer & van Kleef, 2010). Additionally, the lack of clear theoretical frameworks to characterize the social context makes it difficult to predict how social information will impact the contagion process. Current emotional contagion theories do not offer specific predictions as to how and when the context may alter the contagion process. As a result, our ability to understand the spread of emotions in real-world settings is limited.

Second, empirical findings suggest that existing characterizations of the mechanisms underlying the emotional contagion may be too simplistic. For instance, research that burnout and turnover intentions may spread contagiously between work team members (Bakker et al., 2005). Emotional contagion has also been shown to be involved in the spread of work-family

conflict issues from one worker to another (Baral & Sampath, 2019). Experiences of burnout, decision to turnover, and reports of work-family conflict are complex, multi-faceted, phenomena. The spread of these experiences between coworkers seems unlikely to be explained by the shortlived mimicry of emotional reactions. Understanding emotional contagion processes at a deeper level would allow a more nuanced assessment of how the spread of emotions may give rise to the crossover of complex experiences between coworkers.

Lastly, existing research has yielded conflicting findings relating to how different discrete emotions may spread. Researchers have suggested that negative emotions should spread more powerfully than positive emotions, however empirical findings have offered contradictory results in this area (cf. Barsade et al., 2018). For example, Barsade (2002) found no general difference between the spread of positive and negative affect, while other work suggests that emotions spread more for positive moods (e.g., Totterdell, 2000), or that groups are more likely to converge towards negative moods (e.g., Bartel & Saavedra 2000). Empirical findings also suggest that discrete emotions with different activation levels differ in how easily they spread between individuals. Results concerning the effect of the arousal level of the emotion on the ease of its spread are mixed, with some studies finding no effect of activation on emotional contagion (Barsade, 2002). Other research has indicated that low-activation emotions such as sadness do not easily spread contagiously (Eyre et al., 2017), while work by Christakis and Fowler (2013) found different results. These contradictory findings in this area suggest that underlying moderating factors may be at play. Clarifying why different emotions might spread differently between individuals would offer new insights to inform how and when employees may affect one another emotionally.

To address these gaps, the current study draws on the social functional perspective to better understand the emotional contagion process. Functionalist accounts of emotions recognize that an individual's emotional experiences serve different purposes depending on the individual's current goals and the conditions present in the individual's immediate context (Campos et al., 1994). This view highlights that emotions primarily serve an interpersonal function for individuals to aid them in navigating the social world (Ekman, 1992; Fischer & Manstead, 2008; Fischer & van Kleef, 2010). Social functionalist perspectives provide insights into how social information can alter an individual's underlying social goals, which would likely impact how the emotional contagion process may unfold. Such a view helps explain why seemingly simple interpersonal interactions can give rise to complex outcomes, and why some discrete emotions may be more contagious than others depending on the context. This perspective offers a potential theoretical lens to explain and integrate the existing discrepant findings concerning the emotional contagion process. Empirical work to directly test the process suggested by the social functional perspective can further inform us about the spread of emotions between individuals.

This study examines a possible mechanism by which aspects of the social environment may give rise to predictable differences in emotional contagion based on social functional theories. The paper first integrates research on emotional contagion, social functional emotions, and implicit social motives into a unified framework. This framework is then used to directly guide the development of hypotheses related to understanding how variations in the social environment may activate different underlying social motives, which in turn may have implications for the way in which emotions spread interpersonally. To test these hypotheses, a daily diary study (Bolger et al., 2003) is utilized to examine how multiple discrete emotions may be transmitted from one individual to another within work contexts. The argument that the social

information gives rise to different underlying social motives is examined using an implicit association test (IAT). Types of social information are examined as mediated moderators of the emotional contagion, via their effect on implicit social motives. Additionally, how different mediums of communication impact emotional contagion, and the way in which contagion then impacts work relationships are examined.

This work yields substantial theoretical and practical contributions. The research advances the emotional contagion literature by examining how the spread of emotions depends on the social functions of emotions. Such information aids researchers in understanding how contextual information alters the social role of emotions, and how this process might give rise to important outcomes. By testing how the social context may have implications for the spread of specific emotions during daily interactions, this study helps to clarify when and why certain emotions may be expected to spread powerfully between coworkers. From an organizational point of view, this work could help establish a clearer picture of what factors can change the spread of emotions in the workplace. By providing a clearer picture of the emotional contagion process, major steps could be made towards accurately predicting the positive and negative effects that emotional contagion will have in the workplace.

LITERATURE REVIEW

Emotions

Emotions can be thought of as distinct physiological and cognitive responses to events (Frijda, 1986). These responses are reactions to various stimuli that an individual encounters and influence an individual's subsequent thoughts and actions. Emotions result as individuals automatically appraise the meaning of events around them (Lazarus & Folkman, 1984). Appraisals are tied to what an event may imply for an individual's wellbeing, and how the individual may be able to respond to such an event (Smith & Lazarus, 1993). For instance, one may experience joy when receiving a promotion because that event is appraised as beneficial to their future well-being. Discrete emotions are distinct from other types of affect, such as mood and disposition. Mood reflects the more stable and enduring tendencies in how individuals feel (Barsade & Gibson, 2007). Individuals also differ in their trait level tendencies towards positive and negative affect across different settings (Watson et al., 1988). In contrast, discrete emotions operate in a shorter time span and reflect specific responses to stimuli that an individual encounters (Frijda, 1986). Importantly, in such views of emotions, it is an individuals' appraisal of an event, rather than the event itself, that leads directly to a given emotion (Roseman, 1991). As a result, the same event may cause two different individuals to react in different ways if they each appraise that event differently.

Discrete emotions each reflect certain types of meaning. For example, grief can be thought of as a response to an event that signals a nonrecoverable loss, such as the death of a loved one (Smith & Lazarus, 1993). Each emotion can be thought of as an adaptive set of reactions that aid individuals in handling different events that they may encounter in the environment (Ekman, 1992). For instance, fear is a set of responses that aid individuals in

avoiding potential dangers. Despite having unique appraisal patterns, emotions can be compared along certain fundamental dimensions. Emotional experiences can be classified as varying along dimensions of valence (pleasant-unpleasant) and activation (high-low arousal; Russell, 1980). For instance, feelings of relaxation and excitement are both pleasant in terms of valence but are opposite to one another in terms of activation (Barsade & Gibson, 2007). Differences along these dimensions lead to different experiences and expressions of emotions. Emotions also differ in the extent to which they are culturally unique or universal human experiences (Ekman & Keltner, 1997). A considerable body of literature suggests that cultures all around the world recognize anger, joy, fear, sadness, and disgust as distinct emotions which represent unique experiences (Ekman 1992). In contrast, other emotional experiences such as jealousy or love are often viewed as being influenced by cultural factors with drive their expression. These more basic emotions are argued to be fundamental aspects of human experience.

Different emotions can each have specific effects on individuals (Ekman, 1992). For example, although positive emotions are generally viewed as leading to positive organizational outcomes, not all discrete positive emotions have the same effects (Diener et al., 2020). Experiences of awe have different effects than experiences of happiness, even though both are generally categorized as positive emotions. For instance, Rudd et al. (2012) found evidence that awe was capable of changing individual's perception of time such participants felt they had more time available in their lives. On the negative end, conceptually similar emotions such as anger and contempt can involve very different goals and intents, with anger often serving to change another person's behavior to be more desirable while contempt serves to push an individual out of one's life (Fischer & Roseman, 2007). In light of such findings, it is important to conduct research that allows for comparisons of discrete emotions rather than simply reducing them to

positive and negative distinctions. For the purposes of this study, I will focus on several discrete emotions- happiness, sadness, anxiety, anger, and calmness. This selection allows for the comparison of emotions that differ in terms of both activation (sadness and anxiety) and valence (happiness and sadness) which represent fundamental differences of pleasantness and arousal level (Russell, 1980). Additionally, most of the emotions selected (with the exception of calmness which serves as a low-activation positive emotion) parallel universal basic human emotions of joy, sadness, fear, and anger (Ekman, 1992). With this emphasis on discrete emotions, more complex questions regarding interpersonal emotional influences can be examined.

Emotional Contagion

Research on the spread of emotions first focused on the role of unconscious social mimicry, described as primitive emotional contagion (Hatfield et al., 1993). Primitive emotional contagion refers to the finding that individuals tend to unconsciously mimic the facial expressions, vocal tones, postures, and other behaviors of those around them (Hatfield et al., 1992). Even brief exposure to emotional facial expressions leads to automatic mimicry of those expressions (Hess & Blairy, 2001). This mimicry leads to a general convergence in emotions between individuals as they interact, due to the connection between these physical displays and emotional states. The way individuals interpret, and expression (Strack et al., 1988), providing a clear explanation of how primitive emotional contagion occurs. Evolutionary perspectives suggest that mimicry serves an adaptive social bonding function (Lakin et al., 2003) and that it can serve as an unconscious social affiliation strategy (Cheng & Chartrand, 2003), suggesting emotional contagion may have evolved to serve an important social function. A wide range of

empirical work supports a linkage between mimicry and the spread of emotions between individuals (cf. Hatfield et al., 2014), suggesting that one primary way in which individuals are influenced by one another emotionally is through witnessing, and then mimicking, the behaviors of other individuals.

Extending early research on primitive emotional contagion, other mechanisms have been proposed to explain the contagion process. Evidence suggests that emotions spread between individuals interacting solely using text in online social media platforms (Ferrara & Yang, 2015; Goldenberg & Gross, 2019), implying contagion can occur without mimicry. One proposed explanation for these findings is that exposure to emotion-laden stimuli, such as text with a particular emotional tone, results in the priming of a set of related emotional responses (Peters & Kashima, 2015). Niedenthal et al. (2009) found evidence that even simple emotional stimuli (e.g., the word 'joy') can elicit the activation of an entire set of concepts and physical reactions (e.g., contraction of muscles used in smiling) as a result. These researchers proposed that individual's emotional experiences are embodied in context-specific reactions to the environment. Other work suggests that the complex effects of priming can be understood as the result of simple stimulus unconsciously activating a larger conceptual set of cognitions and behaviors (Bargh, 2006). In light of such perspectives, some current contagion researchers propose that interactions can activate a conceptual emotional category, which in turn makes one more likely to experience emotions within that category (Goldenberg & Gross, 2020). This activation, then leads individuals to become more similar to whatever emotions they are exposed to in the environment.

Contagion researchers have also proposed that factors related to how individuals compare and interpret the emotions of those around them may play a role in the contagion process. Social

comparison has been suggested as a more conscious process by which individuals compare their emotions to those displayed by individuals around them and adjust their emotions to be more similar to those around them (Sullins, 1991; Barsade, 2002). Similarly, work on social referencing suggests that individuals use the emotional expressions of those around them to gauge how to act and feel in a certain situation (Clément, & Dukes, 2017). As a result, individuals have the tendency to adjust how they feel based on the observed displays of individuals around them. This process can occur in a more conscious way (Barsade, 2002) however some work suggests that social comparisons also can exert unconscious influences on individuals (Stapel & Blanton, 2004). Elfenbein (2014) suggested that emotional contagion findings can be explained as the result of situations that enable individuals to have a shared perspective and proposed an integrated framework of 'affective linkages' between individuals. Individuals can experience such shared perspective in different ways, such as reaching similar emotional states from having similar experiences to another individual, or from actively seeking to understand another's emotional state. This can occur as individuals engage in processes such as 'social sensemaking' and seek to understand events using social information (Maitlis et al., 2013). All of these social processes then result in increased similarity between individuals' emotions.

Some researchers argue that the spread of emotions between individuals relies on social appraisal (Parkinson & Simons, 2009). These perspectives build on appraisal theories of emotions (Smith & Lazarus, 1993), which suggest that emotions result from appraisals of how one's relationship to the environment may impact an individual's wellbeing, and what responses to the environment are available to that individual. More recent research suggests that individuals use social information to calibrate these appraisals (Bruder et al., 2014). Thus, the emotional

displays of others can alter the appraisal process, leading to interpersonal emotional effects. It is difficult to disentangle appraisal effects from emotional contagion processes and researchers often propose that dual contagion and appraisal systems operate simultaneously (Parkinson & Simons, 2009; Bruder et al., 2014), leading to convergence in emotions between individuals. Although some researchers make firm distinctions between appraisal and contagion processes, for the purposes of this work we will broadly view all these mechanisms as different processes by which emotions can have a contagious social influence.

Taken together, emotional contagion is a multifaceted process that can occur via several mechanisms (Barsade et al., 2018). The mechanisms discussed above highlight the diverse ways which individuals constantly are subject to social influences on their emotional states. These processes have been found to lead individuals who interact with each other to converge in their emotional experiences over time. Emotional contagion seems to occur in all social contexts and organizations are no exception. Emotions spread constantly within the workplace between employees as they interact (Vijayalakshmi & Bhattacharyya, 2012). It is likely that when an individual at work interacts with a coworker who is experiencing emotions, they will converge towards the same emotions as their coworker through the mimicry, the social comparison process, and/or the appraisal process. In particular, when individuals interact in ways in which they can observe each other, mimicry will lead to emotional contagion (Hatfield et al., 2014). In cases where individuals are exposed to emotion-related information, they will be primed to experience the emotions signaled by that information (Peters & Kashima, 2015). Additionally, in most social settings, individuals will compare and adjust their emotions to be more similar to those of individuals around them (Sullins, 1991; Barsade, 2002), and will appraise how to respond emotionally to situations by referencing social information (Bruder et al., 2014). For the

purposes of this study, it is hypothesized that these mechanisms will work in conjunction to lead individuals to converge with their coworkers along the emotions that they perceive their coworker to be displaying. Therefore, I propose the following hypothesis:

Hypothesis 1: Perceived coworker (a) happiness, (b) sadness, (c) anxiety, (d) anger, and

(e) calmness will positively relate to participant (a) happiness, (b) sadness, (c) anxiety,

(d) anger and (e) calmness.

Given that many proposed mechanisms for contagion posit that emotions must be observable to have a contagion effect, as in the case of facial expressions (Hatfield et al., 1992), it is likely that how easy an emotion is to detect will influence how it spreads between individuals. For instance, Neal and Chartrand (2011) found that Botox injections reduced the ability of participants to perceive the emotions of others due to a reduction on their ability to facially mimic the emotions of others. Emotions differ in terms of the levels of arousal, or activation, that the emotions involve (Russell, 1980). Emotions have consistent patterns of associated facial muscle contraction (Ekman, 1999), which tend to be more pronounced for high activation (e.g., anger) versus lower activation emotions (e.g., calmness). The mind also appears to be especially sensitive to processing high activation emotional expressions, compared to lower activation ones (Balconi & Pozzoli, 2009). Previous work examining aspects of activation in relation to emotional contagion had yielded mixed results. Barsade (2002) found no difference in emotional contagion between broad categories of high vs low activation affect. Other research has indicated that low-activation emotions such as sadness may not spread between individuals to the extent that other emotions do (Eyre et al., 2017). In contrast, work by Christakis and Fowler (2013) suggested that sadness may spread quickly within social networks. Previous work has not explicitly compared several discrete emotions within the contagion context (Barsade,

2002), but has instead focused on more general categories of affect or have taken broader social network views (Christakis & Fowler, 2013; Eyre et al., 2017). These approaches may be less precise when evaluating the extent to which activation may affect the emotional contagion. Moreover, because contagion is impacted by how expressively emotions are displayed (Sullins, 1991), it is likely that coworker's emotions will be easier to be caught by a focal employee when the emotions are clearly perceived by that focal employee. As a result, I propose that a more explicit comparison of discrete emotions during social interactions may reveal the expected effect of higher versus lower activation emotions in the following manner:

Hypothesis 2: Relationships between perceived coworker high activation emotions (i.e., happiness, anger, and anxiety) and participant high activation emotions will be stronger compared to relationships between perceived coworker low activation emotions (sadness and calmness) and participant low activation emotions.

Daily experiences of emotional contagion may have an important influence on the way that coworkers treat one another during work interactions. Coworker interactions are important within organizations; perceived coworker support or antagonism often has equal or greater effects as leadership on factors such as performance, job involvement, and job satisfaction (Chiaburu & Harrison, 2008), making these behavioral effects of contagion important for organizations to understand. Positive emotions are tied to social aspects of work and have an impact on teamwork, leadership, and relationships at work (Diener et al., 2020). The spread of positive emotions within a team can increase the number of cooperative behaviors individuals engage in (Barsade, 2002) and experiencing positive emotions may lead to more positive interactions between employees in general (McGrath et al., 2017). Positive emotions are likely to lead to increased organizational citizenship behaviors (Spector & Fox, 2002). The level of

positive emotions an individual experiences in a given day predicts how likely they are to engage in prosocial behaviors the following day (Snippe et al., 2018). Positive emotions and prosocial behaviors appear to have a reciprocal relationship. Engaging in citizenship behaviors increases positive emotions (Koopman et al., 2016), and the experience of positive affect increases the ability of employees to engage in prosocial behaviors (Demerouti et al., 2015). As an extension, it is likely that as positive emotions spread between coworkers on a daily basis, this will lead to an increase in prosocial behaviors directed towards coworkers.

Hypothesis 3: Emotional contagion of positive emotions from a coworker will positively relate to prosocial behaviors.

Conversely, it is likely that the spread of negative emotions will lead to increases in negative social behaviors, such as counterproductive work behaviors (Spector & Fox, 2002). Negative emotions have several negative social consequences. Individuals exhibiting negative emotions such as depression or anger are more likely to be viewed negatively by others on average (Graham et al., 2008). Tse et al. (2013) found that feelings of contempt lead employees to perceive decreased reception of help from their coworkers when the employee had a different level of leader-member exchange quality from their coworker. General negative affectivity is associated with a stronger relationship between stressors and counterproductive work behaviors (Penny & Spector, 2005) and states of negative emotions also mediate the relationship between social stressors at work and counterproductive behaviors on a daily basis (Yang & Diefendorff, 2009). As a result, I predict that the spread of negative emotions between employees will lead to an increase in the person-directed counterproductive work behaviors engaged in by workers.

Hypothesis 4: Emotional contagion of negative emotions from a coworker will positively relate to counterproductive work behaviors.

Emotional contagion is a nuanced process, and a deeper understanding of why and when individuals will affect one another emotionally is necessary. Many of the mechanisms suggested to result in emotional contagion are proposed to be both evolutionarily adaptive (e.g., Lakin et al., 2003) and context-dependent (e.g., Niedenthal et al., 2009). Emotional experiences must be understood in relation to a rich social context because emotions mainly function in relation to social stimuli (Fischer & van Kleef, 2010). Given such perspectives, the lack of a clear framework regarding how the context may impact emotional contagion is a major gap in the literature. Such a theoretical framework could help resolve conflicting findings regarding how social information alters the contagion process. Social information seems to be capable of causing individuals to experience opposing, rather than congruent, emotions in certain interactions (Weisbuch & Ambady, 2008; Epstude & Mussweiler, 2009), which violates the normal assumptions about contagion. Current research does not offer a clear explanation for when and why social information might lead to such effects (Hatfield et al., 2014). Perhaps due to these situational effects, findings are also mixed regarding how different emotions spread between individuals, with current research unable to predict when certain emotions will be more contagious than others (cf. Barsade et al., 2018). Additionally, the emotional interactions that individuals experience seem to lead to the spread of complicated phenomenon including burnout and commitment (Jung & Yoon, 2019) and work-family conflict (Baral & Sampath, 2019). Because of these gaps in the literature, theoretical advances in understanding the adaptive, context dependent, role of emotional contagion are necessary.

Social-Functional Emotions

To address gaps in our understanding of emotional contagion, it is important to understand the underlying purpose that emotions serve (Smith & Lazarus, 1993). Social functionalist theories of emotions suggest that emotions must be understood in relation to what purpose they are serving for an individual as they interact with their environment (Campos et al., 1994). These perspectives emphasize that emotions serve an adaptive social function in the lives of individuals (Ekman, 1992; Fischer & Manstead, 2008). Social functional views of emotion suggest that emotional responses flow from underlying goals held by an individual (Campos et al., 1994). For instance, during social interactions, a person's emotions generally help them to affiliate or distance from other individuals (Fischer & Manstead, 2008). Emotions are used by individuals to navigate the social context. They can function automatically as means of identifying who is part of one's social group, and as information about the intent of others (Keltner & Haidt, 1999). This information implies that aspects of the social context should reliably produce certain patterns of emotional responses in individuals as they use their emotions to serve social purposes.

Emotions serve to help individuals achieve their underlying social goals and needs. Infants use their emotional expressions to form a close attachment with their mother (Suomi, 2008) and a primary function of emotional experiences in close relationships is to help bond individuals close to their friends and partners (Clark et al., 2004). Emotions can also serve underlying goals that push people apart. Disgust, for example, appears to function as a motivation for distancing oneself from contagious people by causing one to avoid individuals who appear to be potentially ill (Schaller & Park, 2011). Anger also often functions to maintain one's power relative to others to pressure other's into acting in a certain manner (Fischer &

Manstead, 2008). Social emotions result from the motives and goals an individual has in relation to another person (Fischer & Van Kleef, 2010). For instance, emotions function differently in cooperative versus competitive settings (Van Kleef et al., 2010). Expressing happiness in a cooperative context may signal that one is open to social interaction, yet happiness in a competitive setting may be interpreted as threatening (Totterdell, 2000). As a consequence, emotions must be understood in relation to the underlying motives held by an individual.

The social functional view of emotions suggests that the social context will impact the way in which individuals experience emotions. Further, the effect of the social context is in part explained by how information drawn from the social context may affect an individual's underlying goals (Fischer & Van Kleef, 2010). Given that all emotional experiences are tied to their functions (Campos et al., 1994), it is reasonable to assume that the emotional contagion process is fundamentally tied to these basic aspects of emotional experience as well. Emotional contagion mechanisms, such as facial mimicry, have been connected to social affiliative goals (e.g., Lakin et al., 2003) and mechanisms such as social comparison are especially likely to be influenced by contextual factors. For example, if emotional contagion is a social comparative process (Sullins, 1991), then emotional contagion must be understood in terms of social information (e.g., characteristics of the comparison individual) in which these comparisons occur. Integrating the social functional view allows emotional contagion to be viewed as a process that is influenced by social information and individual's social goals.

The social functionalist perspective explicitly assumes the way in which emotions are experienced depends on the context (Campos et al., 1994), making it an ideal perspective for developing a clearer view of how the social context will impact emotional contagion. At the most basic level, emotions aid individuals in moving themselves either closer or further away from

other individuals in a relational sense (Fischer & Manstead, 2008; Fischer & Van Kleef, 2010). Any contextual information that alters what function an emotion is serving will likely impact the emotional contagion process. Emotions function differently when information about group identity is made salient by the social information available (Keltner & Haidt, 1999). For instance, research suggests individuals have a social 'behavioral immune system' evolved to aid individuals in avoiding infections and diseases (Schaller & Park, 2011). Because diseases were often transmitted via contact with outgroup members over the course of human evolution, individuals have evolved to experience disgust and fear responses more easily when initially encountering individuals who have appear to be from a different group (Faulkner et al., 2004). Notably these researchers found that such an effect was amplified when contextual information made a goal of avoiding illness more salient for individuals.

Counter contagion findings are more clearly understood in terms of social functions and the social context. Counter contagion refers to a type of affective divergence, where exposure to another person's emotions leads to the experience of emotions along the opposing end of the affective circumplex (e.g., happiness or excitement in reaction to anger or sadness). When viewing emotions displayed by people from a different race or political party, individuals tend to experience reactions opposite to that person, such as feeling happiness when the observed individual is displaying signs of fear (Weisbuch & Ambady, 2008). Individuals will mimic the negative expressions of ingroup members but not outgroup members (Bourgeois & Hess, 2008), perhaps because although negative emotions are unpleasant, they can serve to bond individuals in relationships closer together and therefore can serve an adaptive social bonding function in some cases (Fischer & Manstead, 2008). At a basic level, emotions will spread differently between individuals based on how contextual information impacts the social motives of an

individual. Certain aspects of the social context, such as group identity, will likely have a consistent effect on extent to which an individual experiences emotional contagion as a result.

Social functional accounts also provide insight into how brief emotional interactions can lead to more complicated outcomes for individuals. Emotional processes interact with the social world such that, depending on the context, the behaviors and emotions displayed by others can convey drastically different information (Fischer & van Kleef, 2010). For instance, Kuppens et al. (2004) found that the relational context heavily impacted how individuals responded to anger displays. Factors such as previous relationship (e.g., liking) and differences in status led to individuals performing prosocial bonding behaviors in some cases, while being more confrontational in other cases. Even short interactions can convey a rich set of social information, and that information varies in relation to the context (Fischer & Van Kleef, 2010). In addition to well-documented contagion effects, emotionally charged interactions between individuals also convey a significant amount of information. Individuals typically use such information to inform how they evaluate, feel about, and act in the social world (Van Kleef et al., 2009). A number of contextual factors influence these interpretations, such as the perceived appropriateness and the authenticity of the emotional display (Van Kleef et al., 2012). In general, the presence of others influences the way in which individuals interpret their surroundings. For example, individuals tend to evaluate a product differently depending on who they are with when using that product (Ramanathan & McGill, 2007), suggesting that they use social information to calibrate their experiences.

Tying findings about the use of social information to emotional contagion could also help explain the complex interpersonal outcomes that appear to spread contagiously between individuals. Findings linking contagion to outcomes such as work-family conflict (Baral &

Sampath, 2019) to team engagement (Torrente et al., 2013) are difficult to explain fully using existing mechanisms of emotional contagion. Perspectives on the social function of emotion suggest that emotions relate context-specific information about other individuals (Fischer & Van Kleef, 2010), which may be useful for understanding these more complex contagion findings. Research suggests that general emotional displays of others serve as signals of an individual's underlying motives and goals (Van Kleef et al., 2012). Such signals occur alongside emotional contagion, as individual's thought processes are affected both by observing other individuals, and by experiencing emotions similar to those individuals (Van Kleef, 2009). Research on social appraisal and social referencing suggests that individuals constantly use social information to construct a shared social reality (Clément & Dukes, 2017). For instance, individuals interpret the emotions of one person using the reactions of other nearby individuals (Mumenthaler & Sander, 2012). Just as emotions spread between individuals, so do appraisals of the social world (Parkinson & Simons, 2009). Such a phenomenon could explain how outcomes such as burnout can spread contagiously (Bakker et al., 2005; Jung & Yoon, 2019) due to the fact the interactions which generate emotional contagion also transmit information that influences one's interpretation of the social world. The information and goals associated with emotions likely lead to more complex contagion outcomes, yet the details of these process are not clear. Previous work suggests that emotions transmit information about goals and intentions (Van Kleef et al., 2012). By furthering our understanding of how social goals operate, this research could provide evidence regarding how context-specific goals relate to emotional contagion. Evidence of such goals would advance understanding of how complex information is associated with emotions.

Existing research has highlighted several relational factors that are likely to impact the social goals of an individual, which in turn will influence emotional contagion. The current

research will examine the role of perceived status, group membership, and general liking of the interaction partner as the critical contextual cues that may affect the emotional contagion process. An individual's status has well-documented consequences for interpersonal behavior. Observers unconsciously mimic high-status interaction partners to a greater degree than lowstatus partners (Cheng & Chartrand, 2003). Lansu et al. (2014) found that adolescents automatically pay more attention (i.e., gaze duration) to high status peers, controlling for liking, attractiveness, and gender effects. One reason for this higher attention is an implicit desire to affiliate with higher status individuals (Cheng & Chartrand, 2003), which appears to be a natural function of increased facial mimicry (Lakin et al., 2003). Status impacts the function of emotions, with high-status individuals being more likely to express emotions (e.g., anger) to maintain interpersonal power (Fischer & Manstead, 2008). Status also plays a role in how individuals perceive emotional displays. Anger displayed by high status individuals is more likely to be interpreted as signals of competence than by low-status individuals (Tiedens, 2001), and can trigger concessions and avoidance during negotiations (Van Kleef & Côté, 2007). Overall, research suggests that individuals respond differently to those of higher status than them - both by reacting to the emotions of high-status individuals differently (e.g., being more agreeable to demands made by high-status individuals) and by mimicking their emotions to a larger extent. As a result, it is likely that a coworker with a higher perceived status will increase the contagion of emotions to the focal employee, because employees have increased affiliative goals towards higher status individuals.

How individuals perceive the emotions of others is closely tied to their perceptions of group membership and social identity (Elfenbein & Ambady, 2002). One of the primary functions of emotions is to help individuals navigate group identities, bonding individuals closer

to in-group members (Keltner & Haidt, 1999) and distancing individuals emotionally from the dangers posed by outgroup members (Schaller & Park, 2011). Individuals appear to mimic outgroup members to a lesser extent than ingroup members (Bourgeois & Hess, 2008) and are also better able to perceive the emotions of ingroup members (Elfenbein & Ambady, 2002). Group membership has been connected to emotional contagion in a wide range of research (cf. Hess & Fischer, 2013; Hatfield et al., 2014; Barsade et al., 2018). Such literature suggests that individuals will tend to experience greater emotional contagion from ingroup members, while experiencing either no contagion or counter contagion from outgroup members. Extending such literature, this project will focus on the role of perceived similarity of an interaction partner as a critical contextual factor that may in part explain the group membership effect. Current research has used somewhat simple operationalizations of group identity, such as defining groups based on race or political party (e.g., Weisbuch & Ambady, 2008) when examining how in- versus outgroup status may affect contagion process. However, individuals' evaluations of group identity are likely more nuanced. Group membership perceptions are based on the extent to which individuals perceive that they share a social identity with group members (Ashforth & Mael, 1989). As a result, individuals constantly evaluate the extent to which they perceive themselves to be in the same social categories as other individuals (Haslam et al., 2004). Perceptions of similarity are tied to shared social identity (Tanis & Postmes, 2005), making similarity an effective proxy for measuring the extent to which individuals perceive other to share a group membership with them. In the current study, perceived similarity is proposed to enhance the emotional contagion effect, due to the fact that shared group membership increases individual's affiliative motives.

Lastly, perceiving other individuals favorably (i.e., liking) may increase the spread of emotions between individuals. Liking is associated with mechanisms of emotional contagion in a similar manner to status and group membership. For instance, prior liking of an individual is associated with greater mimicry of that individual (Stel et al., 2010). Additionally, research suggests that liking towards another individual makes it more likely that individuals will try to reconcile with one another after damaging their relationship by interacting in an angry manner (Kuppens et al., 2004). Emotions are thought to serve an affiliative function between individuals which share mutual liking, as in the case of friendships (Fischer & Manstead, 2008). These findings suggest that liking will function to increase the way extent of emotional contagion between individuals by increasing affiliative social goas. Higher perceptions of liking, status, and similarity will then all lead to a stronger emotional contagion effect between perceived coworker emotions and participant's emotions. This moderating effect is highlighted in hypothesis 4:

Hypothesis 5: Higher perceived coworker (a) status, (b) similarity, and (c) likability, will accentuate the positive relationships between perceived coworker emotions and participant emotions.

Implicit Social Goals

The social functional view's implications regarding the influence on the social context on the functioning of emotions provides a potential explanation for several gaps within the emotional contagion literature. Although numerous studies support social functional predictions regarding the role of the context (cf. Keltner & Haidt, 1999; Fischer & Manstead, 2010), the existing literature is less clear regarding how changes in the functioning of emotions actually occur. Social functional perspectives typically infer that an emotion is serving a particular purpose based on how a given emotional experience impacts the relational, behavioral, and

cognitive outcomes of an individual (Keltner & Haidt, 1999; Fischer & Manstead, 2008). For example, the observed emotional convergence between dating couples over time (Anderson et al., 2003) is viewed as evidence that the function of emotions within this context is to affiliate the two individuals (Fischer & Manstead, 2008). Although the social goals of an individual are proposed to play a role in how emotional experiences function (Campos et al., 1994), the mechanism by which the context gives rise to such goals is not entirely clear. Given that many contextual factors, such as status, appear to be processed automatically (Cheng & Chartrand, 2003), it seems likely that the goals generated by information regarding the social context will primarily operate at the unconscious level. To clarify how the context elicits different functions of emotions, this research draws on research regarding implicit social goals and motives to propose that the social context gives rise to basic unconscious social motives, which represent the activation of different emotional functions.

Prior research supports this view by indicating that implicit social goals influence the interpersonal functioning of emotions. Unconscious mimicry of emotions appears to occur as a way in which to help individual more quickly bond socially with one another (Lakin et al., 2003). Individuals unconsciously increase or decrease their mimicry of others based on factors such as status (Cheng & Chartrand, 2003) and group membership (Bourgeois & Hess, 2008). Gable (2006) found evidence that individuals' feelings such as loneliness are impacted by their underlying motives to approach or avoid others. Changes in social motives induced by the presence of either a friend or a stranger can impact how individuals react to stories (Jakobs et al., 1999). Importantly, implicit social motives have an impact on individual's psychological processes and can vary based on the situation. Maner et al. (2005) found that the context could give rise to certain social goals, which in turn influenced individual's social perceptions. For

example, these researchers found that inducing fear in participants lead to an implicit selfprotective motive. Participants with higher self-protective motives were then more likely to interpret outgroup individuals as displaying anger, illustrating the role that implicit motivations can have in how people understand emotions. Different motives related to the types of emotions individuals desire to feel may influence how social factors impact emotional experiences (Goldenberg et al., 2020). Collectively, this research suggests that contextual factors are related to unconscious goals which in turn are connected to how individuals experience emotions.

Given that the most basic role of emotions is to affiliate or distance individuals (Fischer & Manstead, 2008; Fischer & Van Kleef, 2010), the current research will examine how these basic functions may be represented at the implicit level. Previous work has suggested that individuals can have implicit social approach or avoidance goals relative to other individuals (Gable, 2006). I propose that the presence of implicit approach or avoidance social goals mirrors the activation of a social affiliation or social distancing function, respectively. McCall and Singer (2015) found evidence that individuals had increased motivations to approach individuals when they were perceived as fairer, demonstrating how contextual factors can give rise to such implicit goals. Active approach or avoidance goals can influence how individuals perceive the faces of others, such that the presence of an avoidance goal makes individuals more likely to evaluate a face as being associated with negative descriptors (unpleasant, unfriendly) while approach goals have the opposite effect (Woud et al., 2008). Perspectives on social approach and avoidance motivations suggest that they function to help individuals balance competing needs to affiliate with others and avoid negative social outcomes (Nikitin & Freund, 2008). Research on the role and existence of implicit approach and avoidance goals serve as a compelling mechanism for explaining aspects of the social functional perspective. When individuals have an active desire to

affiliate with others based on social circumstance, I propose that this affiliative desire exists as an implicit social approach goal. This implicit motivation will in turn strengthen the emotional contagion between two individuals, because affiliation is tied to emotional convergence (Fischer & Manstead, 2008). As a result, differences in social factors (e.g., group identity) between social partners will elicit goals in an individual that relate to that specific partner. Thus, as interaction partners change, so does the relational context within which the individual is operating. By extension, this means that the active social function or goal of one's emotional depends on this relational context. Hypotheses 6 describes the proposed way in which implicit social goals relate influence how the social context relates to emotional contagion.

Hypothesis 6: Implicit social affiliation goals will moderate the positive relationship between the perceived coworker emotions and participant emotions, such that higher levels of implicit affiliative goals will accentuate the positive relationship between perceived coworker emotions and participant emotions.

Fitting with the earlier discussion of social functional emotions, implicit social goals are proposed to be the pathway through which the social context influences the emotional contagion process. Information in the social domain that signals the desirability to avoid or approach another individual is especially salient to observers, such as if a person may have violent tendencies (Wentura et al., 2000). Social contextual information about factors such as status, similarity, and liking are all proposed to impact emotional contagion based on how such information alters the underlying implicit social goals of an individual. Status can impact the perception and experience of emotions (Fischer & Manstead, 2008), and individuals unconsciously try to affiliate with higher status individuals (Cheng & Chartrand, 2003). Group identity can deeply impact the nature of emotional spread (Weisbuch & Ambady, 2008) and

group identity is closely tied to perceptions of similarity (Ashforth & Mael, 1989). Likability also influences mimicry (Stel et al., 2010) and relationships involving liking are tied to affiliation (Fischer & Manstead, 2008). Each of these proposed contextual factors represent social characteristics that should elicit affiliative implicit goals when they are present at high levels. Hypothesis 7 describes the proposed moderated mediation of the context and social goals on emotional contagion:

Hypothesis 7: Implicit social affiliation goals will mediate the moderating effect of perceived (a) status, (b) similarity, and (c) liking on the relationship between perceived coworker emotions and participant emotions. Specifically, higher perceived coworker status, similarity, and likability will be positively related to implicit social affiliation goal, which in turn will accentuate the positive relationships between perceived coworker emotions and participant emotions.

The social functional perspective suggests that certain circumstances will cause a counter contagion effect. In interactions where one individual has a social distancing goal in relation to another individual, it is likely they will react differently to the emotions of that individual (Fischer & Manstead, 2008). Previous studies have found circumstances where witnessing emotional displays can cause observers to experience different emotions (e.g., opposite along the affective circumplex), however research on counter contagion is still nascent (cf. Barsade et al., 2018). Distancing purposes of emotions involve creating relational space between two individuals (Fischer & Van Kleef, 2010). For instance, contempt can be used to permanently exclude unwanted individuals from one's social circle (Fischer & Roseman, 2007). Emotional contagion research suggests that factors such as group membership (Weisbuch & Ambady, 2002) and interaction context (Totterdell, 2000) can alter how social interaction influences emotions by

changing the underlying function of emotions within that interaction (Fischer & Van Kleef, 2010). As discussed above, this social distancing function likely mirrors the presence of implicit social avoidance goals. Avoidance social goals help protect, individuals from potential social risks and dangers functioning in an opposite manner to the affiliative role of approach social goals (Nikitin & Freund, 2008).

Just as high levels of certain social characteristics (in this case, liking, status, and similarity) can lead to implicit approach goals, low levels of these characteristics likely lead to lower or negative approach goals. Counter-contagion has been observed for perceived as members of an outgroup (Fischer & Manstead, 2008; Weisbuch & Ambady, 2008) making it likely that low levels of perceived similarity will give rise to increased implicit distancing goals. Less research has been done in relation to low levels of status and likeability, but they may have similar effects. For status, research on peer groups indicates that adolescents with lower levels of perceived social status are more likely to be avoided socially by others (Coie et al., 1990; Crick & Ladd, 1993) and mimicry is also decreased when viewing an individual known to be of low status (Massen et al., 2015), making it likely that social information signaling lower social status may increase implicit distancing goals. In relation to liking, what research does exist in this area indicates that dislike is associated with decreased perceptions of social closeness and increased loneliness (Betts & Stiller, 2014), making it reasonable to conclude that low levels of liking may also lead to increases in distancing goals for participants. Fitting with this research, I propose that counter contagion occurs when the social cues (e.g., a dislikeable colleague) leads to low or even negative social approach goals towards that individual, thus inhibiting the contagion of emotions displayed by that individual, or even leading to a reversal of the contagion effect.

Beyond the Contextual Factors: Individual Differences in Emotional Contagion

Research on emotional contagion has identified certain individual differences as important moderators of the contagion effect. Individuals are generally proposed to differ in their susceptibility to emotional contagion (Doherty, 1997; Siebert et al, 2007). Early research focused on demographic variables and suggested that women may be more susceptible to emotional contagion than men are, however findings have been mixed with some studies findings no gender differences (Barsade et al., 2018). Some researchers suggest that individual traits such as emotional intelligence and personality factors including extraversion and agreeableness drive these differences (Vijayalakshmi & Bhattacharyya, 2012). Susceptibility to emotional contagion relates to individual differences in how attentive a person is to others, and how likely they are to use emotions as a source of information (Affective orientation) when interacting with others (Doherty, 1997). Illies et al. (2007) found evidence that team members with more collectivistic tendencies were more likely to converge with their team emotionally, suggesting that perceptions of interrelation with others may increase susceptibility to emotional contagion. Trait levels of positive affect are associated with greater susceptibility to the contagion of negative emotions, while the opposite pattern holds for trait negative affect (Barsade et al., 2018).

Among the different individual differences variables that have been linked to emotional contagion, empathy has consistently been identified as one of the most important moderators. The role of empathy fits nicely with both research on social functional goals and research on mechanisms of emotional contagion. Susceptibility to emotional contagion is associated with empathy (Doherty, 1997; Barsade et al., 2018), and factors that reduce empathy seem to inhibit the emotional contagion process. Although empathy can vary by situation (Nezlek et al., 2001), trait empathy seems especially important in the emotional contagion context. Higher trait

empathy leads to greater mimicry of facial expressions (Sonnby-Borgström et al., 2003) and increases the likelihood that more complex phenomenon such as work engagement will spread between individuals (Bakker et al., 2009). Higher trait empathy could also be viewed as a factor that is associated with affiliative goals towards other individuals. Research suggests that empathy serves motivations to affiliate and socialize (Zaki, 2014). Empathy allows individuals to both recognize and respond adaptively to the emotions of others (Elfenbein, 2014), making it an important tool for individuals to bond with others. Given that research has implicated empathy both in relation to affiliation social goals and in relation to emotional contagion mechanisms, I propose that empathy moderates the emotional contagion process in the following manner:

Hypothesis 8: Higher participant trait empathy will accentuate the positive relationship between perceived coworker emotions and participant emotions.

Discrete Emotions

The role of different discrete emotions in the contagion process is poorly understood. A wide range of research suggests that humans have an innate negativity bias, predisposing them to be more sensitive to negative emotions and information (Rozin & Royzman, 2001) which would suggest that individuals would be more likely to converge toward negative, rather than positive, emotions. Despite this, empirical work on emotional contagion has yielded divergent findings on differences in the strength of the emotional contagion effect based on the valence of the emotions. For instance, Barsade (2002) found no significant differences between how powerfully negative affect and positive affect spread within a group. Totterdell (2000) found evidence that professional cricket players only converge towards their teammates' positive emotions when happy. He suggested that this served as evidence for positive emotions being more contagious. Still other studies indicate that groups are more likely to converge towards negative moods

(Bartel & Saavedra 2000). Social functional perspectives that suggest emotions within affiliative contexts serve mainly to bond individuals closer together (Fischer & Manstead, 2008). In line with these perspectives, it is likely that social goals will also impact which discrete emotions will spread between individuals.

As noted earlier, existing research has often focused simple on valence (positive vs negative) of emotion (e.g., Barsade, 2002) or on a specific state such as being angry or happy (e.g., Cheshin et al., 2011), leading researchers to call for more comprehensive comparisons of differing discrete emotions in contagion (Barsade et al., 2018). Despite this, existing research has been varied regarding the relative effects of different emotions in contagion (Cf. Barsade et al., 2018 for a review). Given the lack of understanding of how discrete emotions may function in relation to implicit goals and emotional contagion, this study also conducts exploratory comparisons to explore unique differences in how each of the included discrete emotions may function. In light of the above research, this study explores the role of discrete or aggregated emotions. Second, this study examines how discrete emotions function differently from one another.

Research Question 1: Do discrete emotions fit the data when modelling emotional contagion better than positive-negative aggregation?

Research Question 2: Do discrete emotions function differently from one another, and do these differences depend on implicit social goals and social perceptions?

Technology

Workplaces increasingly use various forms computer mediated communication (CMC) technologies to interact (McFarland & Ployhart, 2015), and this trend has been rapidly
accelerated by the COVID-19 pandemic (Brynjolfsson et al., 2020). Given the prevalence of such interaction tools in the workplace, it is important to understand how CMC may have implications for the emotional contagion process. An increasing body of research suggests that emotions not only spread in digital setting, but that they spread rapidly (Goldenberg & Gross, 2020). Research on digital social networks suggests that individuals converge emotionally with those they interact with in online settings (Ferrera & Yang, 2015). Some forms of CMC clearly restrict certain emotional contagion mechanisms such as facial mimicry (as in the case of textbased interaction), yet it seems clear that emotional contagion still occurs in online setting (Goldenberg & Gross, 2020). Given such findings, it appears that mechanisms such as categorical activation (Peters & Kashima, 2015; Niedenthal et al., 2009) or social comparison (Sullins, 1991; Barsade, 2002) may be sufficient to trigger the emotional contagion process. Given that individuals at work are increasingly interacting using CMC (McFarland & Ployhart, 2015) and recent trends suggest that this will accelerate, it will be important to understand how technology will affect emotional contagion.

While evidence suggests that emotions spread across various types of CMC communication, current research is inconclusive regarding how CMC may impact emotional contagion. Some researchers suggest that the human negativity bias (Rozin, & Royzman, 2001) is enhanced in online contexts, making interactions using digital technologies especially prone to negative information and interactions such as workplace cyberbullying (Vranjes et al., 2017). Findings from Fan et al. (2016) support this proposition by demonstrating that anger can spread more quickly through social media than positive emotions. Other research casts doubt on these claims however, suggesting that positive emotions may be more likely than negative emotions to result from online interaction (Goldenberg & Gross, 2020). A second problem with predicting

how emotions will spread via CMC is that individuals may use information differently in these contexts. For instance, in email interactions, individuals may pay less attention to the sender's known characteristics and more attention to cues such as a capitalization and message length (Byron & Baldridge, 2005). Other work suggests that because text-based communication allows for greater self-presentation (e.g., masking unacceptable emotions) than in person interactions might allow, individuals actively try to infer the sender's emotions from other cues (Cheshin et al., 2011). For instance, their results suggest that resolute behaviors suggested in email (e.g., being inflexible on a decisions) are viewed as signs of anger, while more flexible behaviors are viewed as suggesting happiness. Individuals seems to pull a wide variety of cues from different types of CMC communication, which in turn impact how they perceive the emotional contagion process. In an effort to advance research in this area, this project treats the effects of CMC in an exploratory manner.

Research Question 3: How do various forms of computer mediated communication (text, email, instant messaging, audio-only, or video-based interactions) influence (moderate) the emotional contagion process compared to face-to-face interactions?

Full model

Figure 1. Proposed Model.



Figure 1 illustrates the proposed model in which the social context, implicit goals, and emotional contagion relate to one another. Controlling for a participant's emotions earlier in the day, interactions with coworkers are expected to result in emotional contagion (Hypothesis 1). Individual differences in empathy will moderate this relationship (Hypothesis 8). Individuals have social goals towards others, which are broadly operationalized as the extent to which they have implicit affiliative social goals, or a lack thereof. These implicit goals positively moderate the contagion relationship (Hypotheses 6). Characteristics of one's coworkers, which serve as critical social contextual cues, serve as another moderator of the contagion relationship (Hypothesis 5) and this relationship is mediated by the moderating effect of individual implicit social goals (Hypothesis 7). Emotions characterized by high physiological activation will likely spread more powerfully during this process (Hypothesis 2). The spread of positive emotions which be positively related to coworker-directed OCB (Hypothesis 3), while the spread of negative emotions will be positively related to coworker-directed CWB (Hypothesis 4). This work explores discrete emotion-level differences by examining how modelling the data using discrete emotions compares to modelling the data using positive-negative aggregates (Research Question 1) and how discrete emotions differ from one another (Research Question 2). Lastly, this work explores the potential moderating role of communication medium in relation to the contagion link between coworker and participants emotions (Research Question 3).

METHOD

Participants

To test the hypotheses outlined above, a daily diary study was used to test for daily emotion and social goal effects within persons (Bolger et al., 2003). Techniques for performing power analysis for multilevel designs with cross level interactions are still developing (Gabriel et al., 2019) and often require values that are difficult to estimate a priori, such as variance for effect slopes (Mathieu et al., 2012). Using pre-set estimates of variance and effect size provided in Mathieu et al. (2012)'s formula for estimating power in a multilevel design, an a priori power simulation suggested that a sample size of 80 participants with 10 observations each at an alpha = .05 would be sufficient to ensure power greater than .80 for subsequent analyses. Based on this analysis, participants were recruited to achieve a sample of roughly 80 participants, with greater than 80 participants being recruited initially to account for the effects of attrition. The daily study lasted 2 work weeks (Monday-Friday) for each participant, following recommendations about length of daily studies (Gabriel et al., 2019). The daily segment of the work began the Monday following whatever day participants took the initial single time-point surveys.

Participants were recruited online using *Prolific Academic* (https://www.prolific.ac/). *Prolific* is an online subject pool with a large range of potential subjects, high-quality data screening procedures, generally low rates of attrition (Palan & Schitter, 2018; Kothe & Ling, 2019). To ensure participants were suited to this research topic, participants were screened to ensure they were adult full-time workers (i.e., 40 hours a week), and were also screened based on if they indicated that their work requires them to interact with coworkers frequently. All participants were workers based in the United States.

After filtering out partial completions of the initial surveys, a sample of 97 participants remained. Of these participants, 8 were screened out due to failing all attention checks, 5 were removed for not inputting information for any coworkers (making it impossible to continue the daily studies), and 2 participants were excluded due to completing less than 2 days of studies. At the daily level, observations with no afternoon emotion observations were discarded. This led to a final sample of 82 participants (level 2), and a total of 685 daily (level 1) observations (average of 8.2 out of 10 daily survey sets per person). Of these participants, 42 (51%) self-identified as female, 37 (45%) as male, and 3 (4%) as non-binary. A total of 59 (72%) self-identified as not belonging to visible minority group. The remaining 23 participants identified as black (7%), other (7%), Chinese (4%), non-white Latin (4%), south/east Asian (2%), or of mixed origin (4%). Participants were from a number of industries, 15% reported working in healthcare, 12% in social services, 9% in education, and 8% in manufacturing. The remaining participants were spread through diverse professions in areas including information technology, retail, banking, non-profits, and architecture.

Procedure

Participants began the study by responded to 2 initial surveys. The first of these surveys asked participants to list the 3 coworkers they interact with most on a day-to-day basis at work. The survey then assessed participants' perceptions of each of these coworkers, implicit and conscious social goals in relation to the coworkers, and basic demographic information. Participants who completed this survey then took another initial survey 1-2 days later assessing levels of trait empathy, positive and negative affect, personality dimensions, current job information (e.g., climate factors), and behavioral approach and avoidance tendencies. The initial survey included a consent form outlining information about the nature of the study,

confidentiality, and potential benefits to participants (see Appendix A for the final version of the consent form). Participants who completed these surveys and provided necessary information on their coworkers were then invited to be in the daily studies the Monday following their completion of the 2nd initial survey. Two daily surveys were sent to participants each day, one in the morning (around 7:00AM) and one near the end of the workday (around 4:00PM). These surveys were sent in the Eastern (as the most population-dense time-zone in the US) time-zone as Prolific does not currently have support to customize distribution timing.

The morning survey assessed participant emotions at the start of the day and their quality of sleep during the previous night. The afternoon survey measured participant emotions and interaction with one of the three coworkers (whichever they indicate they interacted with most recently) that they previously identified in the initial survey as frequent interaction partners. This survey asked participants to recall their perceptions of the coworker's emotions at the start of their interaction, as well as the participant's current emotions (at the time of taking the survey), and behaviors directed at the coworker that day (both helping and counterproductive). The daily survey period lasted for two weeks, and surveys will only be sent out during the work week (Monday-Friday) to ensure a sufficient duration of within-person data collection (Gabriel et al., 2019). Thus, participants could each complete a maximum of 20 surveys during their participation within the study. The incentive structure for the participants was designed to reward continued participation in the study, with higher rewards given for greater numbers of consecutive daily surveys completed, and a bonus for participants each time they completed a full week of observations (\$3; see informed consent in Appendix A). After the study period has ended for a participant, they were sent a debriefing form (see Appendix B) outlining the purpose of the study and thanking them for participation in the study.

Between-Subject/Single Time Point Measures.

Coworker Interactions. In the initial survey, participants were asked to name the 3 coworkers with whom they interacted the most on a daily basis at work. Specifically, the participant was asked to think about their workplace interactions and to input the name of these coworkers (first name only to help ensure anonymity). These names were used as referents in later survey questions assessing implicit goals towards each of these coworkers, and participant's social perceptions of these coworkers. The formatting of this question, and all other initial survey items, can be found in Appendix D. Across all daily observations, 48% were related to the first coworker, while 30% were related to coworker 2, and 22% were based on coworker 3.

Implicit Social Goals

IAT. Implicit social goals were assessed using the implicit association test (IAT -Greenwald et al., 1998). The underlying logic of IAT tests is that the presentation of stimuli (for instance, an elderly person) automatically primes the activation of related concepts within the mind (e.g., slow, sickly, distinguished), making those related concepts more readily accessible for an individual (Greenwald et al., 1998). In a traditional IAT format, participants are asked to quickly sort pairings words/images related to two different categories (e.g., stereotypically black vs white names) with descriptor words (e.g., good vs bad). Pairings that fit with the underlying primed associations that a participant holds will be easier to sort than pairings that contrast. Thus, participants who implicitly associate black names with negative words will respond more easily (i.e., faster reaction times) to word pairings which fit that implicit bias. For this study, participants were presented with coworker terms (e.g., the name of the coworker they listed), neutral items, and social approach or avoidance terms. Following the Kemps et al. (2013) method of measuring approach and avoidance using the IAT, two lists of 10 words each were

generated to represent the differing categories of approach (e.g., forward, near) and avoidance (escape, withdrawal). For a complete list of the words used, see Appendix C.

Studies using the IAT have typically reported reliabilities ranging from $\alpha = .60 - .90$, as well as reasonable validity evidence and low vulnerability to faking and social desirability distortion (Uhlmann et al., 2012) making it well suited to assess motives towards one's coworkers. The IAT was administered in survey online using an adapted version of the HTML and JavaScript developed by Carpenter et al., (2019) in line with scoring recommendations from Greenwald et al. (2003). IAT stimuli were presented in alternating blocks (practice for avoidance/approach items, coworker/neutral items, and then practice and testing for pairing of these sets of items), the exact order of pairings of stimuli were randomized across participants and coworkers. Following scoring guidelines, trials taking over 10,000 milliseconds were dropped, as were participants with over 10% of their trials taking less than 300 milliseconds (Greenwald et al., 2003; Carpenter et al., 2019).

IAT results are scored to create a *D* score which represents the difference between block means based on the standard deviation of all the response times in the test blocks. In the context of this study, higher *D* scores represent a greater approach association with coworkers when compared to neutral stimulation, while negative scores represent the opposite. After filtering results based on response speed, 77 participants had valid IAT results for their coworkers. Reliabilities for these measures were calculated using split-half reliability with Spearman-Brown correction (Carpenter et al., 2019), and ranged from .74-86.

Perceived Coworker Characteristics

Perceived Similarity. Perceived similarity with each of the 3 coworkers was measured with 3 items adapted from Schaubroeck and Lam's (2004) 7-item perceived similarity scale

(α =.94). An example item is "[coworker's name] and I have a similar personality". The name preceding the items will vary based on the individual identified by the participant as their most significant interaction at work that day. Reliabilities across the three coworkers ranged from α = .81-.89.

Perceived Status. Drawing on status conferral research, 2 items from Brescoll and Uhlmann (2008) were adapted for use in ratings of coworkers. Participants rated their coworkers in terms of how much status and power they feel their coworker has at work. Reliabilities across the three coworkers ranged from $\alpha = .91$ -.93.

Likability. Coworker likability was measured with 3 items from the Reysen (2005) likability scale. Questions assessing coworker friendliness, likability, warmth, and approachability were selected as the most relevant items from the scale, while items involving status and relational factors (e.g., "I would like this person as a roommate") were excluded. The final 3 items were selected based on which items had the highest factor loading in the scale (Reysen, 2005). Reliabilities across the three coworkers ranged from $\alpha = .84$ -.86.

Relational Characteristics. Given findings regarding the influence of status perceptions on the functioning of emotions (e.g., Cheng & Chartrand, 2003; Lansu et al., 2014; Van Kleef & Côté, 2007), participants were asked to select the type of work relationship they have with the coworker (subordinate, superior, work peer) to allow possible status effects to be distinguished from organizational hierarchy. Across the 3 coworkers 27%-32% were listed as a superior, 15%-28% were listed as a subordinate, and 44%-56% as a peer. Additionally, to examine the possibility that any effects of social perceptions (liking, status, similarity) are due primarily to the existence of a friendship (or lack thereof), participants were asked to note if they view their coworker as a friend or not using an item adapted from Methot et al. (2016); "Is [coworker

name] someone you consider yourself to be friends with (i.e., someone who you occasionally socialize with outside of work)." For this dimension, 84% of participants rated the first coworker they listed as a friend, while this percentage fell to 61% for both the 2nd and 3rd coworkers.

Workplace Factors

Competitive Climate. Since a competitive environment can alter the underlying social goals of an individual, and thus they in which their emotions function (Van Kleef et al., 2010), it is important to assess the extent to which a participant works in a competitive environment. Fletcher et al. (2008)'s 4-item competitive psychological climate scale was used for this study. This scale had a reliability of $\alpha = .82$. A sample item is "My coworkers frequently compare their performance with mine."

Psychological Safety. To measure participants' perceptions of psychological safety within their workplace, Edmondson's (1999) 7-item psychological safety climate scale was used. The scale has demonstrated convergent and discriminant validity (Edmondson, 1999), and for this study $\alpha = .77$. A sample item is "It is safe to take a risk on this team."

Perceived Task Interdependence. Participants rated their perceptions of how interdependent their work environment is using Van der Vegt and Janssen's (2003) 5-item perceived task interdependence scale. This measure had a reliability of $\alpha = .77$, and a sample item is "I need information and advice from my colleagues to perform my job well."

Trait Empathy

Interpersonal Reactivity Index. Empathy was measured using Davis' (1980) interpersonal reactivity index (IRI). The IRI consists of 4 subscales (fantasy, perspective-taking, empathic concerns, and personal distress) designed to assess different dimension of trait empathy, each consisting of 7 items. The scale has been demonstrated in previous research to

internal and test-retest reliability, as well as convergent and discrimination validity in relations to other variables such as self-esteem (Davis, 1983). Given the low relevance of the fantasy scale, this set of items were excluded. Example items include "When I watch a good movie, I can very easily put myself in the place of a leading character" and "When I see someone who badly needs help in an emergency, I go to pieces." Reliability for the concern subscale was $\alpha = .84$, $\alpha = .68$ for the perspective taking scale, and $\alpha = .82$ for the distress scale.

Control Variables

Demographics and Other Controls. Participants were asked to provide demographics information covering age, ethnicity, gender, and time spent at their current job. Gender was examined as a possible moderator of emotional contagion as some research indicates that certain emotions are experienced to differing degrees on average between men and women (e.g., Brebner, 2003), and emotional contagion research suggesting that gender may influence the degree to which individuals are influenced by the emotions of those around them (Barsade et al., 2018; Doherty et al., 1995). Participants completed trait versions of the positive and negative affect scales (PANAS), to allow for control in analyses based on participants' general dispositions towards positive and negative emotions (Watson et al., 1988). The PANAS has high internal and test-retest reliability and has expected levels of convergent and discriminant validity. Lastly, a full measure of the Big 5 personality traits was included, given research suggesting that personality variables of extraversion, neuroticism, and agreeableness are likely to influence how emotions spread between individuals (Barsade et al., 2018; Vijayalakshmi & Bhattacharyya, 2012) the international personality item pool (IPIP, Goldberg, 1992) was used to measure personality traits as control variables (See Appendix D for all between-person items).

Within Subjects/Daily Measures.

Daily Emotions

PANAS-X. Daily participant experiences of happiness, sadness, anxiety, anger, and calmness were measured with adapted state versions of the joviality, sadness, fear, hostility, and serenity specific affect scales from the PANAS-X respectively (Watson & Clark, 1999). These scales function well when adapted to the daily level, and demonstrate high reliability (Watson et al., 19988; Watson & Clark, 1999). Given that space is a major constraint within ESM studies (Grabriel et al., 2019), each of the specific affect scales will be shortened to include only 3 items. These shortened lists were obtained by using the 3 items with the highest factor loadings reported in Watson and Clark (1999), with the except of certain items in the hostility scale which were related to contempt and given the potential unique effects of contempt in relation to anger (Fischer & Roseman, 2007), were not used in the scale. The PANAS-X scales will be used to assess participant's current emotions in both the morning and afternoon surveys. A complete list of the PANAS-X specific affect items used can be found in Appendix E along with full versions of all the daily scales and questions used in the study surveys. Reliabilities for these withinperson measures were calculated using the average Cronbach's alpha of the scale across all days of the study. These averages are reported in Table 1 and range from $\alpha = 74 - .92$.

Perceived Coworker Emotions. The joviality, sadness, fear, hostility, and serenity specific affect scales were also modified to measure the perceived emotions of one's coworker for the joviality, sadness, fear, hostility, and serenity PANAS-X dimensions. Instructions were changed altered to ask the participant to rate the extent to which their coworker seemed to feel each of these emotions during their interaction with the participant that day (see Appendix E).

Daily Social Behaviors

Daily individual-targeted organizational citizenship behaviors (OCB-I). To assess helping behaviors directed towards one's coworker, 4 daily items were selected from Dalal et al. (2009)'s daily OCB toward supervisors/coworkers scale, based on what behaviors are likely to be applicable in the context of this study. A sample item is, "Today, I tried to be available to [coworker's name]." The average reliability of this measure was $\alpha = .86$.

Daily individual-targeted counterproductive work behaviors (CWB-I). Four items from Dalal et al. (2009)'s daily CWB toward supervisors/coworkers scale were adapted to measure daily counterproductive interpersonal behaviors between coworkers. A sample item is "Today, I behaved in an unpleasant manner toward [coworker's name]." The average reliability of this measure was $\alpha = .86$.

Control Variables

Interaction Variables. To control for the type of interaction medium, participants selected if they interacted with their coworker using email, instant messaging, via video chatting, telephone, or in person for each daily survey for the coworker interaction the were reflecting upon. Participants will also report the length of the interaction. Across all interactions, 51% were face-to-face, while the remainder occurred using instant messaging (24%), audio-only chatting (10%), video chatting (8%), or email (7%).

Analytic Approach

Hypotheses were examined using multilevel path analysis in Mplus given that the data are nested observations within individual participants (Muthén & Muthén, 2012). Analyses were performed using full-information maximum likelihood estimation, to ensure no loss of statistical power and minimum bias in estimates due to missing data (Newman, 2009). Empathy and trait-

level control variables (e.g., positive and negative affect) were treated as a level 2 variables and grand mean centered, while within-person variables were treated as level 1 variables and groupmean centered around each individual's mean score, following previous multilevel research recommendations (Hofmann et al., 2000; Ohly et al., 2010). This centering approach helps address concerns related to common method bias as such centering removes all between person sources of variation (e.g., response differences, social desirability differences) from individual's mean scores on within-person variables (Gabriel et al., 2019).

In line with previous research, focal within-person variables (perceived coworker characteristics and emotions, implicit goals, participant emotions, and relationship satisfaction) were treated as random slopes with control variables at the within-person level (e.g., previous emotions) as fixed slopes (Lin et al., 2020; Wang et al., 2011). To test hypotheses examining the effect of coworker perceptions, centered values for the specific coworker a participant interacted with on a given day were modelled as within-person interactions to test the moderating effect of such variables. Cross-level moderation hypotheses were tested by regressing the cross-level moderator (e.g., empathic distress) onto the random slope of the coworker-afternoon emotions relationship. To test mediated moderation and moderated mediation (conditional indirect effects), variables will be modelled concurrently in the multilevel model to test the indirect effects simultaneously with other variables (Lin et al., 2020). Indirect effects and confidence intervals will then be estimated using a Monte Carlo simulation with 20,000 replications, following previous research and methodological recommendations (Lanaj et al., 2016; Preacher et al., 2010).

RESULTS

Table 1 presents the basic descriptive data for the focal variables of the study. Complete descriptive statistics for all variables included in the study are presented in Appendix F, along with separate statistical information for the 3 coworkers separately. To estimate the need for multilevel modelling, intraclass correlations were estimated for the level 1 (within-person) endogenous variables. A statistically significant proportion of within-level variation was present for afternoon fear (14%), afternoon hostility (22%), afternoon sadness (23%), afternoon happiness (47%), afternoon calmness (50%), OCBI (34%), and CWBI (27%) illustrating the need to model in the variables in multilevel manner (for all within-person variance, p < .00).

A multilevel confirmation factor analysis (MCFA) was performed on focal within-person variables to evaluate the fit of the measurement model and to compare fit between aggregated positive and negative emotions. Given that multilevel CFA models estimating more parameters than clusters are nonidentified, the data the CFAs had to be estimated separately for the morning emotions, afternoon emotions, coworker emotions, and OCBI and CWBI measures. In general, multilevel CFAs based on the discrete emotion models had modest to acceptable fit, whereas models based on aggregates of emotions had poor fit. Given that the PANAS positive and negative affect aggregates are composed of largely the same items that are included in the in the discrete emotions were created using latent traits composed of all the negative and positive items, respectively. These results provide evidence related to Research Question 1, suggesting that analyses at the discrete level are more appropriate. Based on this information, hypotheses were then tested using all discrete emotions, rather than utilizing positive/negative emotion aggregates. The results of these analyses are presented in Table 2. Hypotheses were then all

tested using multilevel path analysis in Mplus 7 with full information maximum-likelihood estimation (Muthén & Muthén, 2012).

Table 1	. Descriptive	Statistics fo	or Focal	Study	Variables.
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Level 1 Variables	М	SD	N	1	2	3	4	5	6	7	8	9	10	11	12
1. Morning Anxiety	1.21	0.52	726	0.88											
2. Morning Anger	1.33	0.60	726	.41**	0.74										
3. Morning Sadness	1.58	0.88	726	.32**	.39**	0.8									
4. Morning					-										
Happiness	2.47	1.17	726	.32**	.20**	29**	0.92								
5. Morning					-										
Calmness	3.16	1.07	726	23**	.40**	30**	.63**	0.91							
6. Coworker															
Anxiety	1.15	0.45	686	.34**	.23**	.18**	.17**	0.002	0.75						
7. Coworker Anger	1.31	0.62	686	.21**	.36**	.28**	-0.03	- .14**	.42**	0.77					
8. Coworker															
Sadness	1.22	0.54	686	.26**	.28**	.29**	0.06	-0.05	.52**	.45**	0.77				
9. Coworker										-					
Happiness	2.71	1.16	686	.09*	-0.06	16**	.54**	.32**	-0.04	.25**	15**	0.89			
10. Coworker		1 00		0.00	-	4	0.5.1.1	4.00.1.1.	0.5.1.1	-	O		0.00		
Calmness	3.26	1.08	686	0.00	.15**	16**	.35**	.45**	27**	.43**	2**	.65**	0.89		
11. Afternoon	1 10	0.40	60 <i>5</i>	5 0**	22**	05**	0.07	- 1 4 * *	--+++	25**	2644	0.04	00*	0.00	
Anxiety	1.19	0.49	685	.53**	.33**	.25**	0.07	.14**	.5/**	.35**	.36**	0.04	09*	0.82	
12. Atternoon	1 21	0.61	(9F	20**	5 1**	21**	00*	- 07**	22**	5(**	20**	- 12**	26**	40**	0 77
Aliger	1.51	0.01	085	.20	.34***	.51***	09**	.27	.55***	.30***	.52***	.15	20	.48	0.77
Sadness	1 53	0.84	685	20**	7/**	70**	- 73**	- 73**	26**	3/**	/0**	- 10**	10**	35**	38**
14 Afternoon	1.55	0.84	085	.20	.24	.19	.23	.25	.20	.54	.40	.19	19	.55	.50
Happiness	2.52	1 18	685	0.08	-0.07	- 21**	73**	45**	11**	-0.07	0.01	69**	45**	-0.01	- 18**
15. Afternoon	2.02	1.10	002	0.00	-	.21				-	0.01	.09		-	.10
Calmness	3.23	1.08	685	13**	.24**	24**	.50**	.66**	09*	.23**	-0.07	.46**	.60**	.23**	44**
					-					-					
16. OCB-I	3.72	0.87	697	-0.01	.18**	-0.02	.22**	.20**	0.06	.13**	-0.04	.25**	.14**	-0.02	2**
17. CWB-I	1.40	0.72	686	.24**	.34**	.11**	0.05	09*	.27**	.41**	.22**	-0.01	14**	.28**	.38**
Level 2 Variables															
18. Empathic					-				-						
Concern	3.95	0.77	80	-0.19	.36**	41**	0.19	0.20	0.19	32**	-0.19	.25*	.25* -	.22*	32**
 Happiness 15. Afternoon Calmness 16. OCB-I 17. CWB-I Level 2 Variables 18. Empathic Concern 	2.52 3.23 3.72 1.40 3.95	1.18 1.08 0.87 0.72 0.77	685 685 697 686 80	0.08 13** -0.01 .24** -0.19	-0.07 .24** .18** .34**	21** 24** -0.02 .11** 41**	.73** .50** .22** 0.05 0.19	.45** .66** .20** 09* 0.20	.11** 09* 0.06 .27**	-0.07 .23** .13** .41**	0.01 -0.07 -0.04 .22**	.69** .46** .25** -0.01	.45** .60** .14** 14**	-0.01 .23** -0.02 .28**	18** 44** 2** .38**

Table 1 (cont'd).

Level 1 Variables	М	SD	N	13	14	15	16	17	18	19	20	21	22	23	24
13. Afternoon Sadness	1.53	0.84	685	0.8											
14. Afternoon Happiness	2.52	1.18	685	- .31**	0.91										
15. Afternoon Calmness	3.23	1.08	685	- .30**	.64**	0.9									
16. OCB-I	3.72	0.87	697	-0.03	.26**	.20**	0.86								
17. CWB-I	1.40	0.72	686	.11**	0.06	12**	- .25**	0.86							
Level 2 Variables															
18. Empathic Concern	3.95	0.77	80	- .45**	.24*	0.18	.34**	- .37**	0.84						
19. Empathic Perspective-Taking	3.30	0.64	80	.35**	.37**	.28*	0.15	0.08	.43**	0.68					
20. Empathic Distress	2.56	0.82	80	.28*	-0.20	38**	-0.10	0.16	-0.01	- .31**	0.82				
21. Avg Coworker IAT	0.50	0.28	77	0.12	0.04	0.01	0.07	-0.04	-0.01	-0.08	0.09	0.81 ^a			
22. Avg Coworker Similarity	3.18	0.87	82	0.02	.33**	0.18	.29**	0.17	-0.03	.30**	0.06	-0.01	0.86		
23. Avg Coworker Status	3.38	0.81	82	-0.15	0.12	0.03	-0.01	0.15	-0.07	0.16	0.08	-0.07	.22*	0.92	
24. Avg Coworker Liking	3.87	0.98	82	25*	.30**	.31**	.28*	-0.13	0.215	0.14	0.01	.27*	.230**	.23*	0.89

**Note*. Bolded diagonal values reflect reliabilities for each variables using Cronbach's alpha. Level 1 variable reliabilities are calculated using the average alpha for the scale across all the days of the study. Coworker variables reflect average ratings across all 3 rated coworkers. Level 1 correlations with level 2 variables are calculated using the average of level variables across days of the study. Within-level 1 correlations were calculated at the daily level.

a. IAT reliability is calculated as a split-half reliability with a Spearman-Brown correction to estimate internal consistency. * p < .05, ** p < .0

Model:	Chi- Square	Comparative Fit Index (CFI)	Root-Mean Square of Approximation (RMSEA)	Standardized Root- Mean Square Residual (SRMR; Within)
Discrete Morning Emotions	426.91	0.85	0.08	0.09
Aggregate Morning Emotions	1553.73	0.35	0.16	0.14
Discrete Coworker Emotions Aggregate	344.75	0.86	0.07	0.07
Coworker Emotions Discrete	837.06	0.6	0.11	0.11
Afternoon Emotions Aggregate	287.42	0.91	0.06	0.08
Afternoon Emotions OCBI/CWBI	1271.18	0.5	0.14	0.13
Model	287.42	0.64	0.12	0.05

Table 2. Multilevel CFA Results.

*Note. Chi-square df for discrete emotions models = 80, 89 for aggregate models, and = 34 for OCBI-CWBI. The model for OCBI/CWBI had a SRMR (Between) = .48.

Hypotheses 1-4

Table 2 summarizes the results of statistical tests evaluating Hypotheses 1-4. In line with current recommendations regarding random slopes models (Cf. Wang et al., 2011; Chong et al. 2020), Table 2 reports several sequential models to compare null, fixed effects, and random effects models. Model 2b represents the final random effects model used to test differences Hypotheses 1-4. Significant differences between the -2 loglikelihood of fixed and random slope models serve as support for the need to model variables as random slopes (Bliese, 2016; Chong et al., 2020). Hypothesis 1A-1E were fully supported by the data as, controlling for morning emotions, all perceived coworker emotions significantly predicted participant corresponding

afternoon emotions. Thus, the contagion hypothesis that perceived coworker emotions predict later participant emotions was fully supported.

Table 3. Results for Hypotheses 1-4.

	Model	1 O. Null	Model	Mode	l 1: Con	trol Variables	Model	2a: Fixe	ed Slope	Model	2b: Ran	dom Slope
	Mode	I U. INUI	WIDdel	Addeo	l as Fixe	ed Slopes	Mediat	tion Mod	del	Mediat	ion Mo	del
Variable	В	SE	B/SE	В	SE	B/SE	В	SE	B/SE	В	SE	B/SE
Within-person residual variance												
OCBI	0.34	0.02	17.39***	0.34	0.02	17.39***	0.33	0.02	17.36***	0.33	0.02	16.97***
CWBI	0.27	0.02	17.28***	0.27	0.02	17.28***	0.25	0.02	17.26***	0.25	0.02	15.94***
Afternoon Anxiety	0.14	0.01	17.38***	0.13	0.01	17.13***	0.11	0.01	17.39***	0.09	0.01	16.46***
Afternoon Anger	0.22	0.01	17.38***	0.22	0.01	17.02***	0.18	0.01	17.31***	0.14	0.01	16.74***
Afternoon Sadness	0.23	0.01	17.38***	0.21	0.01	17.14***	0.18	0.01	17.38***	0.15	0.01	16.92***
Afternoon Happiness	0.47	0.03	17.33***	0.46	0.03	17.00***	0.38	0.02	17.31***	0.36	0.02	16.72***
Afternoon Calmness	0.50	0.03	17.35***	0.48	0.03	16.99***	0.42	0.02	17.35***	0.37	0.02	16.64***
Between-person residual												
variance												
OCBI	0.41	0.07	5.78***	0.41	0.07	5.78***	0.4	0.07	5.77***	0.32	0.08	.425***
CWBI	0.30	0.06	5.48***	0.30	0.06	5.48***	0.29	0.05	5.45***	0.21	0.07	3.20***
Afternoon Anxiety	0.11	0.02	5.45***	0.10	0.02	5.40***	0.11	0.02	5.62***	0.11	0.02	5.79***
Afternoon Anger	0.15	0.03	5.36***	0.13	0.03	5.26***	0.16	0.03	5.54***	0.17	0.03	5.75***
Afternoon Sadness	0.45	0.08	6.02***	0.42	0.07	6.05***	0.46	0.08	6.10***	0.46	0.08	6.14***
Afternoon Happiness	1.06	0.18	5.94***	0.98	0.17	5.95***	1.06	0.18	6.02***	1.08	0.18	6.04***
Afternoon Calmness	0.70	0.12	5.77***	0.61	0.11	5.76***	0.71	0.12	5.87***	0.72	0.12	5.92***
random slope (Anxiety)	-	-	-	-	-	-	-	-	-	0.53	0.19	2.88**
random slope (Anger)	-	-	-	-	-	-	-	-	-	0.15	0.04	3.40***
random slope (Sadness)	-	-	-	-	-	-	-	-	-	0.12	0.04	2.72**
random slope (Happiness)	-	-	-	-	-	-	-	-	-	0.03	0.02	2.09*
random slope (Calmness)	-	-	-	-	-	-	-	-	-	0.06	0.02	2.80**
random slope (OCBI -										0.00	0.01	0.65
Happiness	-	-	-	-	-	-	-	-	-	0.00	0.01	0.05
random slope (OCBI -										0.00	0.01	0.69
Calmness)	-	-	-	-	-	-	-	-	-	0.00	0.01	0.08
random slope (CWBI -										0.00	0.02	1.00
Anger)	-	-	-	-	-	-	-	-	-	0.00	0.02	1.00
random slope (CWBI -										0.01	0.01	0.22
Anxiety)	-	-	-	-	-	-	-	-	-	0.01	0.01	0.25
random slope (CWBI -										0.01	0.01	0.49
Sadness)	-	-	-	-	-	-	-	-	-	0.01	0.01	0.48
Controls for Afternoon												
Emotions												
Morning Anxiety	-	-	-	0.20	0.03	6.26***	0.16	0.03	4.85***	0.17	0.03	5.51***

Table 3 (cont'd).

Morning Anger	-	-	-	0.22	0.04	5.79***	0.18	0.04	4.37***	0.13	0.04	3.57***
Morning Sadness	-	-	-	0.32	0.03	10.03***	0.32	0.03	9.43***	0.34	0.03	10.41***
Morning Happiness	-	-	-	0.15	0.04	4.34***	0.23	0.04	5.82***	0.22	0.04	5.61***
Morning Calmness	-	-	-	0.22	0.03	6.53***	0.22	0.04	5.65***	0.21	0.04	5.49***
Predictors for Afternoon												
Emotions												
Coworker Anxiety	-	-	-	-	-	-	0.38	0.04	9.83***	0.38	0.13	2.94***
Coworker Anger	-	-	-	-	-	-	0.37	0.03	11.22***	0.36	0.07	5.30***
Coworker Sadness	-	-	-	-	-	-	0.36	0.04	8.86***	0.28	0.07	3.79***
Coworker Happiness	-	-	-	-	-	-	0.34	0.03	10.24***	0.32	0.04	7.57***
Coworker Calmness	-	-	-	-	-	-	0.3	0.03	9.09***	0.32	0.05	7.01***
Predictors for CWBI and OCBI												
Afternoon Happiness to	_	_	_	_	_	_	0.16	0.04	3 87***	0.16	0.04	/ 15***
OCBI							0.10	0.04	5.02	0.10	0.04	4.15
Afternoon Calmness to	_	_	_	_	_	_	-0.02	0.04	-0.47	0	0.04	-0.03
OCBI							0.02	0.04	0.47	0	0.04	0.05
Afternoon Anxiety to	_	_	_	_	_	_	-0.08	0.06	-1 28	-0.03	0.06	-0.45
CWBI							0.00	0.00	1.20	0.05	0.00	0.45
Afternoon Anger to CWBI	-	-	-	-	-	-	0.3	0.05	6.40***	0.3	0.05	5.68***
Afternoon Sadness to	_	_	-	_	-	_	-0.08	0.05	-1 66	-0.07	0.05	-1 54
CWBI							0.00	0.05	1.00	0.07	0.05	1.0 1
Model Fit Information												
AIC			8,991.12			8,152.88			8,285.38			8,028.42
BIC			9,086.24			8,315.94			8,452.96			8,241.30
loglikelihood value			-4,474.56			-4,040.44			-4,105.69			-3,967.21

**Note*. Level 1 sample size = 685; level 2 sample size =82.

All estimates are unstandardized. Each path model was estimated simultaneously as one model. To estimate slope variability, I compared the -2 loglikelihood of the two models above (i.e., $\Delta \chi^2 = (-2 \times -4,105.69) - (-2 \times -3,967.21) = 276.96$, *p*.00). AIC = Akaike information criterion; BIC = Bayesian information criterion.

** *p* < .01, *** *p* < .000.

Hypotheses 2 was not supported, as there were no consistent or meaningful differences in the magnitude of the coworker emotions to afternoon emotions pathway between high activation (happiness, anger, and anxiety) and low activation (sadness, calmness) emotions. Consistent with the decision to use models based on discrete emotions, rather than positive/negative aggregates, anger significantly predicted CWB-I, however this effect was masked by the null effects of anxiety and sadness when emotions were aggregated by combining discrete emotions (see table 3).

Hypotheses 3 was partially supported as afternoon happiness, but not calmness, predicted OCB-I behaviors (b = .16, p < .000, 95% CI [.08, .24]). Hypotheses 4 had a similar pattern of evidence, with afternoon anger, but not sadness or anxiety, significantly predicting CWB-I (b = .30, p < .000, 95% CI [.21, .39]. In line with Hypotheses 3, adding cross paths from negative emotions to OCB-I did not yield significant results, as anxiety (b = .01, p = .85, 95% CI [-.13, .15]), anger (b = -.08, p = .20, 95% CI [-.23, .04]), and sadness (b = .01, p = .84, 95% CI [-.17, .03]) all had nonsignificant relationships with OCB-I. Similarly, for Hypotheses 4, positive emotions did not predict CWB-I, as happiness (b = .03, p = .38, 95% CI [-.04, .11]) and calmness (b = -.05, p = .18, 95% CI [-.13, .02]) did not have significant relationships with CWB-I.

To fully test Hypotheses 3 and 4, indirect effects from perceived coworker emotions to OCB-I and CWB-I via participant afternoon emotions were estimated. Following Preacher et al. (2010), I tested the indirect effects using a Monte Carlo simulation with 20,000 replications to estimate confidence intervals around the effect. These analyses found that perceived coworker anger had an indirect effect on participant CWB-I via participants' own anger (indirect effect = .10, p < .000, 95% CI [.05, .15]). Additionally, perceived coworker happiness had an indirect effect on OCB-I through participants' own happiness (indirect effect = .05, p < .000, 95% CI

[.03, .07]) respectively, providing partial support for both Hypotheses 3 and 4. Other perceived coworker emotions (anxiety, calmness, sadness) had no indirect effect on OCB-I or CWB-I. Notably, these results indicate that only coworker high activation emotions had significant effects on both counterproductive and prosocial behaviors towards coworkers. For all endogenous variables, Table 6 reports pseudo R^2 values. In line with current recommendations to decompose multilevel R^2 values in complex models (cf. Rights & Sterba, 2019; 2020), each variable's R^2 value is reported to illustrate changes in variance explained as a function of the addition of level 1 fixed slope predictors, random slope predictors, and cross-level moderators. **Hypotheses 5-7**

Table 4 presents results for analyses testing Hypotheses 5-7. Given that Hypotheses 5-9 essentially propose that the moderating effects of liking, similarity, and status perceptions are mediated through implicit affiliation and distancing goals (operationalized as high and low values of coworker related IAT scores), these hypotheses were initially tested concurrently in one model. Only status perceptions significantly predicted IAT scores ($\gamma = -.046$, p < .001, 95% CI [-.07, -.02]), precluding mediation of the moderating effects of liking and similarity by IAT scores. As a result, these paths were not estimated in the final model reported in Table 4. Additionally, morning emotions were dropped from the model as control variables and OCBI and CWBI paths were not estimated in the model to ensure the parameter-to-cluster ratio was appropriate for the model to be identified. Liking, similarity, and status perceptions were all tested as moderators of the path between coworker and afternoon emotions. Coworker IAT scores were also included as a moderator of the contagion relationship. IAT scores were also tested as a partial mediator of the moderating effects of coworker status perceptions on the paths

between coworker emotions and afternoon participant emotions. These tests yielded partial

support for Hypotheses 5-7.

Table 4. Results for Hypotheses 5-7.

	Model 3: Random Slopes with Model 4: Random Slo					ndom Slopes	
	Lev	el 1 Mo	derator Main	with	with Level 1 Moderator		
		Effe	ects*	In	teraction	ns Effects*	
Variable	В	SE	B/SE	В	SE	B/SE	
Within-person residual variance							
Afternoon Anxiety	0.10	0.01	14.91***	0.10	0.01	14.90***	
Afternoon Anger	0.15	0.01	14.65***	0.15	0.01	14.65***	
Afternoon Sadness	0.20	0.01	15.37***	0.20	0.01	15.28***	
Afternoon Happiness	0.40	0.03	14.81***	0.40	0.03	14.75***	
Afternoon Calmness	0.41	0.03	14.67***	0.40	0.03	14.58***	
IAT	0.15	0.01	17.07***	0.14	0.01	17.07***	
Between-person residual variance							
Afternoon Anxiety	0.13	0.02	5.57***	0.13	0.02	5.56***	
Afternoon Anger	0.21	0.04	5.39***	0.21	0.04	5.37***	
Afternoon Sadness	0.47	0.08	5.83***	0.45	0.08	5.82***	
Afternoon Happiness	0.90	0.16	5.70***	0.89	0.16	5.69***	
Afternoon Calmness	0.58	0.10	5.58***	0.58	0.11	5.58***	
random slope (Anxiety)	0.37	0.14	2.57**	0.38	0.15	2.57**	
random slope (Anger)	0.12	0.04	3.05**	0.12	0.04	3.05**	
random slope (Sadness)	0.11	0.05	2.23*	0.08	0.05	1.65	
random slope (Happiness)	0.03	0.02	1.80	0.03	0.02	1.85	
random slope (Calmness)	0.03	0.02	1.94	0.02	0.02	1.55	
Predictors for Afternoon Emotions							
Coworker Anxiety (CA)	0.36	0.13	2.88**	0.36	0.13	2.84**	
Coworker Anger (CAn)	0.35	0.07	5.20***	0.34	0.07	4.96***	
Coworker Sadness (CS)	0.30	0.08	3.64***	0.25	0.08	3.23***	
Coworker Happiness (CH)	0.23	0.04	5.54***	0.24	0.04	5.68***	
Coworker Calmness (CC)	0.25	0.04	6.26***	0.24	0.04	6.32***	
Level 1 Moderators							
IAT - Anxiety	-0.02	0.06	-0.34	-0.02	0.06	-0.35	
IAT - Anger	-0.05	0.08	-0.69	-0.06	0.07	-0.85	
IAT - Sadness	0.16	0.09	1.82	0.14	0.09	1.63	
IAT - Happiness	-0.10	0.12	-0.79	-0.09	0.12	-0.76	
IAT - Calmness	-0.12	0.12	-1.05	-0.11	0.12	-0.92	
IAT x CA	-	-	-	-0.07	0.12	-0.56	
IAT x CAn	-	_	_	-0.18	0.09	-2.04*	
IAT x CS	-	_	_	-0.43	0.20	-2.16*	
IAT x CH	-	_	_	0.24	0.09	2.65**	
IAT x CC	_	_	_	0.09	0.09	0.95	
STAT - Anxiety	0.00	0.02	-0.16	0.00	0.02	-0.17	
STAT - Anger	-0.01	0.02	-0.61	-0.01	0.02	-0.61	
STAT - Sadness	0.01	0.02	1.26	0.01	0.02	1 20	
STAT - Happiness	-0.11	0.02	-3 33***	-0.11	0.02	-3 26***	
STAT - Calmness	-0.1	0.03	-3 14**	-0.10	0.03	-3 13***	
STAT v CA	-0.1	0.05	-3.14	-0.10	0.03	-5.15	
STAT x CAn	_	_	_	0.05	0.03	1.14	
STAT v CS	_	_	_	-0.05	0.05	-1 15	
STAT V CH	_	_	_	0.00	0.00	2 18*	
STAT x CC	_	_	_	0.00	0.03	0.45	
				0.01	0.05	0.10	

Table 4	(cont	'd)	
	1		

SIM -	Anxiety	0.05	0.02	2.33*	0.05	0.03	2.34*
SIM -	Anger	0.04	0.03	1.49	0.05	0.03	1.66
SIM -	Sadness	0.05	0.03	1.55	0.05	0.03	1.38
SIM -	Happiness	-0.10	0.05	-0.30	-0.01	0.05	-0.23
SIM -	Calmness	0.1	0.05	0.03	-0.01	0.05	-0.27
SIM x	CA	-	-	-	-0.05	0.05	-0.97
SIM x	CAn	-	-	-	-0.05	0.03	-1.83
SIM x	CS	-	-	-	0.05	0.06	0.77
SIM x	СН	-	-	-	0.01	0.03	0.34
SIM x	CC	-	-	-	-0.06	0.03	-1.87
LIKE	- Anxiety	-0.01	0.03	-0.23	-0.01	0.03	-0.17
LIKE	- Anger	0.02	0.03	-0.65	-0.03	0.03	-0.76
LIKE	- Sadness	-0.04	0.04	-0.98	-0.02	0.04	-0.60
LIKE	- Happiness	0.17	0.06	3.17**	0.18	0.06	3.21***
LIKE	- Calmness	0.10	0.06	1.78	0.12	0.06	2.18*
LIKE	x CA	-	-	-	0.00	0.06	0.04
LIKE	x CAn	-	-	-	0.02	0.04	0.60
LIKE	x CS	-	-	-	-0.19	0.06	-3.18***
LIKE	x CH	-	-	-	0.24	0.09	-0.175
LIKE	x CC	-	-	-	0.09	0.09	1.81
IAT Predic	tors						
STAT		-0.05	0.01	-3.54***	-0.05	0.01	-3.54***
SIM		0.02	0.02	1.07	0.02	0.02	1.07
LIKE		0.00	0.02	-0.04	0.00	0.02	-0.04
Model Fit I	nformation						
AIC				5,053.54			5,045.84
BIC				5,215.63			5,395.30
loglike	elihood value			-2,466.77			-2,442.92

Note. All estimates are unstandardized. Each path model was estimated simultaneously as one model. Level 1 sample size = 685; level 2 sample size =82CWBI, OCBI, and morning emotions controls not estimated in these models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

* p < .05. ** p < .01. *** p < .0

Perceptions of status significantly moderated the contagion of coworker happiness ($\gamma =$

.06, p = .03, 95% CI [.01, .12]). Follow-up simple slope analyses revealed that at high levels (+1

SD) of perceived status increased the contagion of happiness (b = .34, p < .001, 95% CI [.21,

.46]), while low levels (+1 SD) of perceived status weakened this significant relationship (b =

.27, p < .001, 95% CI [.15, .40]). These results are best understood in the context of the negative

main effect of status on happiness. Combined with the moderation effect, it appears that

interacting with a high-status coworker tends to lower happiness, however, displays of happiness

from a high-status coworker have a greater contagious effect (See Figure 2). Liking perceptions

also moderated the contagion of coworker sadness ($\gamma = -.19$, p = .001, 95% CI [-.31, -.07]). Figure 2 shows the simple slopes for the moderating effect of liking on the sadness contagion effect, and the moderating effect of perceived status on the happiness contagion effect. At high levels of liking, the contagion of sadness was nonsignificant (b = .10, p = .35, 95% CI [-.11, .30]), while at low levels of liking the contagion effect of sadness was stronger and significant (b= .44, p < .001, 95% CI [.26, .62]), suggesting that liking lowered the extent to which a participant was impacted by a coworker's displays of sadness. Similarity perceptions had no moderating effects. These results provide limited, but partial, support for Hypothesis 5.

Figure 2. Moderation Effects of Liking and Status on the Contagion of Sadness and Happiness.



Implicit social affiliative goals (operationalized as IAT) significantly moderated the contagion relationship for anger ($\gamma = -.18$, p = .04, 95% CI [-.36, -.01]). Figure 3 represents the simple slopes for all the IAT moderating effects. At high levels of IAT (+1 SD), the contagion relationship for anger was weaker, but significant ($\gamma = .28$, p = .002, 95% CI [.10, .45]), while at low levels of IAT (-1 SD), the relationship was stronger and significant ($\gamma = .44$, p < .001, 95% CI [.28, .61]), suggesting that implicit affiliative goals strengthen the contagion of anger between individuals. Sadness was also significantly moderated by IAT scores ($\gamma = -.43$, p = .03, 95% CI [-.82, -.04]). As seen in figure 5, at high IAT levels, the relationship between coworker sadness

and participant afternoon sadness was nonsignificant ($\gamma = .22, p = .06, 95\%$ CI [-.01, .45]), but at low levels the relationship was stronger and significant ($\gamma = .38, p < .001, 95\%$ CI [.17, .59]), suggesting that sadness is moderated in a similar manner by IAT as anger. Lastly, happiness was also moderated by IAT scores ($\gamma = .24, p = .008, 95\%$ CI [.06, .41]). In contrast to sadness and anger, high levels of IAT lead to a stronger and significant contagion of happiness ($\gamma = .37, p <$.001, 95% CI [.24, .49]), while lower levels of IAT lead to a weaker but still significant relationship ($\gamma = .25, p < .001, 95\%$ CI [.13, .38]). Broadly, these results suggest a tendency of implicit affiliative goals to strengthen the spread of positive emotions and weaken the spread of negative emotions, providing partial support for Hypothesis 6.





To test IAT scores as a mediator of the moderating effect of status, the indirect moderating effect of status via IAT scores was computed. This effect was only significant for the happiness contagion path (indirect effect = -.01, p = .04, 95% CI [-.02, -.00]), suggesting that the moderating effect of status perceptions on the contagion of happiness is partially mediated by implicit social goals (IAT), providing limited support for Hypothesis 7.

Hypothesis 8

To test the possible moderating role of empathy on the contagion relationship, all 3 dimensions of the empathy measure were modelled as cross-level moderators of the contagion relationship. The results of this analyses are reported in table 5 and provide partial support for Hypothesis 10. Once again, morning emotions were dropped from this model as a control to help address issues with parameter-cluster ratios. The measure of empathy used in the study contained 3 distinct dimensions of empathy – empathic concern, perspective-taking, and distress. Empathic concern moderated the relationship of both coworker anger (y = -.22, p = .001, 95% CI [-.35, -.08]) and sadness ($\gamma = -.25$, p = .002, 95% CI [-.41, -.09]) with participant afternoon anger and sadness. Figure 5 presents the simple slopes for empathic concern and both anger and sadness contagion. At high levels of empathic concern, the contagion relationship for anger was nonsignificant ($\gamma = .03$, p = .68, 95% CI [-.12, .18]) but at low levels it was significant and positive ($\gamma = .24$, p < .00, 95% CI [.10, .38]). For the contagion of sadness, at high levels of empathic concern, the relationship was nonsignificant ($\gamma = -.09$, p = .36, 95% CI [-.28, .10]) but at low levels it was significant and positive ($\gamma = .23, p < .00, 95\%$ CI [.08, .38]). As a whole these results suggest that high levels of empathic concern reduced the contagion of negative emotions (anger and sadness).

Figure 4. Moderation Effects of Empathic Concern on the Contagion of Anger and Sadness.



Table 5. Results for Hypothesis 8.

	Mod with	el 5: Ra 1 Level 2 Main E	ndom Slopes 2 Moderator Effects*	Model 6: Random Slopes with Level 2 Moderator Interactions Effects*		
Variable	В	SE	B/SE	В	SE	B/SE
Within-person residual variance						
Afternoon Anxiety	0.10	0.01	16.10***	0.10	0.01	16.03***
Afternoon Anger	0.15	0.01	16.33***	0.15	0.01	16.49***
Afternoon Sadness	0.19	0.01	16.74***	0.19	0.01	16.65***
Afternoon Happiness	0.39	0.02	16.41***	0.39	0.02	16.38***
Afternoon Calmness	0.40	0.02	16.33***	0.40	0.03	16.28***
Between-person residual variance						
Afternoon Anxiety	0.08	0.02	5.44***	0.08	0.02	5.44***
Afternoon Anger	0.11	0.02	5.29***	0.11	0.02	5.29***
Afternoon Sadness	0.33	0.06	5.91***	0.33	0.06	5.90***
Afternoon Happiness	0.90	0.15	5.90***	0.90	0.15	5.90***
Afternoon Calmness	0.57	0.10	5.71***	0.57	0.10	5.71***
random slope (Anxiety)	0.43	0.16	2.71**	0.34	0.14	2.38*
random slope (Anger)	0.12	0.04	3.34***	0.06	0.02	2.76**
random slope (Sadness)	0.09	0.04	2.51*	0.03	0.03	0.98
random slope (Happiness)	0.02	0.01	1.44	0.01	0.01	1.11
random slope (Calmness)	0.04	0.01	2.53*	0.03	0.01	2.31*
Predictors for Afternoon Emotions						
Coworker Anxiety (CA)	0.32	0.12	2.75**	0.25	0.11	2.22*
Coworker Anger (CAn)	0.36	0.06	5.82***	0.29	0.05	5.53***
Coworker Sadness (CS)	0.30	0.07	4.24***	0.27	0.05	5.01***
Coworker Happiness (CH)	0.25	0.04	7.14***	0.25	0.03	7.33***
Coworker Calmness (CC)	0.29	0.04	7.68***	0.28	0.04	7.71***
Level 2 Empathy Moderators						
Empathic Concern (EC) -						
Anxiety	-0.14	0.05	-2.76**	-0.14	0.05	-2.76**
EC - Anger	-0.22	0.06	-3.77***	-0.22	0.06	-3.77***
EC - Sadness	-0.35	0.10	-3.61***	-0.35	0.10	-3.61***
EC - Happiness	0.16	0.16	0.99	0.16	0.16	0.99
EC - Calmness	0.12	0.13	0.91	0.12	0.13	0.91
EC x CA	-	-	-	-0.17	-0.16	-1.10
EC x Can	-	-	-	-0.22	0.07	-3.18***

Table 5 (co	ont'd).
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	EC x CS	-	-	-	-0.25	0.08	-3.13**
	EC x CH	-	-	-	0.03	0.06	0.42
	EC x CC	-	-	-	-0.09	0.05	-1.61
	Empathic Perspective-Taking						
(EP)) - Anxiety	0.13	0.06	2.06*	0.13	0.06	2.06*
	EP - Anger	0.15	0.07	2.03*	0.15	0.07	2.03*
	EP - Sadness	-0.12	0.12	-0.96	-0.12	0.12	-0.96
	EP - Happiness	0.45	0.20	2.25*	0.45	0.20	2.25*
	EP - Calmness	0.15	0.16	0.95	0.15	0.16	0.95
	EP x CA	-	-	-	-0.07	0.19	-0.39
	EP x CAn	-	-	-	0.11	0.10	1.11
	EP x CS	-	-	-	0.24	0.09	2.51*
	EP x CH	-	-	-	-0.08	0.06	-1.29
	EP x CC	-	-	-	0.07	0.07	0.93
	Empathic Distress - Anxiety	0.19	0.05	4.23***	0.19	0.05	4.23***
	ED - Anger	0.26	0.05	4.88***	0.26	0.05	4.88***
	ED - Sadness	0.19	0.09	2.22*	0.19	0.09	2.22*
	ED - Happiness	-0.16	0.14	-1.11	-0.16	0.14	-1.11
	ED - Calmness	-0.38	0.12	-3.26***	-0.38	0.12	-3.26***
	ED x CA	-	-	-	0.21	0.14	1.53
	ED x CAn	-	-	-	0.28	0.07	4.05***
	ED x CS	-	-	-	0.14	0.08	1.82
	ED x CH	-	-	-	-0.09	0.04	-2.04*
	ED x CC	-	-	-	0.01	0.05	0.83
Mod	lel Fit Information						
	AIC			4,938.06			4,928.57
	BIC			5,208.40			5,266.50
	loglikelihood value			-2,409.03			-2,389.29

Note. All estimates are unstandardized. Each path model was estimated simultaneously as one model. Level 1 sample size = 685; level 2 sample size =82CWBI, OCBI, and morning emotions controls not estimated in these models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

* p < .05. ** p < .01. *** p < .0

Empathic distress moderated the relationship of both coworker anger ($\gamma = .28$, p < .001,

95% CI [.14, .41]) and happiness ($\gamma = -.09$, p = .04, 95% CI [-.17, -.01]) with participant

afternoon anger and happiness. These cross-level moderations were examined using simple slope

analyses. Figure 5 visualizes the moderating effect of empathic distress on the contagion

relationship between coworker happiness and afternoon happiness and for coworker anger and

afternoon anger. At high levels (+1 SD) of empathic distress, the contagion relationship for

happiness was weaker and nonsignificant ($\gamma = -.03$, p = .80, 95% CI [-.11, 09]), but at low levels

(-1 SD) of empathic distress the relationship was stronger ($\gamma = .09$, p = .05, 95% CI [.00, .18]).

Similarly, high empathic distress led to stronger positive relationship between coworker anger and afternoon anger ($\gamma = .32$, p < .00, 95% CI [.17, .47]), whereas at low levels the contagion relationship was negative and nonsignificant ($\gamma = -.10$, p = .23, 95% CI [-.25, .06]). These results suggest that the empathic distress dimension of empathy may have inhibited the spread of happiness, while increasing the spread of anger between coworkers.

Figure 5. Moderation Effects of Empathic Distress on the Contagion of Anger and Happiness.



Lastly, the perspective-taking dimension moderated the relationship between coworker sadness and afternoon sadness. Figure 6 visualizes the simple slopes for the moderating effect of empathic perspective-taking on the sadness relationship. At low levels of perspective-taking, the contagion of sadness was nonsignificant ($\gamma = -.09$, p = .34, 95% CI [-.27, .09]), whereas at high levels it was significant and positive ($\gamma = .24$, p < .00, 95% CI [.08, .41]), indicating that perspective-taking may increase how easily sadness spreads between coworkers.

Figure 6. Moderation Effects of Empathic Perspective-taking on the Contagion of Sadness.



Research Question 3

A key goal of this study was to explore the effect of technology on emotional contagion. To test for possible moderating effects of interaction modality, an initial analysis was conducted using dummy codes to test if computer mediated interactions (all grouped together) impact the contagion process differently from face-to-face interactions. This analysis revealed no interactions between meeting modality and perceived coworker emotions. Interaction using any form of technology did have a main effect on both calmness ($\gamma = -.19$, p = .02, 95% CI [-.34, -.03]) and happiness ($\gamma = -.16$, p = .05, 95% CI [-.31, -.00]). A follow up analysis sought to explore if differences between types of interaction modality might be due to the richness of interaction. Richness of interaction was categorized with email being the lowest, followed by instant messaging, audio-only chatting, video chatting, and lastly face-to-face interaction. This analysis also revealed no significant interactions, and only revealed a slight main effect of richness of interaction on sadness ($\gamma = -.03$, p = .03, 95% CI [-.06, -.00]). Given these findings, it seems likely that emotional contagion occurs with equal strength across a variety of interaction modalities.

	Within-person residual variance	Between-person residual variance	Between-person residual variance in random slope with coworker emotion predictor	
Afternoon Anxiety				
Null Model	0.138	0.105	-	
Morning Controls Added	$0.134; R_w^{2(f1)} = 2.90\%$	0.096	-	
Fixed Slopes Model	$0.113; R_w^{2(f1)} = 18.11\%$	0.109	-	
Random Slopes Model	$0.088; R_w^{2(v)} = 36.23\%$	0.111	0.533	
Within-Person Moderator Main Effects	0.095			
Within-Person Moderator Interaction	$0.005 - r^{2}(v) - 21.110/$			
Effects	$0.095, R_w^{\circ \circ} = 51.11\%$	$0.082 \cdot R =$		
Empathy Moderator Main Effects		26.10%		
Table 6 (cont'd).				
Empathy Moderator Interaction Effects			$0.341; R_b^{2(m)} =$	
	0.097	0.082	36.02%	
Afternoon Anger				
Null Model Marria Controla Addad	0.222	0.154	-	
Fixed Slopes Model	$0.217; R_w^{2(01)} = 2.25\%$	0.132	-	
Fixed Slopes Model	$0.177; R_w^{2(01)} = 20.27\%$	0.155	-	
Within Person Moderator Main Effects	$0.138; R_w^{2(0)} = 37.84\%$	0.165	0.145	
Within-Person Moderator Interaction	0.152			
Effects	$0.150, R_w^{2(v)} = 32.43\%$			
Empathy Moderator Main Effects		0.107; R = 35.20%		
Empathy Moderator Interaction Effects	0.146	0.107	$\begin{array}{l} 0.06; \ R_b^{2(m)} = \\ 58.62\% \end{array}$	
Afternoon Sadness				
Null Model	0.230	0.451	-	
Morning Controls Added	$0.207; R_w^{2(f1)} = 2.17\%$	0.421	-	
Fixed Slopes Model	$0.180; R_w^{2(f1)} = 21.74\%$	0.457	-	
Random Slopes Model	$0.154; R_w^{2(v)} = 33.04\%$	0.459	0.117	
Within-Person Moderator Main Effects	0.199			
Within-Person Moderator Interaction	0 195 $P^{2(v)} = 15,21\%$			
Empathy Moderator Main Effects	$0.195, n_W = 15.2170$	0.328; $R_b^{2(f2)} =$ 28.54%		
Empathy Moderator Interaction Effects	0.191		$\begin{array}{l} 0.025; R_b^{2(m)} = \\ 78.63\% \end{array}$	
Afternoon Happiness				
Null Model	0.468	1.058	-	
Morning Controls Added	$0.457; R_w^{2(f1)} = 2.35\%$	0.980	-	
Fixed Slopes Model	$0.381; R_w^{2(f1)} = 18.59\%$	1.064	-	
Random Slopes Model	$0.359; R_w^{2(v)} = 23.29\%$	1.081	0.034	

Table 6. Multilevel R^2 Measures Based on Within-Person and Between-Person Variances Explained.

Table 6 (cont'd).

	Within-Person Moderator Main Effects	0.403			
E.C.	Within-Person Moderator Interaction	$0 402 p^{2}(v) 12 000$			
Effects		$0.403, R_w^{2(0)} = 13.89\%$	$0.902 \cdot p^{2(f_2)}$		
	Empathy Moderator Main Effects		16.56%		
	Empathy Moderator Interaction Effects			$0.01; R_b^{2(m)} =$	
		0.390		67.65%	
Afternoon Calmness					
	Null Model	0.501	0.696	-	
	Morning Controls Added	$0.483; R_w^{2(f1)} = 3.59\%$	0.613	-	
	Fixed Slopes Model	$0.415; R_w^{2(f1)} = 17.17\%$	0.711	-	
	Random Slopes Model	$0.374; R_w^{2(v)} = 25.35\%$	0.720	0.056	
	Within-Person Moderator Main Effects	0.405			
	Within-Person Moderator Interaction				
Effe	cts	$0.403, R_w^{2(v)} = 19.36\%$	$2 = (f^2)$		
	Empathy Moderator Main Effects		$0.568; R_b^{2(12)} =$		
			21.11%		
Table 6 (cont'd).					
	Empathy Moderator Interaction Effects	0.400		$0.03; R_b^{2(m)} = 46.43\%$	
OCBI					
	Null Model	0.341	0.405		
	Morning Controls Added	0.341	0.405		
	Fixed Slopes Model	$0.332; R_w^{2(f1)} = 2.64\%$	0.398		
	Random Slopes Model	0.328; $R_w^{2(v)} = 3.81\%$	0.317		
CW	BI				
	Null Model	0.270	0.303		
	Morning Controls Added	0.270	0.303		
	Fixed Slopes Model	$0.253; R_w^{2(f1)} = 6.30\%$	0.294		
	Random Slopes Model	0.246; $R_w^{2(v)} = 8.89\%$	0.212		

Note. $R_w^{2(f1)}$ = within-person variance explained by the addition of level 1 fixed slope predictors; $R_w^{2(v)}$ = within-person variance explained by the addition of level 1 random slope predictors; $R_b^{2(f2)}$ = between-person variance explained by the addition of level 2 moderator main effects; $R_b^{2(m)}$ = variance in random slopes explained by the addition of cross-level moderator effects (Rights & Sterba, 2019, 2020). R^2 values were calculated as [(baseline residual variance - model residual variance)/baseline residual variance]. $R_w^{2(f1)}$ and $R_w^{2(v)}$) relied on the null model as the baseline, while $R_b^{2(f2)}$ and $R_b^{2(m)}$ used the initial random slopes model as the baseline.
Supplementary Analyses

To account for the possibility that gender might moderate the contagion relationships observed in this study, gender was examined in relationship to each of the discrete emotions. Due to the low sample size, the 3 nonbinary participants were not included in the gender moderation analysis. Gender did not interact significantly with any discrete emotions. The only main effect for gender was a positive effect on calmness for male participants (y = .43, p = .03, 95% CI [.04, .81]). To explore the possibility that these effects are moderates by Big Five personality traits, extraversion, agreeableness, and neuroticism (as the most likely moderators of emotional relationships) were tested. None of the personality variables significantly moderated the contagion relationship. Additionally, to examine the possibility that the effects of status on happiness were due to higher status interactions being with supervisors, I examined the effect of interacting with a supervisor on the contagion of happiness. Supervisor interactions were correlated with interactions with high status individuals (r = .33, p < .000, 95% CI [.27, .38]), however interaction with a supervisor did not have a moderating effect on the contagion of happiness, (y = .12, p = .09, 95% CI [-.02, .25]), suggesting that moderating role of status perceptions may be distinct from interactions with in superior hierarchical positions.

Emotions have well-documented influences on how individuals perceive the world around them (Zadra & Clore, 2011). One possibility is the effects observed in the current study are due to influences from participants' emotions on how they perceive the emotions of their coworkers. The provide a partial test of this possibility, I analyzed participants morning emotions as predictors of perceived coworker emotions, in a basic contagion model including morning emotions as a control variable for afternoon emotions and coworkers' emotions predicting participant afternoon emotions. To allow for model convergence in this model, all paths were estimated as fixed slopes. These analyses revealed that morning anxiety, sadness, and happiness had no relationship with perceived coworker anxiety, sadness, and happiness. Morning anger and calmness did have significant effects on coworker anger ($\gamma = .14$, p = .003, 95% CI [.04, .24]) and calmness ($\gamma = .11$, p = .02, 95% CI [.02, .20]). These results are notably weaker and less consistent than the morning to afternoon emotion relationships observed in the study, but do allow for the possibility that participants' morning emotional experiences of anger and calmness influence how they perceive the anger and calmness of their colleagues.

To explore the possibility that one-to-one emotional contagion influence might not account for the all the effects of coworker emotions, supplementary analyses also explored the possibility of cross paths between emotions (i.e., the possibility that coworker anger might predict participant afternoon happiness). Such effects could help reveal possible countercontagion relationships in the emotional contagion process (Barsade et al., 2018). To test these effects while ensuring model convergence, I sequentially examined each coworker emotion as a predictor of all 5 afternoon participants emotions. These tests revealed that all additional contagion paths were nonsignificant except for coworker anxiety as a predictor of participant afternoon anger ($\gamma = .12$, p = .02, 95% CI [.02, .22]), coworker anger as a predictor of participant sadness ($\gamma = .11$, p < .001, 95% CI [.04, .18]), and coworker happiness as a predictor of participant calmness ($\gamma = .18$, p < .001, 95% CI [.09, .26]). These results do not support any direct counter-contagion relationships, but instead suggest that there a more nuanced effects regarding how individuals' positive and negative emotions are influenced by the positive and negative emotions of those around them.

Contextual factors related to an employee's workplace my also impact the spread of emotions between individuals. Given this fact, workplace competitive climate, psychological

safety, and task interdependence were all explored as potential moderators of the contagion process. The majority of these interactions were not significant; however, task interdependence was a moderator of the contagion of anger ($\gamma = -.19$, p = .005, 95% CI [-.33, -.06]). Simple slopes analyses revealed that at high levels (+1 SD) of task interdependence, the contagion of anger was nonsignificant ($\gamma = -.04$, p = .56, 95% CI [-.17, .09]), while at low levels (-1 SD), the relationship was stronger and significant ($\gamma = .26$, p < .00, 95% CI [.14, .39]).

Figure 7. Moderation Effects of Interdependence on the Contagion of Anger.



In general, the majority of hypotheses received limited to full support. To provide an overview of the results in context of the study hypotheses, Table 7 summarizes hypotheses, and the level of support for each in the context of different discrete emotions. Research question 1 was explored using the multilevel CFA analysis, which revealed that discrete emotions modelled the data more appropriately than aggregates. Further support for this finding come from the fact that discrete emotions exhibited unique relationship moderators. Additionally, when using aggregates of positive and negative emotions, the relationship of anger on CWB-I was suppressed by the null effects of other negative emotions, making the relationship between negative emotions and CWB-I nonsignificant (b = .17, p = .10, 95% CI [-.03, .37]).

Interestingly, although Hypothesis 2 was not supported, the only emotions that predicted

OCB-I and CWB-I were high activation (happiness and anger respectively), providing evidence

regarding Research Question 2 that discrete emotions to function differently from one another.

Further evidence regarding Research Question 2 comes from results of moderation analyses that

suggest certain moderators have unique effects on specific emotions. The implications of these

differences are explored in the discussion.

Table 7. Summary of Hypothesis Support.

Hypothesis:	Support:	Linkages Supported:
Hypothesis 1: Perceived coworker (a) happiness, (b) sadness, (c) anxiety, (d) anger, and (e) calmness will positively relate to participant (a) happiness, (b) sadness, (c) anxiety, (d) anger and (e) calmness.	Full	Happiness Sadness Anxiety Anger Calmness
Hypothesis 2: Relationships between perceived coworker high activation emotions (i.e., happiness, anger, and anxiety) and participant high activation emotions will be stronger compared to relationships between perceived coworker low activation emotions (sadness and calmness) and participant low activation emotions.	None	
Hypothesis 3: Emotional contagion of positive emotions from a coworker will positively relate to prosocial behaviors.	Partial	Happiness
Hypothesis 4: Emotional contagion of negative emotions from a coworker will positively relate to counterproductive work behaviors.	Partial	Anger
Hypothesis 5: Higher perceived coworker (a) status, (b) similarity, and (c) likability, will accentuate the positive relationships between perceived coworker emotions and participant emotions.	Partial	Status on Happiness Liking on Sadness
Hypothesis 6: Implicit social affiliation goals will moderate the positive relationship between the perceived coworker emotions and participant emotions, such that higher levels of implicit affiliative goals will accentuate the positive relationship between perceived coworker emotions and participant emotions	Partial	Happiness
		Sadness (decrease)
cononal enouons una participant enouons.		Anger (decrease)

Table 7 (cont'd).

Hypothesis 7: Implicit social affiliation goals will mediate the moderating effect of perceived (a) status, (b) similarity, and (c) liking on the relationship between perceived coworker emotions and participant emotions. Specifically, higher perceived coworker status, similarity, and likability will be positively related to implicit social affiliation goal, which in turn will accentuate the positive relationships between perceived coworker emotions and participant emotions.	Limited	Status to Implicit Goals for Anger
Hypothesis 8: Higher participant trait empathy will amplify the positive relationship between perceived coworker emotions and participant emotions.	Partial	Empathic Distress for Anger Opposite Effect for Empathic Distress for Happiness Empathic Perspective-Taking for Sadness
		Opposite Effect for Empathic Concern on Anger
		Opposite Effect for Empathic Concern on Sadness
Research Question 1: Do discrete emotions fit the data when modelling emotional contagion better than positive-negative aggregation?	Full	
Research Question 2: Do discrete emotions (1) function differently from one another, and (2) do these differences depend on implicit social goals and social perceptions?	Partial	See Results Text
Research Question 3: How do various forms of computer mediated communication (text, email, instant messaging, audio-only, or video-based interactions) influence (moderate) the emotional	Partial	See Results Text

contagion process compared to face-to-face interactions?

DISCUSSION

Emotional contagion is a well-documented process that impacts several aspects of work ranging from attitudes to decision-making (Barsade et al., 2018). Although the phenomenon of contagion has clear implications for employees, a few major issues exist in the existing understanding of how this process occurs. This study aimed at advancing understanding of emotional contagion along three main areas -(1) by providing a more nuanced examination of the role of discrete emotions, (2) by accounting for unique effects of the social context, and (3)by providing a framework to help explain how emotional contagion can lead to complex behaviors. To accomplish this goal, the study examined a working sample over a two-week period and tested how stable individual differences and perceptions moderated the contagion relationship. By using this approach, this study advances our understanding of emotional contagion in several ways. First, these results provide evidence for the importance of considering discrete emotions in emotional contagion, as differing emotions have unique effects as they spread between individuals. Second, the design allowed for a more in-depth examination of how existing relationships and social perceptions may have implications for individuals, as the relational context is theoretically important to the functioning of emotions (Fischer & van Kleef, 2010), and is an element of social interaction which historically has been underexamined in emotional contagion research (Hatfield et al., 2014). Third, this research provides evidence supporting a social function role of emotional contagion, which could help provide insight into how emotional contagion contributes to complex behavioral outcomes. Lastly, this study examined the role of empathy and technology in relation to emotional contagion and provides new insights into how these factors relate to the spread of emotions.

The results of the daily diary study provided evidence supporting the proposition that the emotions an individual perceives a given coworker to be experiencing spread contagiously to the corresponding emotions experienced by that individual. Specifically, I found that participant anxiety, anger, sadness, happiness, and calmness were all positively related to displays of those same emotions in participants' coworkers, controlling for participants' emotions in the morning. In turn, participant happiness and anger were associated with their coworker-focused OCB and CWB, respectively. Each of these findings display significant indirect relationships with perceived coworker emotions, fitting with research highlighting how the affective state of groups of workers can drive citizenship behaviors (Tanghe et al., 2010). These results represent one of first the studies demonstrating indirect effects of perceived coworker emotions on an individual's citizenship and antisocial work behaviors, as mediated by that individual's own emotions. Furthermore, by exploring various moderators of the emotional contagion relationship, this study yielded insights regarding the role of the social context and individual differences. Notably, implicit affiliative goals moderated the contagion relationship for happiness, sadness, and anger. Status and liking were also found to moderate the contagion relationship for happiness and sadness, respectively, and status had an indirect moderating relationship through implicit social goals.

Discrete Emotions

A core focus of this project was to focus on differences more explicitly between discrete emotional states in the contagion relationship. Existing research generally supports the idea that a number of emotions exist which have unique cognitive, physiological, behavioral, and somatic patterns associated with them (Frijda, 1986; Roseman et al., 1994). Functional accounts of emotions focus on the fact that discrete emotional states help individuals respond to certain types

of demands in the environment (Ekman, 1992; Smith & Lazarus, 1993; Campos et al., 1994). Although some theorists proposed that the important distinctions between emotional states could be evaluated in terms of valence (positive versus negative) and degree of arousal (Russell, 1980), meta-analytic work suggests that these broad differences do not account for the unique effects of discrete emotional states (Lench et al., 2011). Despite such research, much of the existing work in emotional contagion has focused mainly on comparisons of either isolated emotions or on the high-level positive/negative distinction, leading to calls for increased attention to possible unique effects associated with the contagion of discrete emotional states (Barsade et al., 2018).

Fitting with research demonstrating that unique effects are associated with different discrete emotions (Lench et al., 2011), this study indicated that considering emotions individually, as opposed to in aggregate, is a more appropriate way in which to model the data. In contrast to expectations, there were no substantial differences between the strength of the contagion relationship between high activation and low activation emotions. Interestingly, there were differences between the emotions in their relationship to behavioral outcomes, and these differences were in line with high/low activation distinctions (with low activation states not significantly predicting OCBs and CWBs). Specifically, the positive emotion of happiness but not calmness connected to coworker-directed OCBs, while the negative emotions of anger but anxiety or sadness was associated with coworker-directed CWBs. This evidence provides a more nuanced picture to refine work that suggests that positive emotions drive helping and citizenship behaviors (Spector & Fox, 2002; Snippe et al., 2018) and that negative emotions are tied to counterproductive social behaviors (Yang & Diefendorff, 2009; Fida et al., 2015). Continued work in organizational research exploring the role of emotions should attempt to consider

discrete emotions where possible. Given that different emotions have discrete roles, considering them can lead to discovery of important and unique effects (e.g., Tse et al., 2013).

Social Functions of Emotions

To better account for contextual influences and complex effects associated with emotional contagion, this project integrated a social functionalist account of emotions with emotional contagion. Emotions can be understood in terms of the underlying functions that they perform in helping individuals effectively navigate their environment (Campos et al., 1994). One of most central functions of emotions is to facilitate social goals (Ekman, 1992; Fischer & Manstead, 2008; Keltner & Haidt, 1999). In social interactions, goals towards affiliating or distancing from others are paired with emotions that aide in the pursuit of these goals (Fischer & Van Kleef, 2010). For example, experiencing disgust in relation to a goal of distancing oneself from another individual (Schaller & Park, 2011). Given that emotions serve this purpose, it is likely that the ability to experience the emotions of others also serves an adaptive social function (Mafessoni et al., 2019). In line with these concepts, this study examined the possibility that social goals towards other operate at the unconscious level and moderate the strength of emotional contagion relationships. Implicit social goals are likely driven by perceptions of others. For example, individuals tend to want to mimic and affiliate with individuals who are perceived as higher status (Cheng & Chartrand, 2003). Support for these propositions would help explain how emotional contagion can lead to complex social behaviors and outcomes - the spread of emotions helps determine how individuals interpret and construct a shared social reality (e.g., Van Kleef, 2009; Clément & Dukes, 2017).

The results of this study provide evidence that implicit social goals do moderate the emotional contagion relationship. Implicit affiliative biases towards ones' coworkers (as

measured by implicit association test scores in relation to neutral stimuli) were associated with decreases in the contagion of negative emotions (anger, sadness), and increases in the contagion of positive emotions (happiness). These findings are especially interesting in light of research on social functions of emotions which suggests that positive emotions are essential in helping individuals to bond with one another (Sels et al., 2021). Implicit affiliative goals that contribute to increases in shared positive emotions and decreases in shared negative emotions may be crucial in helping individuals move socially together (Fischer & Van Kleef, 2010) as a result. Although in close relationships (e.g., marriage) evidence suggests that shared negative emotions can be tied to important moments of bonding (e.g., a shared trauma or negative emotions (Anderson et al., 2003; Fischer & Manstead, 2008). These results support the idea that implicit social goals alter how emotional contagion functions to better fit with individual's social needs.

A more complex picture emerges in relation to the role of social perceptions. This study found that status perceptions indirectly moderated the emotional contagion of happiness via its association with implicit affiliative goals. Status perceptions of ones' coworker increased the contagion of happiness from ones' coworker, fitting with research suggesting that individuals are motivated to affiliate with those they perceive as having higher status (Cheng & Chartrand, 2003; Lansu et al., 2014). Interestingly, the positive moderating effect was observed in conjunction with a negative main effect of perceived status on happiness, such that individuals experienced lower happiness on average after interacting with a coworker they perceived as higher status. Notably, interactions with supervisors did not exhibit this relationship and appeared to be distinct from status perceptions, suggesting that negative main effect of status on happiness is not due to interacting with ones' boss. One possibility is that although participants

are motivated to affiliate with high status individuals, they may simultaneously experience negative emotional states such as envy, which are associated to interactions involving upward social comparisons (Kim & Glomb, 2014; Lam et al., 2011). Future efforts can continue to explore the complex relationship of status on emotional processes.

Interacting with coworkers that a participant found more likeable was related to increased happiness and decreased contagion of sadness. These modest results fit with what would be expected given the proposition that emotions serve an affiliative function between individuals who find one another likeable (Fischer & Manstead, 2008). In contrast, similarity did not moderate any emotional contagion relationships between coworkers and participants. Similarity was used a proxy for group membership, given that similarity perceptions are tied closely to shared social identity (Tanis & Postmates, 2005). Given the lack of effects surrounding this social characteristic, it is possible that similarity perceptions did not correspond closely enough to group membership perceptions to have an effect like those observed in counter-contagion studies (Weisbuch & Ambady, 2008). As a result, future work should continue to consider implications of social identity in relation to the social functions of emotions, and more carefully consider how to operationalize and examine these effects. Broadly, the effects of social perceptions, where present, fit with propositions related to a social functionalist account of emotional contagion.

Individual Differences as Contagion Moderators

Beyond the social goals and perceptions considered above, there are individual and contextual factors that are likely to moderate the contagion relationship (Vijayalakshmi & Bhattacharyya, 2012). Empathy has long been linked to emotional contagion and was associated with how easily emotions spread between individuals (Barsade et al., 2018; Doherty, 1997). This

is likely due to the fact that empathy is associated with increased mimicry (Sonnby-Borgström et al., 2003) and affiliative social motives (Zaki, 2014). Despite a long theoretical linkage of empathy and emotional contagion, existing work has not accounted for the multidimensional nature of empathy, which involves both direct affective and cognitive elements (Clark et al., 2019). In this view, affective empathy is very similar to emotional contagion in that it involves feeling what another person is feeling, while cognitive aspects of empathy involve greater consideration of what another person is experiencing that is leading to their emotions. By using three-dimensions of Davis's (1980) empathy measure (not including the fantasy subscale), the results of this study are able to provide a more nuanced representation of the role of empathy in relation to emotional contagion.

Cross-level moderation tests revealed that empathic perspective-taking (tendency to adopt the viewpoint of others, analogous to Clark et al.'s (2019) view of cognitive empathy) was connected to increases in the contagion of happiness. In contrast, the empathic concern dimension of empathy was associated with decreases in the contagion of negative emotions of anger and sadness. Davis's (1980) subscale of empathic concern is similar to measures of compassion. In more modern conceptions, trait-level concern/compassion is viewed as a distinct construct from empathy (cf. Zaki, 2014), and these results fit with propositions that compassion involves concern towards others, but not direct experience of the emotions of others (Clark et al., 2019). Thus, individuals who are higher in trait compassion/concern are less directly influenced by negative emotional displays from their coworkers.

Lastly, Davis's empathic distress dimension is similar to Clark et al.'s conception of affective empathy, in that it involves personal distress in response to the distress of other individuals. However, the Davis measure may also be connected to negative affectivity, as this

dimension of empathy was associated with increased contagion of anger, and decreased contagion of happiness. Personality trait moderation tests revealed no significant effect of neuroticism, however this aspect of empathy may reflect individual differences that make people more susceptible to negative, as opposed to positive, emotional states. As a whole, empathy-related moderation effects revealed a nuanced picture of how different aspects of this trait moderate the way in which individuals are affected by one another. Importantly, empathic traits do not necessarily lead to a wholesale increase in emotional contagion, and their effect appeared to differ based on the valence of the emotions transmitted – mostly prominently happiness and anger. Future work should examine these relationships more closely in conjunction with developing measures that are better suited to newer multi-dimensional views of empathy (Clark et al., 2019).

Contextual Moderators of Emotional Contagion

This study also considered technological and workplace contextual moderators of the contagion relationship. While perspectives differ regarding how computer-mediated (CM) communication influences the spread of emotions (Goldenberg & Gross, 2019, 2020) the research does show that even in the absence of facial cues and live social interaction, emotions do spread socially through various types of CM communication (Niedenthal et al., 2009; Peters & Kashima, 2015). The fact that analyses reveal no significant differences in the emotional contagion relationships as a function of using CM versus face-to-face interaction, or as a function of type of CM technology used (ranging from text to video chatting) is interesting because it indicates that even in forms of CMC with reduced contextual information (Byron & Baldridge, 2005), emotions are able to spread between interacting coworkers. As discussed in the

future directions section below, this raises some interesting questions as researchers continue to explore how emotions might function similarly or differently in CM social interactions.

Lastly, this study found limited support for the role of workplace characteristics as moderators of the contagion process, finding evidence that high workplace interdependence decreases the contagion of anger between individuals. One possibility is that global characteristics of the workplace may be too distal to have direct effects on how emotional contagion occurs. Existing research suggests that the immediate situation plays an important role in influencing the function of emotions. For instance, negotiation and competitive situations alter how individuals appraise the purpose of emotions displayed by others (Tiedens, 2001; Totterdell 2000; Van Kleef & Côté, 2007). Future work examining the social functional perspective on emotional contagion should consider exploring how situations may give rise to implicit social goals which alter how individuals are impacted by one another emotionally.

Practical Implications

The results of this work have important practical implications for organizations. The results broadly suggest that the contagion of different emotions can have different effects on how employees treat one another within the workplace, and that social goals can enhance the contagion of certain emotions, such as those associated with social affiliation (Sels et al., 2021). Given that the emotional contagion of anger and happiness relate to CWB and OCB towards coworkers, organizations may be able to alter how much employees engage in CWB and OCB behaviors by influencing how much these emotions spread within their workplaces. One potential avenue by which to accomplish this would be to rely on strategies to encourage affiliative motives among employees, as these were found to accentuate the contagion of happiness while also decreasing the contagion of anger. Organizations should consider ways to

maximize the extent to which individuals within their workplace want to affiliate with each other, by promoting bonding via emphasizing shared identity and positive traits of coworkers which have been identified as factors associated with the affiliate function of emotions (Keltner & Haidt, 1999; Fischer & Manstead, 2008). Additionally, given that individuals in competition may be less motivated to affiliate with one another (Totterdell, 2000; Van Kleef et al., 2010), organizations should be careful about the extent to which they put their workers in competition with one another.

Monitoring and guiding the spread of emotions is an important role of organizational leadership (Vijayalakshmi & Bhattacharyya, 2012). Given the broad benefits of positive emotions (McGrath et al., 2017; Diener et al., 2020), organizations should emphasize the importance of leader positive emotions, as leader's emotions have an important contagious effect (e.g., Johnson, 2008). Given findings related to empathy, organizations should also consider how individual employee differences might impact the spread of desirable and undesirable emotions. Empathy is often viewed as a positive in organizational settings, however being able to easily experience the emotional states of others may not always be beneficial (Clark et al., 2019). Based on the results of this study, there may be reasons to prefer employees who are compassion, as thy may be understanding and concerned but not as easily influenced by the negatives emotions of their coworkers.

Lastly, the contagion relationships occur across all types of interaction (from face-to-face to instant messaging), indicating that even though workers are increasingly communicating with one another using technology (McFarland & Ployhart, 2015), they will still be influenced by emotional effects from their coworkers. It is generally more difficult for organizations to effectively manage emotions within virtual teams (Ayoko et al., 2012), so in these contexts it

will be especially important to implement systems that enable team members to affiliate within virtual interactions.

Limitations

This study has a few important limitations due to the nature of the design. To capture workers' experience of emotional contagion at the daily level within a real workplace, data collection was focused entirely on focal participants – excluding directly assessing the actual coworkers with which employees interacted with. This design prevents measurement of the coworkers' self-reported emotions, limiting the extent to which claims can be made regarding the actual emotional experiences of these coworkers. That said, the contagious influence of emotions operates at the perceptual level – individuals are influenced by the emotions that they are able to notice in others (Hatfield et al., 2014). For this reason, when considering outcomes related to a focal individual, their perceptions of others' emotions are most important to consider.

Most importantly, despite the fact that perceived coworker emotions were measured retrospectively (asking the participant to remember their most recent interaction), coworker emotions were still collected at the same time as participant time 2 emotions. Additionally behavioral outcomes (OCBs and CWBs direct towards coworkers) were measured at the same time as well. This design creates the possibility that common method variance (CMV) strongly impacts the relationships between coworker and participant emotions (Podsakoff et al., 2003). Trade-offs would also be present for increased temporal separation however, as discrete emotions states are generally considered to be short in duration (Frijda, 1986; Barsade & Gibson, 2007), making it likely that the most important emotional contagion effects occur immediately after interaction with a colleague. I also controlled for the effect of morning emotional states to partially alleviate concerns related to the effect of CMV. This design allowed for tests of the

immediate effect of emotional contagion on social behaviors, however future work should consider relying on an event sampling approach to have participants record interactions with others as they occur, and then assess changes in participant emotions shortly afterwards, separately.

Future Directions

Important work is needed in the area of emotional contagion. Future work should continue to consider individuals in real relational contexts and explore emotional contagion using network analysis techniques. For example, techniques more recently developed for us in social science settings consider network influence effects (Frank et al., in press). If applied well, such models could account for how the characteristics of individual actors influence the spread of emotions between individuals. Although network perspectives have been integrated into the exploration of emotional contagion via large-scale social networks (cf. Ferrara & Yang, 2015; Goldenberg & Gross, 2019), little work has adapted network analysis techniques to study how emotional contagion occurs in smaller groups. Such studies could advance understanding of how emotional contagion between multiple individuals is impacted by the unique social characteristics and goals of each individual. Such work could advance the study of emotional contagion at team and organizational levels, providing more evidence regarding the impact that emotional contagion can have on at higher levels of analysis (Barsade et al., 2018). For example, analyses by Christakis and Fowler (2013) performed a large-scale network analysis suggesting that individuals are first influenced by social contagion of health behaviors and mood, and subsequently cluster together based on convergence along these behavior and mood similarities. Such results provide an example of how forms of contagion can alter the way large groups of

individuals behave, and highlight the need for more work on organization-level outcomes of emotional contagion at work.

Relatedly, future work should follow-up on the relationship between emotional contagion and CM communication. Fitting with existing evidence (cf. Goldenberg & Gross, 2019; 2020), the results of this study indicate that emotional contagion occurs just as powerfully in CMC as in face-to-face interactions. While analyses in this study revealed no differences between how emotions spread as a function of relying on CM interactions, this should be explored in greater detail. One possibility is that the use of technology (e.g., email, video-chatting) introduces factors that make it less likely that individuals will accurately display their emotions. For example, work by Cheshin et al., (2011) suggests that individuals are more likely to attempt to present themselves in a positive manner in CM-based interactions. On the receiving side of CM communication, evidence suggests that in the absence of face-to-face contextual cues individuals tend to make additional inferences when trying to understand the emotions of others that they interact with using CM technologies (e.g., extrapolating from the length of an email if a colleague is angry or not; Byron & Baldridge, 2005). Fitting with signaling theory (Connelly et al., 2011), it is possible that these factors lead to increased 'noise' or factors that distort individuals' ability to understand one another accurately. Future work could examine differences between experienced and perceived emotions in CM interactions and explore if emotions are more likely to be mis-perceived in the context of CM interactions. Such misunderstanding would likely have an important effect on workplace collaboration, as individuals are better able to collaborate when they clearly understand the goals and emotions of those around them (Järvenoja & Järvelä, 2009).

Lastly, future work should more fully examine the issues of counter-contagion (Barsade et al., 2018). Emotional experiences that diverge from those an individual is exposed to (e.g., experiencing positive emotions as a result of witnessing negative emotions in an individual) have been observed in studies (Espstude & Mussweiler, 2009). These counter-contagion effects have been primarily observed in studies that compare in-versus out-group differences between how individuals perceive emotions of others (e.g., Weisbuch & Ambady, 2008). To help explain how this phenomenon occurs, this study proposed that emotional contagion is tied to implicit social goals. Thus counter-contagion is likely to occur when one interacts with an individual towards which an individual has a strong implicit distancing goal (Fischer & Manstead, 2008). Such distancing goals could arise as a function of perceiving an individual as being part of an outgroup (Weisbuch & Ambady, 2008), having low social status (Massen et al., 2015), or being unlikeable (Bets & Stiller, 2014). These circumstances were hard to observe in the context of this study, as coworkers were generally perceived in a positive manner. The most fruitful attempts to examine this issue in greater detail will likely need to be focused on situations where group membership differences are particularly salient in social interactions or where situational factors such as competitiveness alter the functioning of emotions (Totterdell, 2000; Van Kleef, 2010). Such work could provide new insights into the boundary conditions that shape the nature of emotional contagion.

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CONCLUSION

In this thesis, I set out to refine current understanding of how emotional contagion occurs by examining the differing functions of discrete emotions and proposing that contextual influences on emotional contagion occur in line with a social functional perspective on emotions. The results indicated that individual's discrete day-to-day discrete emotional experiences are related to the emotional experiences they witness in interactions with their coworkers. The spread of certain emotions is associated with increases in prosocial and antisocial behaviors at work. Additionally, implicit affiliative social goals are related to increases spread of happiness and decreased contagion of anger and sadness. Perceptions of likeability, status, as well as different dimensions of empathy also had a moderating effect on the contagion of different emotions. These findings provide initial support that emotional contagion supports the social functions of emotions by helping individuals affiliate with individuals that they wish to approach socially and help clarify the role of empathy in relationship to emotional contagion.

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APPENDIX A: CONSENT FORM

Research Participant Information and Consent Form

Study Title: Emotions and Social Interaction at Work Researcher and Title: Nathan Baker, Graduate Researcher Department and Institution: Organizational Psychology, Michigan State University Contact Information: <u>bakerna7@msu.edu</u>

BRIEF SUMMARY

Thank you for your interest in this research study!

You are being asked to participate in a research study. Researchers are required to provide a consent form to inform you about the research study, to convey that participation is voluntary, to explain risks and benefits of participation including why you might or might not want to participate, and to empower you to make an informed decision. You should feel free to discuss and ask the researchers any questions you may have.

You are being asked to participate in a research study of your emotions and interactions with coworkers while you are working. Your participation in this study will take no more than 5-10 minutes each workday for 2 weeks. Participating in this study is completely voluntary and you may quit at any time. You will be asked to first complete two initial online surveys that should take approximately 35 and 15 minutes (respectively) to complete. After fully completing the first survey, you will then be asked to agree to answer 2 surveys each workday (Monday-Friday) about your experiences at work for a duration of two weeks. One survey is designed to be filled

out in the morning and will cover questions related to your initial mood that day, sleep, and stress experiences. This morning survey should take approximately 3 minutes to complete. The second survey is designed to be filled out at the end of your workday and will ask you questions related to your interactions with coworkers during the day. This survey should take approximately 3 minutes to complete.

There are no foreseeable risks to you in participating in this study.

You will not directly benefit from your participation in this study. However, your participation in this study may contribute to the understanding of how you experience emotions at work. With each full survey completion, you will be compensated from *Prolific.ac*. Completion of a full set of surveys will result in higher compensation, as will completion of a full week of surveys, so that continued participation will lead to higher rewards for each survey.

PURPOSE OF RESEARCH

The goal of this study is to better understand when and why people experience certain emotions while interacting with one another at work. To that end, this study explores several possible influences on how individuals experience day-to-day emotions during work. Specifically, we are interested in how social settings may impact how much one person influences other people emotionally, and how that may affect the way in which people interact with their coworkers.

WHAT YOU WILL BE ASKED TO DO

In this study, you will first be asked to complete a short online survey, which will take approximately 35 minutes to complete and will ask questions about your work, interactions with coworkers, and some personal information. This will be followed by a second initial survey covering aspects of your workplace and personality. This second survey will take approximately 15 minutes.

Then you will be asked to complete 2 surveys every workday for two weeks. The first survey will be sent to you in the morning and will take approximately 3 minutes to complete and will cover questions related to your emotions and level of rest. The second survey will be sent to you in the afternoon and will ask about your interactions with a coworker, and about your emotions. This survey will take approximately 3 minutes to complete.

In all surveys, you have the option to skip a question which you would not like to respond to, except for questions required to complete the study (Prolific ID, initial eligibility questions). After two weeks, your involvement in the study will be complete.

PRIVACY AND CONFIDENTIALITY

Any information that you provide will be completely confidential. No personal information will be collected in this survey without your explicit permission. All findings will be reported in the aggregate and individuals will not be singled out. Any information shared beyond the research team will adhere to all requirements of the Human Research Protection Program at Michigan State University. No identifying information will be collected in this study, as your participation will be tracked using your *Prolific* ID number which will not be linked to any other information. Your rights to participate, say no, or withdraw.

You have the right to say no to participate in the research. You can stop at any time after it has already started. There will be no consequences if you stop, and you will not be criticized. You will not lose any benefits that you normally receive. You have the right to say no or choose not to answer any specific questions. You may change your mind at any time and withdraw by simply closing a survey or deciding to cease participating in the study.

COMPENSATION FOR BEING IN THE STUDY

You will be compensated through *Prolific* for your participation in this study. You will receive compensation for each survey you complete. For each daily survey, you will receive \$1. Completion of a full week of surveys will result in a bonus payment of \$3. The initial two surveys pay \$5.55 and \$2.54 respectively, so full completion of the surveys would lead to a total compensation of \$34.09.

RESEARCH RESULTS

After the study has ended, you may contact the researcher anytime via email (bakerna7@msu.edu) to obtain information about the results of the study. No identifying information will be stored for future use.

Contact Information
If you have concerns or questions about this study, such as scientific issues, or how to do any part of it, please contact the researcher please contact the researcher, Nathan M. Baker, via email at bakerna7@msu.edu. You may also contact the project's faculty supervisor, Dr. Chu-Hsiang (Daisy) Chang, at <u>cchang@msu.edu</u>.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 4000 Collins Rd, Suite 136, Lansing, MI 48910.

You must be 18 or older to participate. You indicate that you voluntarily agree to participate in this research study (and the subsequent surveys) by submitting the survey.

APPENDIX B: DEBRIEFING FORM

Thank you very much for participating in our study. Below you will find more information about the purpose of this study.

The purpose of this study was to examine a phenomenon known as emotional contagion in organizational contexts. Previous research suggests that when individuals interact with one another, they then to 'catch' one another emotions, leading two individuals to experience the same emotional states. Factors that influence when or why this emotional contagion occurs are still poorly understood, so this study focused on how the social characteristics (for example, status) of other people may influence if a person will catch their emotions are not. To that end, this study evaluated how social characteristics might alter an individual's unconscious social goals, which may then change how likely they are to experience emotional contagion.

Your participation in this study will help researchers understand social influences on emotions at a deeper level and may help to inform how organizations understand the way in which employees impact one another. An academic paper which provides more in depth information about emotional contagion is provided below:

Barsade, S. G., Coutifaris, C. G., & Pillemer, J. (2018). Emotional contagion in organizational life. *Research in Organizational Behavior*, *38*, 137-151.

We would like to thank you again for your participation. Participants who are interested in learning more about the results of this study may send the researchers a request for a summary of the findings via email at <u>bakerna7@msu.edu</u>. They may also send any comments, questions or concerns regarding the study to the principal investigator, Dr. Chu-Hsiang (Daisy) Chang at: Department of Psychology, Michigan State University, East Lansing, MI 48824, Email: <u>cchang@msu.edu</u>.

APPENDIX C: IMPLICIT MEASURES

IAT Materials

In this portion of the survey, you will complete a test in which you will be asked to sort words into groups as fast as you can. These words will relate to your coworker, [coworker name] and to the concept of approaching or avoiding someone else. Please read the instructions on the next page carefully.

The approach and avoidance words you will be asked to sort between are as follows:

"Approach Words"

- 1. Approach
- 2. Forward
- 3. Near
- 4. Advance
- 5. Close
- 6. Affiliate
- 7. Join
- 8. Connect
- 9. Associate
- 10. Attached

"Avoidance Words"

1. Avoid

- 2. Withdrawal
- 3. Escape
- 4. Distance
- 5. Leave
- 6. Evade
- 7. Separate
- 8. Remote
- 9. Detached
- 10. Isolate

Instructions: Place your left and right index fingers on the E and I keys. At the top of the screen are 2 categories. In the task, words and/or images appear in the middle of the screen.

When the word/image belongs to the category on the left, press the \mathbf{E} key as fast as you can. When it belongs to the category on the right, press the \mathbf{I} key as fast as you can. If you make an error, a red \mathbf{X} will appear. Correct errors by hitting the other key.

Please try to go as fast as you can while making as few errors as possible.

When you are ready, please press the [Space] bar to begin.

Block 2

The message will be the same as above, only with participants notified this is no longer a practice round.

Block 3

Practice round with approach words on 'E' and avoid + coworker on 'I'.

Block 4

Same as above, only no longer a practice round.

Approach words

- 1. Approach
- 2. Forward
- 3. Near
- 4. Advance
- 5. Close
- 6. Affiliate
- 7. Join
- 8. Connect
- 9. Associate
- 10. Attached

Avoidance words

- 1. Avoid
- 2. Withdrawal
- 3. Escape
- 4. Distance
- 5. Leave
- 6. Evade
- 7. Separate

- 8. Remote
- 9. Detached
- 10. Isolate

Coworker Words

- 1. [Coworker name]
- 2. Colleague
- 3. Coworker

Neutral Stimulus

- 1. Angle
- 2. Cup
- 3. Falt
- 4. Fork
- 5. Glove
- 6. Table
- 7. Wood

Word-Fragment Completion Task.

APPROACH/AVOID (IMPLICIT) - WORD COMPLETION

Item	Approach	Avoid	Other
AD	AWARD	AVOID	ACRID
G O	GOOD	GONE	GOON, GOAT
W _ S H	WISH		WASH
D _ T _		DUTY	DATE, DOTE, DATA

A A I _	ATTAIN	AFRAID	
T I V E	POSITIVE	NEGATIVE	
ERIOR	SUPERIOR	INFERIOR	
_ A R M		HARM	WARM, FARM
A I _	AVAIL	AVOID	APRIL
F E		FEAR	FEST, FELT, FEEL
_ A I N	GAIN	PAIN	RAIN
P R _ M E	PROMOTE	PROMISE	
T A I N	OBTAIN	DETAIN	
R N	EARN		BURN, TURN
S_R	STRONG	STRAIN	STRING, STRIKE
I L A N T	JUBILANT	VIGILANT	
_ P _ N	OPEN		SPAN, SPIN
_EAR	NEAR	FEAR	DEAR, TEAR, PEAR
CLO	CLOSER		CLOSET, CLOWNS,
E N D	ATTEND	DEFEND	
WARD	TOWARD	COWARD	INWARD, UPWARD
T E R R	TERRIFIC	TERRIBLE	

APPENDIX D: SINGLE TIME POINT ITEMS

Initial filtering questions:

- 1. What is your employment status? (full-time only).
- 2. Does your work require you to regularly interact with other employees (e.g. co-workers, colleagues, subordinates, assistants)? (yes only).

Primary Coworkers. Please think about the coworkers (these can be peers, supervisors, or subordinates) that you interact with most frequently during a given day at work. Please enter the first name of the coworker you **interact with [2nd, 3rd] most frequently** during a normal work day.

Perceived Similarity. Please think of [coworker name] and rate how you view [coworker name] in response to the following questions. ("1" (*strongly disagree*) to "5" (*strongly agree*) scale provided).

- 1. [coworker name] and I have a similar background.
- 2. In general, [coworker name] and I are similar people.
- 3. [coworker name] and I have a similar personality.

Perceived Status. Please think of [coworker name] and rate how you view [coworker name] in response to the following questions. ("1" (*strongly disagree*) to "5" (*strongly agree*) scale provided).

- 1. [coworker name] has a high level of power at work.
- 2. [coworker name] has a high level of status at work.

Likability. Please think of [coworker name] and rate how you view [coworker name] in response to the following questions. ("1" (*strongly disagree*) to "5" (*strongly agree*) scale provided).

- 1. [coworker name] is friendly.
- 2. [coworker name] is likeable.
- 3. [coworker name] is approachable.

Relational Characteristics. Please select the option below which best describes the type of work relationship you have with [coworker name].

- o [coworker name] is my supervisor/boss or occupies a superior position to myself at work.
- [coworker name] is my subordinate/direct report or occupies a lower position to myself at work.
- o [coworker name] is colleague or occupies a similar position to myself at work.

Please answer the following question about your coworker:

"Is [coworker name] someone you consider yourself to be friends with (i.e., someone who you occasionally socialize with outside of work)?"

- 1. Yes.
- 2. No.

Competitive Psychological Climate.

Please answer the following questions about your workplace using the following 1 (strongly disagree) to 7 (strongly agree) response scale.

1. My manager frequently compares my performance with that of my coworkers.

- 2. The amount of recognition you get in this company depends on how you perform compared to others.
- 3. Everybody is concerned with being the top performer.
- 4. My coworkers frequently compare their performance with mine.

Psychological Safety Climate.

Please answer the following questions about your workplace using the following 1

(strongly disagree) to 7 (strongly agree) response scale.

- 1. If you make a mistake on this team, it is often held against you.
- 2. Members of this team are able to bring up problems and tough issues,
- 3. People on this team sometimes reject others for being different,
- 4. It is safe to take a risk on this team,
- 5. It is difficult to ask other members of this team for help,
- 6. No one on this team would deliberately act in a way that undermines my efforts,
- 7. Working with members of this team, my unique skills and talents are valued and utilized.

Perceived Task Interdependence.

Please answer the following questions about your work activities using the following 1

(strongly disagree) to 7 (strongly agree) response scale.

- 1. I need information and advice from my colleagues to perform my job well.
- 2. I have a one-person job; it is not necessary for me to coordinate or cooperate with others.
- 3. I need to collaborate with my colleagues to perform my job well.
- 4. My colleagues need information and advice from me to perform their jobs well.
- 5. I regularly have to communicate with colleagues about work-related issues.

Trait Empathy. Please rate yourself in response to the following questions on a scale of 1 (*does not describe me well*) to 4 (*describes me very well*.

Perspective-Taking Scale

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (-)

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

21. I believe that there are two sides to every question and try to look at them both.

- 3. I sometimes find it difficult to see things from the "other guy's" point of view. (-)
- 8. I try to look at everybody's side of a disagreement before I make a decision.

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

Empathic Concern Scale

9. When I see someone being taken advantage of, I feel kind of protective toward them.

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (-)

2. I often have tender, concerned feelings for people less fortunate than me.

22. I would describe myself as a pretty soft-hearted person.

4. Sometimes I don't feel sorry for other people when they are having problems. (-)

14. Other people's misfortunes do not usually disturb me a great deal. (-)

20. I am often quite touched by things that I see happen.

Personal Distress Scale

27. When I see someone who badly needs help in an emergency, I go to pieces.

- 10. I sometimes feel helpless when I am in the middle of a very emotional situation.
- 6. In emergency situations, I feel apprehensive and ill-at-ease.
- 19. I am usually pretty effective in dealing with emergencies. (-)
- 17. Being in a tense emotional situation scares me.
- 13. When I see someone get hurt, I tend to remain calm. (-)
- 24. I tend to lose control during emergencies.

Trait positive and Negative Affect.

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you GENERALLY feel this way, that is how you feel ON AVERAGE. Use the following scale to record your answers from (1) slightly or not at all to (5) Extremely.

- 1. Interested
- 2. Distressed
- 3. Excited
- 4. Upset
- 5. Strong
- 6. Guilty
- 7. Scared
- 8. Hostile
- 9. Enthusiastic
- 10. Proud
- 11. Irritable

Alert
 Ashamed
 Ashamed
 Inspired
 Inspired
 Nervous
 Determined
 Attentive
 Jittery
 Active
 Afraid

Big Five Personality (International Personality Item Pool)

The following items are statements about personal characteristics. Please use the scale provided

to indicate how much each item describes you by choosing whether you agree or disagree with

the statement and circling the number that best represent your response. (1) Strongly Disagree

(2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Extraversion

- 1. I am the life of the party
- 2. I don't talk a lot
- 3. I feel comfortable around people
- 4. I keep in the background.
- 5. I start conversations.
- 6. I have little to say. .
- 7. I talk to a lot of different people at parties.
- 8. I don't like to draw attention to myself...
- 9. I don't mind being the center of attention.
- 10. I am quiet around strangers.

Agreeableness

- 1. I feel little concern for others
- 2. I am interested in people
- 3. I insult people
- 4. I sympathize with others' feelings. .
- 5. I am not interested in other people's problems
- 6. I have a soft heart
- 7. I am not really interested in others
- 8. I take time out for others.

- 9. I feel others' emotions.
- 10. I make people feel at ease.
- Conscientiousness
 - 1. I am always prepared.
 - 2. I leave my belongings around.
 - 3. I pay attention to details.
 - 4. I make a mess of things.
 - 5. I get chores done right away.
 - 6. I often forget to put things back in their proper place.
 - 7. I like order.
 - 8. I shirk my duties.
 - 9. I follow a schedule.
 - 10. I am exacting in my work..

Neuroticism

- 1. I get stressed out easily.
- 2. I am relaxed most of the time.
- 3. I worry about things.
- 4. I seldom feel blue.
- 5. I am easily disturbed.
- 6. I get upset easily.
- 7. I change my mood a lot.
- 8. I have frequent mood swings.
- 9. I get irritated easily.
- 10. I often feel blue.

Openness

- 1. I have a rich vocabulary.
- 2. I have difficulty understanding abstract ideas.
- 3. I have a vivid imagination.
- 4. I am not interested in abstract ideas.
- 5. I have excellent ideas.
- 6. I do not have a good imagination.
- 7. I use difficult words.
- 8. I spend time reflecting on things.
- 9. I am full of ideas.
- 10. I am quick to understand things.

Demographics.

Below are some demographic questions. Please use the space provided to tell us about yourself.

- 1. What year did you join your current employer? (drop-down selection)
- 2. What month did you join your current employer? (drop-down selection)
- 3. What is your current position at work? (text entry)
- 4. What industry do you currently work in?
 - a. Education
 - b. Government

- c. Retail
- d. Manufacturing
- e. Health Care
- f. Banking
- g. Food service (e.g., restaurant)
- h. Social service
- i. Service firms (e.g., consulting, law firm, etc.)
- j. Other: Please specify (text entry)
- 5. What is your gender?
 - a. Male
 - b. Female
 - c. Nonbinary/third gender
 - d. Prefer not to say
- 6. What is your age (in years)?
- 7. Are you in a visible minority group?
 - a. Yes
 - b. No
- 8. If yes in question 7, Which visible minority group are you a member of?
 - a. Black
 - b. Chinese
 - c. Filipino
 - d. Japanese
 - e. Korean

- f. South Asian/East Indian (including Indian from India; Bangladeshi; Pakistani;
 East Indian from Guyana, Trinidad, East Africa; etc.)
- g. Southeast Asian (including Burmese; Cambodian; Laotian; Thai; Vietnamese; etc.)
- h. Non-White West Asian, North African or Arab (including Egyptian; Libyan; Lebanese; Iranian; etc.)
- i. Non-White Latin American (including indigenous persons from Central and South America, etc.)
- j. Person of Mixed Origin (with one parent in one of the visible minority groups listed above)
- k. Other Visible Minority Group (please specify):

APPENDIX E: DAILY SURVEY ITEMS

Daily Emotions.

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way <u>right now</u>. Use the following scale to record your answers: (1) very slightly or not at all (2) a little (3) moderately (4) quite a bit (5) extremely. Fear scale:

- 1. Afraid
- 2. Scared
- 3. Frightened

Hostility scale:

- 1. Angry
- 2. Hostile
- 3. Irritable

Sadness scale:

- 1. Sad
- 2. Lonely
- 3. Alone

Joviality scale:

- 1. Нарру
- 2. Enthusiastic
- 3. Joyful

Serenity scale:

- 1. Calm
- 2. Relaxed
- 3. At ease

Daily Coworker Perceived Emotions. This scale consists of a number of words and phrases that describe different feelings and emotions. Think back to your interaction with your coworker today and list the extent to which your coworker appeared to feel that way at the <u>beginning of your interaction with them today</u>. Read each item and then mark the appropriate answer in the space next to that word. Use the following scale to record your answers: (1) very slightly or not at all (2) a little (3) moderately (4) quite a bit (5) extremely.

- Participants will then rate their coworker using the same items as themselves (see above).

Technology. In which of the following ways did you interact with your coworker today?

- o Email
- Instant messaging (e.g., texting, chat services)
- Video chatting (e.g., Zoom, Teams camera on)
- Audio chatting (e.g., telephone, video chat with camera off)
- In person conversation

Daily Helping and Counterproductive Behaviors Towards Coworkers.

OCB toward coworker (OCB-I)

Stem: "Today I ..." response options: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree

(5) Strongly Agree

1. Went out of my way to be nice to [coworker's name]

- 2. Tried to help [coworker's name]
- 3. Went out of my way to include [coworker's name] in a conversation.
- 4. Tried to be available to [coworker's name].

CWB toward coworker (CWB-I)

- 1. Behaved in an unpleasant manner toward [coworker's name].
- 2. Criticized [coworker's name] opinion or Suggestion.
- 3. Excluded [coworker's name] from a conversation.
- 4. Tried to avoid interacting with [coworker's name].

APPENDIX F: FULL DESCRIPTIVE STATISTICS

Table 8. Descriptive Statistics for all Study Variables.

-	Mea														
Level 1 Variables	n	SD	Ν	1	2	3	4	5	6	7	8	9	10	11	12
1. Morning Anxiety		0.3	8												
1. Moning Plantety	1.20	5	2												
2. Morning Anger	1 22	0.4	8	076**											
	1.55	07	2	.2/0***											
3. Morning Sadness	1 56	0.7	2	356**	173**										
	1.50	10	8	.550	.423										
4. Morning Happiness	2.58	9	2	.108**	.331**	.271**									
		0.8	8	-	-	-									
5. Morning Calmness	3.24	9	2	.202**	.431**	.267**	.592**								
		0.9	8	-	-	-									
6. Morning Positive Emotions	2.91	1	2	.175**	.429**	.302**	.886**	.898**							
		0.4	8				-	-	-						
7. Morning Negative Emotions	1.36	0	2	.695**	.744**	.818**	.318**	.396**	.401**						
		0.3	8	0.074	0.070	0.001	0.001	0.071	0.02	0.070					
8. Coworker Anxiety	1.16	1	2	0.074	0.063	0.031	0.021	-0.071	-0.03	0.072					
0 Cowerker Anger	1 2 1	0.4	8	0.020	112**	100**	0.024	0.047	0.046	100**	211**				
9. Coworker Aliger	1.51	03	2	0.029	.115**	.100**	-0.034	-0.047	-0.040	.109	.344				
10 Coworker Sadness	1 23	0.3	2	0.045	0.022	0.002	0.044	-0.014	0.016	0.029	409**	339**			
10. Cowonici Sudiess	1.25	0.8	8	0.015	0.022	0.002	0.011	0.011	0.010	0.02)	-	-	_		
11. Coworker Happiness	3.35	4	2	0.009	-0.005	0.004	-0.007	0.027	0.012	0.003	.289**	.430**	.273**		
11		0.8	8								-	-	-		
12. Coworker Calmness	3.35	4	2	0.022	-0.023	0.01	0.002	.092*	0.054	0.004	.373**	.530**	.248**	.615**	
		0.8	8								-	-	-		
13. Coworker Positive Emotions	3.09	5	2	0.017	-0.016	0.008	-0.003	0.066	0.037	0.004	.369**	.535**	.289**	.895**	.902**
14. Coworker Negative		0.3	8											-	-
Emotions	1.23	1	2	0.061	.092*	0.065	0.009	-0.057	-0.028	.096*	.713**	.797**	.755**	.447**	.519**
15. Afternoon Anxiety	1 10	0.3	8	20.6**	0.051	150**	0.052	- 106**	001*	101**	270**	107**	104**	-	-
-	1.19	5	2	.206**	0.051	.150**	-0.053	.106**	091*	.181**	.3/8**	.19/**	.194**	.132**	.154**
16. Afternoon Anger	1 30	0.4	2	0.027	206**	087*	0.072	000*	002*	1/0**	717**	178**	166**	- 105**	- 22/**
	1.50	06	8	0.027	.200	.087*	-0.072	090*	092*	.140	.242	.420	.100	.195**	.224
17. Afternoon Sadness	1.50	9	2	0.073	.110**	338**	126**	114**	135**	.244**	183**	255**	320**	104**	.099**
	1.00		-	0.070			0								
		1.0	8								_	_	_		
18. Afternoon Happiness	2.67	8	2	0.002	-0.026	0.011	.211**	.138**	.195**	-0.004	.119**	.155**	.117**	.375**	.228**

		0.0	0												
19. Afternoon Calmness	3.32	0.8	° 2	-0.056	- .129**	-0.068	.229**	.241**	.265**	- .110**	- .201**	- .213**	084*	.324**	.358**
20. Afternoon Positive	0102	0.9	8	01000		01000	>		.200		-	-	-	1021	
Emotions	3.00	1	2	-0.031	088*	-0.032	.247**	.214**	.259**	-0.065	.181**	.207**	.113**	.392**	.331**
21. Afternoon Negative		0.3	8				-	-	-					-	-
Emotions	1.33	9	2	.124**	.168**	.258**	.114**	.137**	.141**	.250**	.342**	.397**	.303**	.191**	.210**
22 OCB I	3 73	0.6 7	8	0.03	0.05	0.01	0.02	0.01	0.01	0.02	0.01	- 107**	0.01	158**	0.04
22. OCD-1	5.75	06	8	0.05	-0.05	-0.01	-0.02	-0.01	-0.01	-0.02	-0.01	.107	-0.01	-	-
23. CWBI-I	1.44	2	2	0.00	.168**	0.05	-0.06	090*	086*	.097*	0.00	.272**	-0.02	.158**	.215**
		0.5	8				-	-	-						
24. Depletion	3.21	7	2	.182**	.419**	.343**	.473**	.486**	.538**	.421**	0.01	.090*	0.01	0.04	0.00
		1.0	8		-	-				-		-			
25. Sleep Quality	4.73	0	2	080*	.269**	.174**	.426**	.417**	.472**	.232**	-0.07	.102**	0.07	0.01	0.01
Level 2 Variables															
	0.47	0.5	7	0.025	0.040	0.047	0.117	0.166	0.151	0.022	0.052	0.000	0.074	0.156	0.156
26. Gender	0.47	04	9	0.035	-0.048	0.067	0.117	0.166	0.151	0.033	0.053	-0.026	0.074	0.156	0.156
27 Minority Status	0.28	0.4	2	-0.028	0.056	-0 143	-0.07	-0.13	-0.105	-0.074	0.052	0.016	0.08	-0.08	-0.08
27. Willoffty_Status	0.20	0.3	7	0.020	-	0.145	0.07	0.15	0.105	0.074	0.052	0.010	0.00	0.00	0.00
28. Coworker 1 IAT	0.56	7	7	-0.149	.317**	0.092	0.01	0.177	0.095	-0.102	0.01	-0.128	-0.157	0.106	0.106
		0.3	7												
29. Coworker 2 IAT	0.49	8	7	-0.036	-0.12	0.097	0.082	0.046	0.072	0.008	0.137	-0.005	0.031	0.041	0.041
20. Como alora 2 IAT	0.45	0.3	7	0.012	0.200	0.017	0.022	0.022	0.02	0.000	0.021	0.046	0.077	0.024	0.024
50. Coworker 5 IA1	0.45	4	8	0.012	-0.206	0.017	0.032	0.022	0.03	-0.000	0.031	0.046	-0.077	0.024	0.024
31. Coworker 1 Similarity	3.42	0.5	2	0.053	-0.153	-0.04	352**	0.132	.275*	-0.066	0.059	-0.068	-0.022	.272*	.272*
	0112	1.1	8	01000	01100	0101		01102	,	01000	01007	01000	0.022	/ _	
32. Coworker 2 Similarity	2.99	2	2	0.134	0.056	0.008	.377**	0.192	.320**	0.065	0.177	0.118	0.183	.308**	.308**
		1.1	8												
33. Coworker 3 Similarity	3.14	2	2	0.137	-0.018	0.015	0.199	0.093	0.164	0.042	0.121	0.062	0.035	.293**	.293**
24 Couverbor 1 Status	2 10	1.1	8	0.02	0.001	0.020	0.05	0.016	0.022	0.024	0.040	0.117	0.001	0.105	0.105
54. Coworker 1 Status	3.40	12	1	-0.02	-0.001	-0.029	0.05	-0.010	0.022	-0.024	0.049	-0.117	0.091	0.105	0.105
35. Coworker 2 Status	3.21	4	2	0.181	.220*	-0.079	0.125	-0.117	0.017	0.087	0.116	0.09	0.196	-0.013	-0.013
		1.2	8												
36. Coworker 3 Status	3.49	8	1	0.084	-0.076	-0.096	-0.004	0.085	0.039	-0.063	0.136	-0.077	-0.08	0.123	0.123
		0.7	8												
37. Coworker 1 Liking	4.32	3	2	-0.047	-0.169	251*	0.207	.245*	.244*	230*	-0.073	-0.142	-0.193	.396**	.396**
28 Cowerker 2 Liking	4.12	0.7	8	0.055	0.026	0.001	27/**	0.120	262*	0.020	0.011	0.06	0.021	272*	272*
56. COWOIKET 2 LIKING	4.13	109	∠ 8	0.055	0.050	-0.001	.324***	0.159	.202**	0.029	-0.011	-0.00	0.051	.212.	.212**
39. Coworker 3 Liking	3.87	8	2	-0.012	275*	222*	.311**	.348**	.357**	242*	0.05	218*	.284**	.405**	.405**
0		-				-	-			-		· -	-		

10000 0 (00000 00)															
40. Coworker 1 Approach	4.64	1.5 3	8 2	0.126	0.052	-0.086	.347**	0.113	.263*	0.004	0.039	0.031	0.061	.367**	.367**
41. Coworker 1 Avoid	2.20	1.3 6	8 2	.282*	.235*	0.028	0.114	0.029	0.082	0.187	.380**	.230*	0.168	-0.091	-0.091
42. Coworker 2 Approach	4.41	1.6 4	8 2	0.059	0.081	-0.105	.396**	0.139	.305**	-0.016	0.1	0.105	0.103	.223*	.223*
43. Coworker 2 Avoid	3.22	1.3 6	8 2	.372**	0.209	0.187	-0.105	-0.118	-0.12	.301**	.302**	0.164	0.153	-0.038	-0.038
44. Coworker 3 Approach	4.34	1.8 1	8 2	0.084	-0.177	-0.126	.342**	0.214	.309**	-0.119	0.15	-0.034	-0.098	.320**	.320**
45. Coworker 3 Avoid	2.71	1.7 0	8 2	0.16	.355**	0.073	-0.032	-0.103	-0.07	.225*	.275*	.303**	.296**	267*	267*
46. Coworker 1 Implicit Approach	0.35	0.1 2	7 9	0.002	0.04	-0.113	-0.202	-0.18	-0.207	-0.053	-0.133	-0.051	-0.165	245*	245*
47. Coworker 2 Implicit Avoid	0.39	0.1	8 1	236*	-0.041	0.028	-0.095	-0.034	-0.074	-0.067	258*	-0.107	238*	-0.008	-0.008
48. Coworker 3 Implicit Approach	0.31	0.1	8	-0.01	-0.034	-0.01	-0.105	-0.046	-0.085	-0.022	0.055	-0.132	-0.08	-0.067	-0.067
49. Coworker 1 Implicit Avoid	0.22	0.1	2	0.038	-0.014	-0.002	-0.085	-0.108	-0.103	0.005	0.08	-0.021	-0.02	-0.099	-0.099
50. Coworker 2 Implicit Avoid	0.24	0.1	/ 6 7	0.042	-0.209	-0.106	-0.003	0.099	0.047	-0.134	-0.005	-0.115	-0.1	0.056	0.056
51. Coworker 3 Implicit Avoid	0.29	0.1	7	0.055	0	0.005	-0.112	-0.057	-0.095	0.019	-0.064	-0.05	-0.032	-0.044	-0.044
52. Competitive Climate	3.08	0.9	8 0 8	0.108	0.079	-0.009	.231*	0.107	0.191	0.056	0.152	0.085	-0.041	0.108	0.108
53. Psychological Safety	3.81	0.7	8 0 8	-0.219	281*	269*	.296**	.405**	.376**	- .334**	-0.08	263*	-0.019	.446**	.446**
54. Task Interdependence	3.96	0.7	8 0 0	246*	.405**	.310**	0.09	0.209	0.156	- .414**	-0.196	- .394**	- .327**	0.202	0.202
55. Extraversion	2.99	0.7	8 0 0	-0.056	0.059	0.008	.255*	0.105	0.205	0.011	0.069	0.087	.226*	0.145	0.145
56. Agreeableness	4.03	0.5	0 0	-0.198	240*	.361**	.275*	.291**	.308**	.369**	-0.161	263*	238*	.336**	.336**
57. Conscientiousness	3.68	0.7	0 0 8	- .294**	256*	.438**	.349**	.440**	.424**	.450**	-0.147	.294**	-0.149	.463**	.463**
58. Neuroticism	2.85	0.7 6 0.5	0	.337**	.274*	.353**	.403**	- .497**	.484**	.417**	0.091	0.19	0.03	.353**	.353**
59. Openness	4.00	0.5 8 0.6	0	-0.069	0.058	.272*	-0.089	-0.035	-0.071	0.168	-0.102	0.027	0.119	-0.027	-0.027
60. Negative Affect	1.98	5	0	0.214	.280*	.293**	.332**	.491**	.439**	.347**	0.061	0.198	-0.042	.375**	.375**

Table 8 (cont	'd).																
61. Positive Affect			3.34	0.7 1	8 0 ·	-0.097	-0.109	- .308**	.680**	.555**	.679**	257*	0.15	-0.071	0.098	.524**	.524**
62. BAS Fun			3.64	0.7	8 0 -	-0.118	221*	-0.174	.293**	0.191	.270*	224*	0.053	-0.115	-0.119	0.218	0.218
63. BIS Anixety			3.91	0.9 2	8 0	0.038	-0.015	0.168	-0.196	-0.16	-0.196	0.108	-0.037	-0.033	-0.103	-0.089	-0.089
64. BIS Fear			3.51	0.9 1	8 0	0.103	0.122	.244*	- .512**	- .468**	- .536**	.225*	-0.181	0.056	-0.119	286*	286*
65. BAS Drive			3.45	0.8 9	8 0 ·	-0.138	- .316**	279*	.336**	.336**	.366**	- .330**	0.032	-0.139	-0.147	0.214	0.214
66. BAS Drive			4.34	0.5	8 0 ·	-0.137	- .309**	278*	.332**	.325**	.358**	.326**	221*	- .294**	-0.147	.430**	.430**
67. BAS			3.81	0.6 1	8 0 -	-0.158	- .342**	- .294**	.389**	.344**	.401**	- .355**	-0.031	-0.207	-0.167	.328**	.328**
68. BIS			3.71	0.8 1	8 0	0.08	0.06	.233*	- .400**	- .355**	- .414**	0.188	-0.123	0.013	-0.126	-0.212	-0.212
69. Empathic Conc	cern		3.95	0.7 7	8 0 -	-0.189	- .362**	- .407**	0.185	0.204	0.21	- .440**	-0.193	- .324**	-0.189	.250*	.250*
70. Empathic Pers	pective-tak	ing	3.30	0.6 4	8 0 ·	-0.013	-0.168	.345**	.321**	.239*	.310**	277*	-0.017	-0.06	-0.031	.290**	.290**
71. Empathic Distr	ess		2.56	0.8 2	8 0.	410**	.347**	.297**	-0.203	- .330**	283*	.432**	.240*	0.215	0.213	-0.21	-0.21
Level 1 Variables	Mean	SD	N	13		14	15	16	17	18	19	20	21	22 23	3 24	25	26
13. Coworker Positive Emotions	3.09	0.8 5	82														
Negative Emotions	1.23	0.3 1	82	.538* *	-	-											
15. Afternoon Anxiety	1.19	0.3 5	82	- .159* *	.32	22* *											
16. Afternoon Anger	1.30	0.4 3	82	- .233* *	.38	34* *	.346* *										
17. Afternoon				-													

18. Afternoon Happiness	2.67	1.0 8	82	.334* *	.174* *	.235* *	.303* *	.349* *									
19. Afternoon Calmness	3.32	0.8 9	82	.380* *	- .220* *	.314* *	- .465* *	- .257* *	.583* *								
20. Afternoon Positive		0.9		402*	- 222*	- 309*	- 433*	- 339*	886*	894*							
Emotions	3.00	1	82	*	*	*	*	*	*	*							
21. Afternoon	2100	-		_					-	_	-						
Negative		0.3		.223*	.462*	.717*	.763*	.782*	.397*	.458*	.481*						
Emotions	1.33	9	82	*	*	*	*	*	*	*	*						
		0.6		.107*					.165*		.143*						
22. OCB-I	3.73	7	82	*	-0.06	-0.04	088*	-0.06	*	.090*	*	084*					
				-						-			-				
		0.6		.208*	.135*		.231*			.128*		.110*	.243*				
23. CWBI-I	1.44	2	82	*	*	0.00	*	0.00	-0.04	*	095*	*	*				
									-	-	-						
		0.5	0.0	0.00	0.05	.106*	000*	.143*	.121*	.141*	.147*	.147*	0.00	000			
24. Depletion	3.21	1	82	0.02	0.05	*	.083*	*	*	*	*	*	-0.02	.082*			
		1.0												- 114*	-		
25 Sloop Quality	172	1.0	02	0.01	0.05	0.04	0.05	0.04	0.02	092*	0.06	0.02	076*	.114*	.543*		
25. Sleep Quality	4.75	0	02	0.01	-0.05	-0.04	-0.05	0.04	0.02	.085	0.00	-0.02	.070		·		
Level 2 Variables																	
		0.5															
26. Gender	0.47	0	79	0.084	0.036	0.058	-0.093	0.025	0.106	.240*	0.182	-0.002	0.041	0.035	-0.063	0.086	
													-				
27.		0.4											.337*				
Minority_Status	0.28	5	82	-0.061	0.056	-0.031	0.085	-0.159	-0.019	-0.112	-0.066	-0.072	*	0.137	-0.084	-0.038	-0.163
28. Coworker 1		0.3															
IAT	0.56	7	77	0.041	-0.124	-0.05	257*	0.154	-0.036	0.052	0.005	-0.008	0.027	-0.06	-0.04	0.078	0.179
29. Coworker 2		0.3															
IAT	0.49	8	77	0.027	0.057	0.037	-0.175	0.096	0.066	-0.022	0.028	0.006	0.054	-0.058	0.047	0.185	0.045
30. Coworker 3	0.45	0.3		0.000	0.001	0.000	0.100	0.004	0.0.61	0.000	0.001	0.005	0.00	0.001	0.050	0.045	0.1.60
	0.45	4	11	0.082	0.001	0.029	-0.128	0.024	0.061	-0.029	0.021	-0.025	0.09	0.021	0.052	-0.065	0.169
31. Coworker 1	2.40	0.9	00	.327*	0.010	0.1	0.040	0.021	.299*	0.114	025*	0.000	.30/*	0.022	024*	.316*	0.114
Similarity	3.42	1 1	82	270*	-0.018	0.1	-0.048	-0.031	~ 221*	0.114	.235*	-0.006	*	0.033	.234*	~ 274*	0.114
52. COWORKER 2	2.00	1.1	02	.372*	0.192	0.172	0.071	0.05	.331* *	0.161) 77*	0.107	0.159	252*	0.209	.3/4*	0.1
33 Coworker 2	2.99	11	02	207*	0.165	0.175	0.071	0.05		0.101	.211*	0.107	0.138	.235*	0.208		-0.1
SS. COWOIKER S	2 1 4	1.1	02	.297*	0.091	0.171	0.012	0.020	0 195	0.149	0.192	0.072	256*	0.12	0.086	0.170	0.083
Similarity	5.14	2	02		0.081	0.171	0.013	0.029	0.165	0.148	0.165	0.072	.230*	0.12	0.088	0.179	0.085

34. Coworker 1		1.1															
Status	3.48	0	81	0.101	0.003	0.001	-0.046	-0.02	0.081	0.055	0.076	-0.028	-0.005	0.025	0.017	0.12	0.155
35. Coworker 2		1.2															
Status	3.21	4	82	0.112	0.155	0.154	0.212	-0.07	0.124	-0.136	0.007	0.082	-0.033	0.189	.250*	0.037	-0.164
36. Coworker 3		1.2															
Status	3.49	8	81	0.087	-0.019	0.043	-0.123	-0.146	0.002	0.096	0.049	-0.119	0.062	0.065	-0.039	-0.099	0.098
37. Coworker 1		0.7		.371*													
Liking	4.32	3	82	*	-0.162	0.006	-0.058	-0.211	0.205	0.205	.223*	-0.144	0.108	-0.135	-0.089	0.182	-0.077
38. Coworker 2		0.7															
Liking	4.13	1	82	.278*	-0.018	0.066	0.07	0.044	.254*	0.147	.224*	0.071	0.077	-0.021	0.043	.255*	-0.006
39. Coworker 3		0.9		.425*					.302*	.305*	.331*						
Liking	3.87	8	82	*	-0.19	0.033	249*	252*	*	*	*	229*	.278*	-0.133	-0.076	0.216	-0.068
40. Coworker 1		1.5		.467*					.375*		.307*		.336*				
Approach	4.64	3	82	*	0.051	0.119	0.048	-0.085	*	0.169	*	0.003	*	0.05	0.178	.230*	-0.068
41. Coworker 1		1.3			.293*	.348*								.461*			
Avoid	2.20	6	82	-0.024	*	*	.277*	0.049	0.129	-0.007	0.074	.234*	228*	*	.239*	-0.014	0.062
42. Coworker 2		1.6		.344*					.378*		.286*					.333*	
Approach	4.41	4	82	*	0.119	0.075	0.104	-0.101	*	0.121	*	0.001	0.207	0.132	0.158	*	-0.08
43. Coworker 2		1.3				.333*								.301*			
Avoid	3.22	6	82	-0.026	.233*	*	0.182	0.171	-0.043	-0.073	-0.061	.267*	-0.035	*	0.179	-0.037	0.07
44. Coworker 3		1.8		.423*					.345*		.287*		.406*				
Approach	4.34	1	82	*	-0.003	0.124	-0.133	-0.145	*	0.165	*	-0.097	*	0.028	0.09	0.216	0.028
45. Coworker 3		1.7			.340*		.364*							.440*			
Avoid	2.71	0	82	234*	*	0.195	*	0.113	-0.029	-0.125	-0.079	.258*	251*	*	0.156	-0.027	-0.028
46. Coworker 1																-	
Implicit		0.1														.299*	
Approach	0.35	2	79	-0.21	-0.133	-0.12	-0.041	-0.123	-0.167	-0.185	-0.19	-0.122	-0.02	-0.091	0.085	*	-0.111
1 pproueil	0.000	-	.,	0.21	01100	-	01011	01120	01107	01100	0117	01122	0.02	01071	01000		0.111
47. Coworker 2		0.1				293*											
Implicit Avoid	0.39	3	81	-0.033	226*	*	-0.068	-0.005	-0.106	-0.045	-0.086	-0.115	0.02	247*	-0.015	-0.145	258*
48. Coworker 3	0.07	U	01	0.000	0		0.000	01000	01100	01010	0.000	01110	0.02		01010	01110	.200
Implicit		0.1															
Approach	0.31	2	80	-0 101	-0.072	-0.032	-0.046	-0.055	-0.093	-0.027	-0.069	-0.059	-0.002	0.029	-0.049	-0 145	-0 102
49 Coworker 1	0.51	01	00	0.101	0.072	0.032	0.040	0.055	0.075	0.027	0.007	0.057	0.002	0.02)	0.047	0.145	0.102
Implicit Avoid	0.22	1	72	-0.12	0.01	0.01	-0.034	0.001	-0.106	-0.069	-0.097	-0.009	-0 173	-0 117	-0 222	-0.041	0.048
50 Coworker?	0.22	01	12	0.12	0.01	0.01	0.054	0.001	0.100	0.007	0.077	0.007	0.175	0.117	0.222	0.041	0.0-0
Implicit Avoid	0.24	0.1	76	0.048	-0.092	0.032	-0 196	-0.128	-0.016	0.074	0.027	-0 139	-0 144	-0.004	-0.135	0.05	-0.014
51 Coworker 3	0.24	01	70	0.0-0	0.072	0.052	0.170	0.120	0.010	0.074	0.027	0.157	0.177	0.004	0.155	0.05	0.014
Implicit Avoid	0.20	6	77	-0.087	-0.055	-0.007	-0.017	-0.02	-0.101	-0.046	-0.083	-0.02	-0 149	-0.117	-0.00	0.068	0.057
implicit rivolu	0.2)	0	, ,	-0.007	-0.055	0.007	-0.017	-0.02	-0.101	0.040	0.005	-0.02	0.17	0.11/	-0.07	0.000	0.057

52. Competitive		0.9															.343*
Climate	3.08	7	80	0.183	0.072	0.165	0.026	-0.051	0.192	0.12	0.174	0.029	0.05	0.192	0.105	0.197	*
53. Psychological		0.7		.389*					.336*	.405*	.401*	.293*					
Safety	3.81	5	80	*	-0.147	239*	-0.207	247*	*	*	*	*	0.068	-0.088	240*	.250*	0.072
54. Task		0.7			.365*		.415*	.355*				- .430*					
Interdependence	3.96	2	80	0.169	*	231*	*	*	0.116	0.192	0.164	*	.241*	-0.211	-0.205	0.175	-0.104
55. Extraversion	2.99	0.7	80	.224*	0.15	-0.027	-0.02	-0.061	.285*	0.156	.248*	-0.051	0.139	-0.006	-0.025	0.149	0.134
57		0.5		20.4*				-				- 251*		-			
Agreeableness	4.03	0.5 4	80	.384* *	262*	-0.159	-0.205	.388* *	.266*	.237*	.276*	.351* *	.284*	.303** *	272*	0.216	229*
Conscientiousnes		0.7		.405*				.403*	.320*	.437*	.406*	.400*				.361*	
S	3.68	0	80	*	235*	245*	245*	*	*	*	*	*	0.198	-0.112	238*	*	0.146
		0.7		- .325*		.312*	.402*	.299*	- .388*	.512*	- .484*	.417*				- .418*	
58. Neuroticism	2.85	6	80	*	0.124	*	*	*	*	*	*	*	-0.199	0.07	.259*	*	-0.213
59. Openness	4.00	0.5 8	80	-0.041	0.025	-0.101	-0.056	0.207	-0.079	0.04	-0.028	0.071	0.039	-0.188	-0.002	-0.141	0.181
1				-					-	-	-					-	-
60. Negative	1	0.6		.294*			.387*		.325*	.529*	.455*	.335*				.377*	.381*
Affect	1.98	5	80	*	0.089	0.184	*	.235*	*	*	*	*	-0.212	-0.011	.224*	*	*
offect	3 34	0.7	80	.010** *	0.050	0.004	0.07	254*	.002* *	.552*	.039* *	0.174	0 2 1 0	0.004	0 103	.4/8**	0.056
Allect	5.54	0.7	80		0.039	0.004	-0.07	2.34	.312*			-0.174	0.219	0.094	-0.105		0.050
62. BAS Fun	3.64	7 0.9	80	.280*	-0.079	-0.03	-0.164	-0.174	*	0.148	.260*	-0.171	0.131	0.003	-0.066	0.216	-0.073
63. BIS Anixety	3.91	2	80	-0.069	-0.068	0.084	0.094	0.122	-0.214	242*	247*	0.132	-0.028	-0.11	0.089	-0.153	279*
		0.9		- 324*					- 510*	- 478*	- 541*					- 400*	
64. BIS Fear	3.51	1	80	*	-0.084	0.03	0.217	0.219	*	*	*	0.218	-0.174	-0.174	0.141	*	259*
		0.8					- 316*		309*		314*						
65. BAS Drive	3.45	9	80	.240*	-0.107	-0.06	*	249*	*	.262*	*	281*	.258*	-0.051	221*	.277*	0.204
		0.5		.465*				- .318*	.396*	.352*	.411*	- .335*			- .311*		
66. BAS Drive	4.34	7	80	*	259*	-0.184	252*	*	*	*	*	*	.252*	235*	*	.252*	-0.068
		0.6		.378*			- .300*	- .292*	.404*	.298*	.389*	- .311*				.303*	
67. BAS	3.81	1	80	*	-0.165	-0.099	*	*	*	*	*	*	.258*	-0.096	231*	*	0.047

68. BIS	3.71	$\begin{array}{c} 0.8 \\ 1 \end{array}$	80	222*	-0.086	0.065	0.176	0.193	- .409* *	- .407* *	- .445* *	0.198	-0.114	-0.161	0.13	- .313* *	- .307* *
69. Empathic Concern	3.95	0.7 7	80	.295* *	279*	222*	.322* *	- .447* *	.238*	0.177	.230*	- .448* *	.344* *	- .365* *	235*	0.176	281*
70. Empathic Perspective- taking	3.30	0.6 4	80	.345* *	-0.044	-0.042	-0.118	.351* *	.366* *	.279*	.357* *	263*	0.145	0.079	-0.148	.381* *	0.084
71. Empathic Distress	2.56	0.8 2	80	-0.144	.257*	.376* *	.423* *	.275*	-0.204	- .383* *	.310* *	.430* *	-0.102	0.164	.364* *	-0.148	-0.223

Level 2	Mea																	
Variables	n	SD	Ν	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
27.		0.4																
Minority_Status	0.28	5	82															
				-														
28. Coworker 1		0.3		0.07														
IAT	0.56	7	77	5														
29. Coworker 2		0.3		0.01	.371*													
IAT	0.49	8	77	7	*													
		0.0		-	1.50%													
30. Coworker 3	0.45	0.3		0.06	.460*	075*												
IAI	0.45	4	//	5	-1-	.275*												
31 Coworker 1		0.0		-														
Similarity	3 12	0.9	82	8	0.075	0.008	0.03											
Similarity	5.42	,	02	-	0.075	0.008	0.05											
32. Coworker 2		1.1		0.03	-			.476*										
Similarity	2.99	2	82	4	0.112	-0.04	0.037	*										
				-														
33. Coworker 3		1.1		0.05		-		.478*	.503*									
Similarity	3.14	2	82	6	0.06	0.114	0.064	*	*									
34. Coworker 1		1.1		0.07	-	-	-											
Status	3.48	0	81	7	0.069	0.025	0.051	.225*	0.177	.240*								
35. Coworker 2		1.2		.244	-	-	-											
Status	3.21	4	82	*	0.123	.283*	0.018	0.166	0.213	0.056	.245*							
36. Coworker 3		1.2		0.07		-			-			0.17						
Status	3.49	8	81	9	0.086	0.087	0.216	-0.15	0.018	0.156	-0.02	9						

37. Coworker 1 Liking	4.32	0.7 3	82	0.02	0.071	0.048	0.044	.321* *	.236*	.275*	0.067	0.16 9	0.125					
38. Coworker 2 Liking	4.13	0.7 1	82	0.10 4	- 0.056	0.027	.235*	.233*	.470* *	0.084	- 0.018	0.09 7	0.203	0.174				
39. Coworker 3 Liking 40. Coworker 1 Approach	3.87 4.64	0.9 8 1.5 3	82 82	0.06 5 0.01 5	.269* - 0.003	0.178 - 0.101	0.173 0.119	0.135 .439* *	0.148 .520* *	.426* * .320* *	0.031 0.182	-0.06 .269 *	.419* * 0.133	.452* * .412* *	0.034 .283* *			
41. Coworker 1 Avoid 42. Coworker 2 Approach	2.20 4.41	1.3 6 1.6 4	82 82	0.05 3 0.03 3	- 0.069 - 0.097	-0.08 0.014	0.143 0.033	0.145 .339* *	0.118 .695* *	0.091 .273*	0.069 0.148	-0.01 .276 *	-0.04 0.035	.306* * .282*	-0.19 .422* *	0.102 0.215	- .449* * .747* *	 - .280*
43. Coworker 2 Avoid 44. Coworker 3 Approach	3.22 4.34	1.3 6 1.8 1	82 82	0.01 8 -0.07	0.001 .268*	0.057 0.147	0.026 .425* *	0.141 .375* *	0.156 .411* *	0.078 .510* *	0.146 0.069	0.08 4 0.11	0.18 .350* *	0.023 .314* *	.292* * 0.032	0.049 .651* *	0.161 .614* *	.512* * .218*
45. Coworker 3 Avoid 46. Coworker 1	2.71	1.7 0	82	0.20 2	- .309* *	- 0.127	.305* *	- .222*	0.113	- .387* *	0.027	0.09	- .227*	.315* *	- 0.019	- .568* *	- .383* *	.593* *
Implicit Approach	0.35	0.1 2	79	0.01	0.046	0.003	0.055	0.173	.270*	.250*	- .289*	0.02 8	0.104	- 0.126	-0.08	- 0.151	0.128	0.066
47. Coworker 2 Implicit Avoid 48. Coworker 3	0.39	0.1 3	81	0.01 1	0.022	0.093	0.086	0.076	0.007	0.103	0.088	0.03	0.092	0.109	0.054	0.082	0.041	0.122
Implicit Approach 49. Coworker 1	0.31	0.1 2 0.1	80	0.16 6	0.09	0.131	0.131	0.056	0.084	0.057	0.026	0.10 4 0.08	0.183	0.006	0.108	0.076	0.094	0.166
Implicit Avoid 50. Coworker 2	0.22	1 0.1	72	0.01 - 0.04	0.05	0.033	0.037	0.075	0.002	0.136	.270*	1 - 0.02	0.14	0.099	0.024	0.119	-0.13	0.009
Implicit Avoid 51. Coworker 3 Implicit Avoid	0.24 0.29	0 0.1 6	76 77	1 - 0.08 3	0.051	0.035	0.159 - 0.053	0.107	0.167	0.07	0.129	1 - 0.07 4	0.148	0.013	-0.1 - 0.002	0.144	0.158 - 0.081	0.119 - 0.169

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52. Competitive	3.08	0.9 7	80	0.17 9	0 163	0.14	0.065	.290* *	0 149	227*	248*	0.04 9	0.015	0.022	- 0 129	0 169	0 1 3 9	0 098
53.	5.00	,	80)	0.105	0.14	0.005		0.14)	.221	.240)	0.015	0.022	0.12)	0.107	0.157	0.078
Psychological Safety 54. Task	3.81	0.7 5	80	.228 *	- 0.001	0.022	0.06	0.11	0.21	0.033	-0.11	0.12 9 -	0.154	.379* *	.282*	0.119	.272*	- .256*
Interdependenc e	3.96	0.7 2	80	0.11 9	0.227	.260*	0.176	0.051	0.017	0.083	0.004	0.05 7	0.104	.235*	0.155	.252*	0.198	0.173
55. Extraversion	2.99	0.7 0	80	0.14 8	- 0.065	0.056	0.07	0.218	.231*	0.034	0.076	0.03 9	0.043	0.105	0.11	- 0.098	.421* *	- 0.189
56. Agreeableness 57.	4.03	0.5 4	80	0.07 7	0.065	0.015	0.012	0.082	0.012	0.081	- 0.169	0.03 1	0.054	.264*	0.102	.231*	.371* *	.342* *
Conscientiousn ess	3.68	$0.7 \\ 0 \\ 0.7$	80	0.00 9 0.10	0.054	- 0.007	- 0.103	0.081	.222*	0.146	0.154	0.03 4 0.02	0.005	.253*	0.215	0.151	0.161	- 0.098
58. Neuroticism	2.85	6	80	2	0.076	0.046	0.137	0.002	0.169	0.078	0.159	3	0.046	0.066	0.204	0.088	-0.11	0.088
		0.5		- 0.19				-	-	-		- 0.06	-	-	-	-		-
59. Openness 60. Negative	4.00	8 0.6	80	9 0.08	0.052	0.197	0.111	0.057	0.063	0.085	0.041	9 0.02	0.022	0.087	0.078	0.062	0.091	.260*
Affect 61 Positive	1.98	5 07	80	6 0.08	0.108	0.053	0.017	0.112	.243*	0.052	0.118	1	-0.07	0.125	0.217	-0.04	0.212 375*	0.208
Affect	3.34	0.7 1 0.7	80	4	0.081	0.143 324*	-0.1	0.188	.226*	0.081	0.115	0.17	0.056	.249*	.246*	0.101	*	0.044
62. BAS Fun	3.64	7 0.9	80	0.1 0.03	0.085	*	0.128	.243*	0.156	0.038	0.029	-0.03 0.04	0.055	0.168	0.012	0.009	.252*	0.055
63. BIS Anixety	3.91	2	80	8	0.004	0.045	0.001	0.159	0.077	0.098	0.161	2	0.119	0.037	0.116	0.102	0.044	0.042
64. BIS Fear	3.51	0.9 1	80	0.02	0.109	0.125	0.018	.223*	.274*	0.102	.293* *	0.12 8 -	0.025	0.027	- 0.166	0.016	0.091	- 0.099
65. BAS Drive	3.45	0.8 9 0.5	80	$0.00 \\ 5 \\ 0.03$	0.225	.290*	0.094	.254*	0.116	0.032	-0.04	0.05 7 0.01	0.038	0.148	0.112	0	0.162	- 0.067 -
66. BAS Drive	4.34	7	80	6	-0.01	0.118	0.159	0.043	0.15	0.021	0.008	5	0.044	0.193	0.154	0.16	*	.248*
		0.6		0.05		.309*					-	0.03	-					-
67. BAS	3.81	1	80	1	0.139	*	0.147	.238*	0.168	0.006	0.029	6	0.028	0.202	0.097	0.053	.276*	0.132

Tal	ble 8	(cont	'd)	•
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68. BIS	3.71	0.8 1	80	0.00 7	- 0.064	- 0.045	0.011	0.216	- 0.198	- 0.114	.258*	0.04 8	0.082	- 0.006	-0.16	0.049	- 0.077	-0.08
69. Empathic Concern 70. Empathic	3.95	0.7 7	80	0.04 9	0.037	0.013	0.039	0.004	0.033	0.037	0.127	0.01 7	0.008	.292* *	0.033	0.205	.294* *	.375* *
Perspective-	3 30	0.6	80	0.00	-	-	0.008	0 103	.304*)))*	0 157	0.14	0.021	250*	0 121	0.143	.296*	-
71. Empathic Distress	2.56	0.8 2	80	0.01	0.121 - 0.114	0.002	- 0.018	- 0.074	0.028	- 0.044	0.032	0.14 1	0.021	0.019	0.121	0.017	0.081	0.152

Level 2	Mea																	
Variables	n	SD	Ν	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
42. Coworker 2		1.6	8															
Approach	4.41	4	2															
43. Coworker 2		1.3	8	-														
Avoid	3.22	6	2	.258*														
44. Coworker 3		1.8	8	.585*	-													
Approach	4.34	1	2	*	0.046													
						-												
45. Coworker 3		1.7	8	-	.332*	.576*												
Avoid	2.71	0	2	.223*	*	*												
46. Coworker 1																		
Implicit		0.1	7	-		-	0.11											
Approach	0.35	2	9	0.127	0.043	0.025	1											
							-											
47. Coworker 2		0.1	8		-	-	0.05	.314*										
Implicit Avoid	0.39	3	1	0.056	0.111	0.044	1	*										
48. Coworker 3							-											
Implicit		0.1	8	-			0.04											
Approach	0.31	2	0	0.102	0.208	0.006	3	0.089	0.139									
11							-											
49. Coworker 1		0.1	7	-		-	0.01	-										
Implicit Avoid	0.22	1	2	0.095	0.079	0.004	3	0.087	0.014	0.056								
1							-		-									
50. Coworker 2		0.1	7		-	-	0.01	-	.316*	-								
Implicit Avoid	0.24	0	6	-0.09	0.013	0.005	8	0.066	*	0.034	.253*							
1		-	-															

										_								
51. Coworker 3 Implicit Avoid	0.29	0.1 6	7 7	0.102	- 0.068	0.182	0.01 5	0.052	- 0.144	.405* *	.390* *	.426* *						
52. Competitive Climate	3.08	0.9 7	8 0	0.199	0.216	.280*	0.05	- .249*	- 0.111	- 0.089	.242*	0.132	0.01 4					
Psychological Safety	3.81	0.7 5	8 0	.263*	.223*	0.153	0.09 5	- 0.031	- 0.038	0.118	- 0.222	- 0.107	0.11 9	.335* *				
54. Task Interdependence	3.96	0.7 2	8 0	0.149	-0.03	.237*	0.12 6	0.098	0.112	0.157	_ 0.031	0.165	0.07 7	0.138	.271*			
55. Extraversion	2.99	0.7 0	8 0	.294* *	- 0.081	.224*	0.07 9	- 0.081	- 0.049	0.038	- 0.035	- 0.066	0.14 8	0.12	0.206	0.058		
56. Agreeableness 57	4.03	0.5 4	8 0	.231*	- .266*	.294* *	.248 *	0.077	- 0.045	- 0.108	0.006	0.163	0.10 3	- 0.049	.324* *	.318* *	.341* *	
Conscientiousne ss	3.68	0.7 0	8 0	0.162	- .273*	0.102	0.08 4	- 0.111	- 0.056	- 0.185	0.022	0.03	0.15 3	0.005	.373* *	0.164	0.156	.306* *
58. Neuroticism	2.85	0.7 6	8 0	0.172	.308* *	- 0.071	0.07	0.129	0.087	0.151	- 0.047	0.028	0.05 7	0.023	.311* *	- 0.109	- .274*	- .253*
59. Openness	4.00	0.5 8	8 0	0.086	-0.11	0.044	0.20 6	0.063	0.124	- 0.184	- 0.049	0.015	0.06	0.001	0.074	0.006	.276*	0.166
60. Negative Affect	1.98	0.6 5	8 0	.224*	.306* *	- 0.093	0.10 2	0.168	.226*	0.188	0.097	0.016	0.12 7	- 0.049	.442* *	- 0.116	0.212	- 0.149
61. Positive Affect	3.34	0.7 1	8 0	.352* *	- 0.116	.244*	0.02	0.121	-0.06	-0.09	- 0.089	0.055	0.09 2	0.078	.376* *	0.189	.379* *	.394* *
62. BAS Fun	3.64	0.7 7	8 0	.258*	0.025	.241*	0.02	0.007	0.081	0.001	-0.16	- 0.085	.233 *	0.103	.242*	.313* *	.428* *	.282*
63. BIS Anixety	3.91	0.9 2	8 0	0.007	0.11	0.089	0.06 1	0.169	0.066	0.008	0.088	0.168	0.01 5	- 0.007	0.216	0.072	0.072	.243*
64. BIS Fear	3.51	0.9 1	8 0	- .226*	- 0.011	- 0.093	0.11 8	.312* *	0.027	0.046	- 0.151	0.057	0.00 7	.288* *	- 0.193	- 0.087	.248*	0.066

Table 8 (cont	<i>Table 8 (cont'd).</i>																	
		0.8	8		-		0.00		-	-							.289*	
65. BAS Drive	3.45	9	0	.242*	0.083	.221*	1	0.025	0.049	0.217	-0.11	0.072	-0.09	.235*	0.18	.274*	*	0.189
							-						-					
		0.5	8		-		0.21				-		0.08	-	.384*	.397*	.329*	.543*
66. BAS Drive	4.34	7	0	.232*	0.086	.264*	3	0.078	0.111	-0.03	0.036	0.035	2	0.068	*	*	*	*
							-						-					2-01
		0.6	8	.297*	-	.290*	0.05			-	-		0.16		.307*	.387*	.421*	.378*
67. BAS	3.81	1	0	*	0.056	*	7	0.039	0.045	0.115	0.136	0.01	8	0.136	*	*	*	*
							-											
		0.8	8	-		-	0.10				-		0.00	-	-	-	-	
68. BIS	3.71	1	0	0.132	0.056	0.002	2	.271*	0.053	0.022	0.034	0.128	4	0.167	.232*	0.008	0.181	0.176
							-											
69. Empathic		0.7	8		-		.229			-	-		0.04	-	.325*	.399*	.326*	.768*
Concern	3.95	7	0	0.111	0.177	.246*	*	0.168	0.008	0.027	0.087	0.129	9	0.139	*	*	*	*
Empathic							-											
Perspective-		0.6	8	.343*	-		0.14		-	-	-							.341*
taking	3.30	4	0	*	0.132	.271*	7	0.01	0.133	0.079	0.094	0.096	0.04	0.082	.242*	0.195	.276*	*
													-					
71. Empathic		0.8	8			-	0.10		-		-		0.04		-	-	-	-
Distress	2.56	2	0	0.015	.277*	0.003	2	0.012	0.055	0.101	0.129	0.043	1	0.033	.256*	0.183	0.103	0.027

Level 2	Mea																	
Variables	n	SD	Ν	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
57.																		
Conscientiousne		0.7	8															
SS	3.68	0	0															
				-														
		0.7	8	.624*														
58. Neuroticism	2.85	6	0	*														
		0.5	8															
59. Openness	4.00	8	0	0.066	-0.154													
				-		-												
60. Negative		0.6	8	.470*	.710*	0.15												
Affect	1.98	5	0	*	*	1												
					-													
61. Positive		0.7	8	.545*	.448*	0.17												
Affect	3.34	1	0	*	*	3	275*											
		0.7	8			0.13		.377*										
62. BAS Fun	3.64	7	0	-0.004	0.042	7	0.083	*										

63. BIS Anixety	3.91	0.9 2	8 0	.404* *	.531* *	0.01 8	.458* *	285*	0.177									
		0.9	8	- .414*	.583*	- 0.07	.446*	.482*		.556*								
64. BIS Fear	3.51	1	0	*	*	2	*	*	-0.203	*								
		0.8	8			.225		.493*	.587*		.416*							
65. BAS Drive	3.45	9	0	.227*	-0.189	*	244*	*	*	226*	*							
		0.5	8			0.20		.380*	.509*			.408*						
66. BAS Drive	4.34	7	0	0.212	-0.072	8	-0.059	*	*	.251*	-0.061	*						
											-							
		0.6	8			.231		.514*	.862*		.305*	.857*	.721*					
67. BAS	3.81	1	0	0.175	-0.096	*	-0.102	*	*	0.043	*	*	*					
			-	-		-		-				-						
		0.8	8	.464*	.631*	0.05	.512*	.434*		.883*	.881*	.363*						
68. BIS	3.71	1	0	*	*	1	*	*	-0.013	*	*	*	0.109	-0.148				
69. Empathic		0.7	8			0.05							.640*	.429*				
Concern	3.95	7	0	.285*	-0.124	6	-0.091	.277*	.283*	0.215	0.072	.231*	*	*	0.163			
70. Empathic					-		-				-				-			
Perspective-		0.6	8	.515*	.420*	0.13	.357*	.359*			.312*		.442*	.353*	.302*	.433*		
taking	3.30	4	0	*	*	9	*	*	0.195	220*	*	.276*	*	*	*	*		
				-		-		-				-					-	
Empathic		0.8	8	.484*	.622*	0.21	.427*	.287*		.530*	.622*	.347*			.653*		.310*	
Distress	2.56	2	0	*	*	8	*	*	-0.088	*	*	*	-0.151	252*	*	-0.06	*	

**Note.* Level 1 variable reliabilities are calculated using the average alpha for the scale across all the days of the study. Coworker variables reflect the average of the 1st, 2nd, and 3rd coworkers across all participants. Level 1 correlations with level 2 variables are calculated using the average of level variables across days of the study. Within-level 1 correlations were calculated at the daily level. a. IAT reliability is calculated as a split-half reliability with a Spearman-Brown correction to estimate internal consistency. * p < .05, ** p < .0