

**Social comparison to work-related norms: The impact of social comparison  
of work behaviours on work-specific self-evaluations and change  
intentions.**

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## **Abstract**

Despite increasing knowledge of the value of leisure and balance, work trends are consisting of a marked increase in time dedicated to work both inside and outside of the workplace. With technological advancements and productivity gains meaning long work hours are largely unnecessary, understanding why these trends exist has been a focus for recent research. The aim of this research was to further understand the role of work norms for behaviour as a driving force behind rising work input by exploring social comparison as the underlying process of the formation and escalation of these norms. Specifically, it aims to test the hypotheses that upward social comparison to work norms creates a desire to increase work input as well as decreasing work-specific self-evaluations. Two studies were carried out to explore the proposed relationships; a correlational study in which 273 adults working full time completed an online survey about their work behaviour, the work behaviour of those around them, and their change intentions and self-evaluations; and an experimental survey in which 236 adults working full time completed the same online survey but instead of reporting on the behaviour of those around them, were presented with normative feedback. The self-evaluations hypothesis was partly supported by the findings of Study 1, however, the results from Study 2 showed no support for this hypothesis. Results from Study 2 showed a significant relationship between upward comparison and intentions to increase work input, supporting the change intentions hypothesis, while Study 1 found the opposite with downward comparison associated with greater change intentions. The findings suggest that social comparison is associated with intentions to change work behaviour, which has implications for better understanding and reducing overwork.

## **Introduction**

As the workplace changes over time, so too do trends in work behaviour. Despite technological advancements and productivity gains which make long work hours less necessary (Porter, 2004), over recent decades trends for work behaviour have largely consisted of a steady increase in time devoted to work (Bond, Galinsky, & Swanberg, 1997; Mishel, Bivens, Gould, & Shierholz, 2012; Schor, 1993). Why this increase in work time is occurring is an issue which many scholars have aimed to understand. Gephart (2002) argues this trend could be due to a pervasive assumption that organisational success is linked to hours worked. Individual success in the workplace is also often linked to hours worked by organisational leaders and peers, as there are some who view number of work hours as an indication of organisational commitment and work devotion (Clarkberg & Moen, 2001). Some scholars have attributed the drive to work to excess despite any real need to persistent elements of the protestant work ethic (Douglas & Morris, 2006; Porter, 2004) which champions long hours, hard work, and a neglect of leisure. In more modern times this work ethic has been conceptualised as part of the work devotion schema (Blair-Loy, 2001) which is centred around the belief that work not only demands but deserves complete commitment. This growth in work input is concerning when thinking about the impact excessive work can have for individuals and the organisations they belong to. Studies have found working long hours to be associated with anxiety, lack of sleep, and a depressive state (Bannai & Tamakoshi, 2014), as well as the formation of poor health behaviours such as smoking, and chronic health outcomes such as cardiovascular disorders (Johnson & Lipscomb, 2006). It has also been suggested that as number of working hours increase productivity may decrease due to fatigue (Collewet & Sauermann, 2017). One study found that this relationship between long working hours and strain is mediated by preference (Lu, 2011), suggesting that the adverse effects of long hours are more prominent if they are longer than what an individual wants to work.

Despite growing interest in the incline of work input over time, there are those who argue that these trends are not increasing due to increased time devoted to work each week, but instead due to working more weeks in the year than in previous decades (Jacobs & Gerson, 2001). While there is merit in this argument – findings of the US Current Population Survey (CPS) (2020) indicate that time at work each week has remained relatively stable – what this argument fails to consider is how work input no longer consists solely of how many hours one spends in the office each week. The CPS survey itself contains no questions regarding average work hours spent at home or outside of the workplace (2020). To consider only work hours spent in the workplace is to have a narrow understanding of work input as a whole and therefore to misunderstand the trends regarding work hours. Instead, the understanding of work hours needs to be expanded to include new forms of work as well as the array of external forces which influence work behaviour both inside and outside of the workplace.

The development of technology and changing nature of work means it is no longer adequate to consider work input only in terms of number of hours in the workplace. Workers are now met with the opportunity and often the expectation to be available for work wherever they are, fuelling what is known as an ‘always on’ culture (Arlinghaus & Nachreiner, 2013). This ‘always on’ culture has developed parallel with technology reliance and rapid responsiveness, creating an excessive availability for work. Work availability is considered excessive when employees are constantly accessible and responsive to organisational demands outside of the workplace despite its interference in their personal lives or leisure time (Cooper & Lu, 2019). Excessive work availability outside of the workplace has been associated with higher levels of work-family conflict (Boswell & Olson-Buchanan, 2007), distress and sleep problems (Schieman & Young, 2013), and a decrease in overall employee well-being (Dettmers, 2017). The increase in work outside of the workplace creates a new type of work input which Lu (2016) describes as ‘invisible’ working hours. Due to their nature, these

‘invisible’ work hours are difficult to quantify, and can therefore go overlooked when investigating how many hours an individual works. Taking this new type of work input into account, it is likely that the trends for increased work time are escalating even more so than has been reported.

When considering the rise in work input, it is important to acknowledge not only how the nature of work is changing, but also how workers themselves are changing in terms of their work values and beliefs. When looking at how work trends have evolved it is important to also explore how the values and attitudes of workers evolve over generations. Although research on different generations and their work attitudes has produced mixed findings (Kowske, Rasch, & Wiley, 2010; Parry & Urwin, 2011), there are several studies which have found differences in what the newer generation of workers – described in the literature as GenX (born mid 1960s – 1980s), GenY, or Millennials (born mid 1980s to 1990s) – place greater value on in comparison to the older generation, most commonly labelled “Boomers” (born mid 1940s to 1960s). For example, a longitudinal study by Smola and Sutton (2002) found that while workers from the younger generation were less likely than older generations to view work as the most significant part of their life, they held stronger beliefs that working hard was an indication of worth. Several other studies have found the newer generation of workers to put greater emphasis on their values of balance between work life and leisure time (Lub, Nije Bijvank, Matthijs Bal, Blomme, & Schalk, 2012; Sullivan, Forret, Carraher, & Mainiero, 2009) compared to older generations who put greater value on committing time to work (Twenge, 2010). With the newer generation placing greater value on balancing work with leisure time and less on working more, it would be easy to assume that this would result in a decline in working hours and overall work input over time. However, the work trends previously discussed suggest that the opposite seems to be occurring, and work input is in fact increasing.

Evidently, there is a misalignment between what workers value and what is necessary for organisational success, and their actual work behaviour. Schor fittingly describes this trend as the 'unexpected decline in leisure' (1993). It appears that workers increasingly understand the value of balance and leisure yet still engage in work behaviour which seems attached to old-school work values in which hard work and long hours carry a positive connotation (Aron, 1987; Douglas & Morris, 2006). However, the idea that the majority of workers hold these beliefs about work strongly enough to override the generational consensus that balance is to be valued is implausible. Therefore, there needs to be an understanding of what motivates employees to work the amount of time that they do in the absence of real need. Many researchers exploring this phenomenon have pointed towards social norms for work behaviour as a source of this pressure to work (Brett & Stroh, 2003; Latané, 2000).

### **Social Norms**

Social norms are a set of standards and rules for behaviour which are held and understood by members of a social network (Hechter & Opp, 2001). These norms are formed through social interactions with others, and it is these others who not only make up the social network within which the norms exist, but also who reinforce the norms by sanctioning any behaviour which deviates from them (Cialdini & Trost, 1998). In this way, social norms are influenced from within the group rather than external systems such as the law or rules set by superiors. The sanctions which motivate compliance with social norms are not always provided by others in the network but often by the individual themselves, who anticipate that non-compliance will result in feelings of guilt and shame (Gagné, 2007). Additionally, research by Andrighetto, Grieco, and Tummolini (2015) found that while the aversion to feelings of guilt for breaking social norms is an important motivator for norm compliance, the desire for the esteem of others and to meet their expectations are also very important motivators to comply with norms. In this way, norms are not only reinforced through the threat of social sanctions,

but can also be motivated by the anticipation of self-enhancement and the social acceptance or approval of others (Cialdini & Trost, 1998). This is consistent with research which has found that being perceived positively by others leads to the development of more positive self-evaluations (Srivastava & Beer, 2005). Because people have a basic need to feel good about themselves and have positive self-evaluations (Steele, 1988), we often engage in behaviours which maintain this positive self-image. Therefore, keeping our behaviour in line with the social expectations of others is a way to ensure our actions match with our self-expectations. Social norms for behaviour are present not only in our personal social lives, but also within the social environment of the workplace. The social norms present in the workplace are known as work norms.

Work norms are an informal set of expectations for behaviour and attitudes centred around what is and is not considered appropriate in the workplace (Morrison, 1993). Much like general social norms, a departure from work norms can be considered an act of organisational deviance (Warren, 2003), therefore adhering to these norms is of the utmost importance for employees. Brett and Stroh (2003) and Latané (2000) argue that the evident rise in work input within organisations is due to the nature of work norms as continually escalating rather than remaining stagnant. Because the pressure to conform to norms is so great (Warren, 2003), it is unlikely that new workers will question escalating norms such as rising work hours. This allows the norms to remain in place even with natural workplace attrition over time. The same process is true for norms for work availability, as colleagues often set expectations around being contactable outside of work hours, creating pressure for others to engage in the same behaviour in order to be part of the social group (Derks, Van Duin, Tims, & Bakker, 2015; Van Zoonen & Rice, 2017). Cooper and Lu (2019) describe this process as ‘involuntary availability for work through pressure,’ which is when the fear of not complying with norms for hard work drives workers to have high work availability. This is especially true for new employees who

are likely anxious to fit in and will therefore be less likely to question longer working hours or weekend work engagements (Brett & Stroh, 2003). This influence of work norms has been observed not only regarding work input and availability but also attendance and absenteeism behaviours (Biron & Bamberger, 2012). Social science research linking social norms to economic theory maintains that behaviour dictated by social norms is often irrational due to its emotionally driven nature (Elster, 1989), arguing that the behaviour dictated by social norms is sustained by a need to avoid feelings of embarrassment or guilt even if the behaviour does not produce any tangible benefit to the individual or those close to them. In the context of the workplace, this means that work norms for long working hours or high work availability may dictate the behaviour of many employees even though the behaviour does not benefit them personally.

In order to understand why rising norms for work input are established and reinforced, it is first important to recognise the process which underlies this development and reinforcement. As previously stated, much of the motivation to conform with norms is driven by a concern with how we are perceived by others (Andrighetto et al., 2015; Elster, 1989; Gagné, 2007) and consequently how we perceive ourselves (Deutsch & Gerard, 1955; Schwartz, 1977). Social interactions with others is what allows norms to develop without the need for explicit instruction (Cialdini & Trost, 1998), as others do not need to verbalise their expectations but rather only have their behaviour visible for others in the social network to compare to. Thus, this research argues that what creates work norms, and importantly what allows their continuance and escalation, is a process which occurs unconsciously in nearly all social interactions; social comparison. The following sections explore this social comparison process, how it fits into organisational life and interactions, and its proposed influence on the formation, reinforcement, and escalation of work norms.

## **Social Comparison**

The theory of social comparison processes was first posed by Festinger (1954), who stated that in the absence of objective information, people assess their abilities by comparison with others. Since this original theory was developed, it has been argued that this comparison process occurs even when objective information is readily available, with a preference towards comparison to social information rather than objective information (Klein, 1997). The need to engage in social comparison is often aroused when individuals face uncertain or ambiguous situations as a way to assess the appropriateness of their behaviour or actions (Buunk, Schaufeli, & Ybema, 1994). When individuals engage in social comparison, they either compare to those they perceive as better than themselves – upward comparison – or those worse than themselves – downward comparison. Although there are studies which have found downward comparison to be more frequent (Wood, Taylor, & Lichtman, 1985), the majority of research finds upward comparison to be the most common form of comparison (Buunk et al., 1994; Buunk, Zurriaga, Peiro, Nauta, & Gosalvez, 2005; Wheeler, 1966). However, this comparison orientation is largely influenced by the motivation for comparison. For example, Buunk et al. (1994) found that downward rather than upward comparison was the preference for individuals who were doubtful of their competence. Similarly, Devellis et al. (1990) found that individuals who had experienced decreased self-worth also tended to favour downward comparison. These findings illustrate how the motivation to engage in social comparison can influence the comparison orientation for individuals. The two main motivations for social comparison are self-evaluation, where people compare themselves with others to determine where they stand in relation to their peers, and self-enhancement, where people compare themselves to others in order to produce a favourable self-image (Wills, 1981). The findings above suggest that those who have experienced decreased self-worth or sense of competence seek out comparison information of those who are perceived to be worse-off in order to self-

enhance and produce a more favourable self-image (Wood et al., 1985). This is what is known as a contrast effect, where comparison causes individuals to notice the differences between themselves and the comparison target (Pelham & Wachsmuth, 1995). Alternatively, an assimilation effect is when the comparison causes the individual to perceive themselves as similar to the target (Wheeler, 1966). For example, an individual may compare themselves to someone who performs to a high level at work and use this comparison information to highlight the similarities between themselves and the target, such as what quotas they meet or their work behaviours. By focusing on these similarities the individual is attempting to assimilate themselves and their behaviour in order to move closer to the comparison target.

Social comparison to others can have a considerable impact not only on an individual's belief in their ability (Klein, 1997) but also their momentary concept of self (Morse & Gergen, 1970). However, the exact impact that comparison has is largely dependent on the direction of comparison. Studies have found downward comparison to produce more positive emotions (Wheeler & Miyake, 1992) with some individuals using downward comparison to enhance their subjective wellbeing and maintain a positive sense of self (Wills, 1981). In line with these findings, many studies have found upward comparison to have the opposite effect. For example, studies have found that individuals who compared themselves to images of more attractive people rate their own attractiveness lower (Cash, Cash, & Butters, 1983; Thornton & Moore, 1993). Other research has found comparison to others with more socially desirable attributes, regarding both appearance and behaviour (e.g., diligence or intelligence), to result in decreased self-esteem (Morse & Gergen, 1970). Some scholars have linked the negative impact of upward comparison to relative deprivation theory (Crosby, 1976) which posits that comparison to an individual that possesses something we wished we possessed results in feelings of resentment or dissatisfaction (Bernstein & Crosby, 1980). The positive impact of downward comparison and negative impact of upward comparison are examples of the contrast

effect discussed above (Pelham & Wachsmuth, 1995), as individuals compare themselves to targets and either feel good that they are better off or bad that they are worse off.

Despite the prevalence of these contrast effects, studies have acknowledged that with upward comparison it is possible for both contrast and assimilation effects to occur. For example, Collins (1996) found evidence that although upward comparison can be initially ego-deflating, the comparison may also provide motivation for individuals to assimilate and aspire to be closer to the comparison target. Similarly, Wheeler and Miyake (1992) argue that the negative impact upward comparison has on affect can be transformed into motivation for the individual to perceive themselves as being closer to the comparison target. It is through this assimilation effect that motivation to change behaviour can manifest. When individuals notice someone is doing better than them, they can make a conscious effort to alter their behaviour in a way they perceive will get them closer to the level of the comparison target. For example, observing someone who is fitter than ourselves may make us feel bad about our own fitness level, yet also provide motivation for us to exercise more in order to reach that level of fitness.

### **Social Comparison and Work Behaviour**

Due to the nature of the workplace, social comparison is instilled in organisational life (Greenberg, Ashton-James, & Ashkanasy, 2007). Not only is it facilitated through formal activities such as comparative performance evaluations, but also through informal activities such as taking notice of when colleagues come into work early or put in longer hours at the office. Individuals use social comparison information to inform what is expected of them and their behaviour (Buunk et al., 1994). In the workplace, social comparison is used to inform what work behaviours are acceptable and what the expectations are for level of work effort and work availability. Studies have found that social comparison information can provide extrinsic motivation for workers to change their work behaviour. For example, a study by Williams and Geller (2000) found that providing workers with social comparison feedback about the safety

performance of other workers resulted in employees increasing the prevalence of their own safety behaviours. Similarly, Yperen, Brenninkmeijer, and Buunk (2006) found that engaging in comparison with superior colleagues increased workers' intentions to work harder. Other studies have found that social comparison creates an internal pressure for workers to increase things like workload and work intensity - even if these behaviours are not beneficial for them individually - in order to feel they are living up to the social expectations of those around them (Ballet & Kelchtermans, 2008). One study on social comparison in the workplace found that when asked to compare themselves with another worker, the majority of employees chose to engage in upward comparison (Vrugt & Koenis, 2002). This suggests that more employees will compare to those with greater work input or availability rather than those working less than themselves, consistent with general findings on comparison orientation (Buunk et al., 1994; Buunk et al., 2005; Wheeler, 1966). Scholars have acknowledged that this process of social comparison and its role in collecting social information relative to expectations is what informs the creation of work norms (Brett & Stroh, 2003; Latané, 2000; Nicholson & Johns, 1985).

While organisations may have policies in place which allow for less work hours, and have no formal requirement for after work availability, the influence of work norms is so great that they have the ability to override these formal policies (Williams, Blair-Loy, & Berdahl, 2013). The nature of social comparison means that the expectations of norms do not need to be explicitly enforced by workers within the organisation. Workers may choose to increase their work hours for their own individual motivations, such as those previously discussed (e.g. protestant work ethic, self-worth etc.), with no intention of changing the expectations of work behaviour in their organisation. However, working longer hours may inadvertently create pressure for others in the organisation to do the same by creating feelings of guilt when not working as hard as others, eventually creating a new level of expectation and a new norm (Douglas & Morris, 2006; Elster, 1989; Gagné, 2007). This is an insidious process, and one

which may take place without organisational leaders realising. In this way, social comparison processes are able to have great impact on workers and their behaviour. While it is important to understand how social comparison can create pressure to conform to norms, it is equally important to understand the personal consequences for employees who find through their comparison that they do not fit into norms. Understanding this impact provides further insight into why failure to conform to norms can be detrimental, and perhaps highlight a key reason workers put so much pressure on themselves to avoid nonconformity.

While the influence of social comparison in the workplace has been investigated in terms of its role in the formation of norms and organisational expectations (e.g. Brett & Stroh, 2003; Latané, 2000), there has been little examination in existing research of the impact these comparisons have on the workers as individuals. As discussed previously, there has been extensive research on how social comparison can impact the affect and self-evaluations of individuals (Klein, 1997; Morse & Gergen, 1970). However, this concept has not been explored in the workplace, therefore it remains unclear how social comparison to work behaviours specifically can influence a workers' self-evaluations specific to their work abilities. Individual self-evaluations refer to how one judges themselves and their capabilities, whereas work-specific self-evaluations relate to how individuals evaluate their overall worth and abilities as workers (Chen, Goddard, & Casper, 2004). Perhaps the most common and relevant self-evaluation is self-efficacy, which is one's judgement of their own ability to complete tasks and accomplish goals (Bandura, 1986). While general self-efficacy has been identified as a significant predictor of organisational commitment (Karatepe, Arasli, & Khan, 2007), more relevant to this research is job-specific self-efficacy, which is an individual's beliefs about their ability to perform their job well and successfully handle work related challenges (Schaubroeck, Jones, & Xie, 2001). Another key self-evaluation is conscientiousness, which is an individual's inclination to plan ahead, be goal-focused, and control impulses (Roberts, Jackson, Fayard,

Edmonds, & Meints, 2009). A more work-specific construct of conscientiousness relates to the extent that individuals perceive themselves as dependable, persistent, and achievement striving in their workplace (Wang & Bowling, 2016). How an individual perceives their ability to perform well and strive for achievement in their workplace are self-evaluations which could be impacted by engaging in comparison to those perceived as putting more time into their work.

When asked to evaluate themselves as an employee, most people would likely consider the extent to which they think of themselves as a 'hard worker'. The positive connotations associated with being a hard worker have been acknowledged in both economics and the social sciences (Aron, 1987; Pied, 2019) with the opposite of a hard worker perceived as a 'lazy worker'. This type of evaluation relates not to the work outcomes an employee has acquired, or even their level of work performance, but rather the amount of effort an employee puts into their work. It has been argued that the perception of oneself as a 'hard worker' is a person-focused form of evaluation of effort (Reavis, Miller, Grimes, & Fomukong, 2018). In this way, the extent to which one evaluates themselves as a 'hard worker' can also be conceptualised as their perceived level of work-related effort. Studies have found that being considered a hard worker is extremely important for individuals even above being perceived as naturally talented (Pride, 2014)

Understanding how these work-specific self-evaluations can be impacted by social comparison is valuable not only for understanding the consequences of norm deviance, but also for understanding how the personal impact of non-compliance with norms can have consequences for the organisation also. The work-specific self-evaluations described above have been shown to influence not only job performance but also the psychological and physical health of workers (Bakker, Demerouti, & ten Brummelhuis, 2012; Lubbers, Loughlin, & Zweig, 2005; Schaubroeck et al., 2001). Understanding the impact of social comparison may provide insight into how social comparison influences an individual's decision to conform to

workplace norms. Much like people adhering to social norms in order to consider themselves a good person (Cialdini & Trost, 1998), the current research argues that people adhere to work norms in order to preserve their work-specific identity. Therefore, the current study aims to investigate how social comparison to norms for work behaviours influences the work-specific self-evaluations of workers. This is investigated by testing the following hypotheses;

*Hypothesis 1a: Having work behaviours – hours and availability – below the social norm will be associated with lower levels of work-specific self-evaluations – namely job-related self-efficacy, work-specific conscientiousness, and perceived effort – compared to those with behaviours above or in line with the norm.*

*Hypothesis 1b: Having work behaviours – hours and availability – above the social norm will be associated with higher levels of work-specific self-evaluations – namely job-related self-efficacy, work-specific conscientiousness, and perceived effort – compared to those with behaviours below or in line with the norm.*

Another impact of social comparison identified in the literature is the pressure it creates for individuals to alter their behaviour in order to ‘assimilate’ or move closer to the comparison target (Collins, 1996; Wheeler & Miyake, 1992). One study on exercise and dieting behaviour found engaging in social comparison with others to moderate the relationship between social norms and intentions to change behaviour (Yun & Silk, 2011). This relationship is likely explained by the assimilation effect of social comparison, where individuals who exercise less than most people intend to change their behaviour through the need to assimilate to the norm. In the context of the workplace, studies have shown the assimilation effect of social comparison to take the form of increasing workload or work effort (Ballet & Kelchtermans, 2008; Yperen et al., 2006). As social comparison generates pressure external to an individual’s own desires, it creates the risk that this individual will increase their working hours despite them being

higher than what they would prefer or what best suits their life or situation. Buelens and Poelmans (2004) found with 'reluctant hard workers' that increasing work input due to felt pressure often led to a strong intention to leave the organisation as opposed to other types of hard workers such as workaholics.

Though past studies have explored how social comparison can lead employees to change their work behaviour, these studies have mainly looked at comparison to individuals' level of effort or performance, where workers have access to information about what performance outcomes there are for the people who work harder or expend more effort (Yperen et al., 2006). What has not been explored is how comparison to work behaviours alone – without knowing the outcomes or individual circumstances attached to those work behaviours – can impact a worker's intention to change their own work behaviour. This is important to explore especially in the current working climate where people have more control over which aspects of their lives they show to their peers; they may communicate their work behaviours through social media or in casual conversation without providing information about how this behaviour relates to their performance or their quality of life. This is a real concern as studies have shown the use of social media to communicate about work is prevalent in the modern day (Van Zoonen, Verhoeven, & Vliegenthart, 2016). This means that there is a risk for the development of unhealthy work norms based on work behaviour alone which go unquestioned because the behaviour cannot be directly linked to organisational or personal outcomes. Therefore, the current study aims to investigate the relationship between social comparison to work norms for behaviour alone and workers' intentions to increase their work input. This is investigated by testing the following hypotheses;

*Hypothesis 2a: Having work behaviours – hours and availability – below the social norm will be associated with greater intention to increase work hours and availability compared to those with work behaviours above or in line with the norm.*

*Hypothesis 2b: Having work behaviours – hours and availability – above the social norm will be associated with lower intention to increase work hours and availability compared to those with work behaviours below or in line with the norm.*

## **Method**

This research will consist of two studies; a correlational study (Study 1), investigating the association between individuals' perceived work norms and their self-reported work behaviour, followed by an experimental survey (Study 2) where norms will be manipulated so that participants are either above, below, or in line with fabricated norms, allowing the influence of comparison to be measured more directly.

### **Study 1**

#### ***Participants***

Participants in this study are full-time working adults over the age of 18 from Canada and the United States. These participants were recruited through Mturk, an online crowdsourcing platform used to source respondents to complete tasks or, as in this case, participate in academic research. Although some respondents entered their country of origin as one outside of the specified countries (US and Canada) their IP address indicated that they are currently living in the US therefore they still fit the target sample pool. While the sample size recommended by the statistical program G Power based on a small effect size, number of variables, and significance level was much lower (81), studies have suggested that for correlation stabilization, 250 participants are needed (Maxwell, Kelley, & Rausch, 2008). Therefore, to account for attrition, 300 respondents completed the survey with the aim to have the final sample size of at least 250 participants. A total of 273 participants produced useable

responses, as they filled out all of the survey and passed the attention check (further discussed below).

The average age of participants was 36 years, consisting of 68.9% males and 31.1% females. The average tenure of participants in their current occupation was 7.2 years, with the majority of participants reporting as workers (46.2%) closely followed by managers/supervisors (39.2%). The most commonly reported industry was Banking, Finance, and Accounting (17.2%) and Technology Engineering (16.8%) closely followed by Education (11.4%).

### ***Measures***

*Demographic variables:* Age (in Year Born), gender, tenure, occupational industry, organisational status, and country of origin were all measured. These demographic variables were included for two reasons; first, gender and tenure were included as control variables, as studies have suggested that newer entrants into organisations may experience social comparison differently (Buunk et al., 1994) and that there may be gender differences between work behaviour beliefs (Stone, 2007); second, to have more personal information in order to make the comparison in Study 2 more believable – for continuity reasons, both surveys measure all the same demographic variables.

*Work behaviour* was assessed through six items developed for the purpose of this study (see Appendix B). Four of these questions asked participants to indicate how often they engaged in a certain work behaviour (e.g. How often do you work outside of contracted work hours?). Responses were measured on a scale adapted from a similar scale developed by Arlinghaus and Nachreiner (2013) to measure frequency of work behaviours. The scale was adapted from a 5-point to 7-point Likert scale with low numbers reflecting low occurrence of the behaviour (*1=never, 2=once a month or less, 3=a couple times a month, 4=at least once a*

*week, 5=at least twice a week, 6=three times a week or more, 7=every day*). As this scale was developed for the purpose of this study, an exploratory factor analysis (Principal Axis Factoring) was performed to determine the underlying factor structure. This factor analysis revealed that all items in this scale loaded onto one factor with factor loadings for all items above 0.4 (see Appendix H). Two additional work behaviour items measured average work hours a week and average hours worked outside of contracted work hours. Respondents indicated hours by selecting ranges provided to them (e.g. 20-25 hours). These questions were included in order to gauge an understanding of the average number of work hours inside and outside of work.

*Perceived norms for work behaviour* was also assessed through six items developed for the purpose of this study (see Appendix C). These items closely resemble the work behaviour items but are framed to ask about respondents' perceptions of the behaviour of others (e.g. How often do you think *most people* work outside of contracted work hours?). The response scale is the same 7-point Likert scale used for the work behaviour questions. As this scale was developed for the purpose of this study, an exploratory factor analysis was performed to determine the underlying factor structure. This factor analysis revealed that all items in this scale loaded onto one factor with factor loadings for all items above 0.4 (see Appendix H). Two additional questions measured perceptions of most peoples' work hours inside and outside of work. Respondents indicated hours by selecting ranges provided to them (e.g. 20-25 hours). These questions were included in order to gauge an understanding of the average number of work hours people assume others work inside and outside of work.

*Intention to change work behaviour* was measured using 4 items developed for the purpose of this study (see Appendix G). Two items asked respondents about their attitude towards working more with four response options; "definitely yes", "probably yes", "probably no" and "definitely no". The remaining two items measure intention to change behaviour (e.g.

I will try and increase the number of hours I work) with responses recorded on a 5-point Likert scale (1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, 5=strongly agree). The two items which used the 4-point response scale were re-scaled so that they had the same upper and lower limit as the 5-point scale, using the formula  $Y = \text{range of new scale} * (X - X_{\text{min}}) / (X_{\text{range}}) + 1$  where the range of the new scale = 4 (5-1 for a 5-point scale), X= original item value, Xmin= the original minimal possible value (1), Xrange= the original range (3; 4-1 for the 4-point scale). As with the previous scales developed for this study, an exploratory factor analysis was performed to determine the underlying factor structure. This factor analyses revealed that all items in this scale loaded onto one factor with factor loadings for all items above 0.4 (see Appendix H).

*Work specific self-evaluations:* Responses to all work-specific self-evaluation items are on a 5-point Likert scale (1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, 5=strongly agree). Items for all scales can be found in Appendix D, E, and F. *Work effort* was measured using items from two established scales; 5 items measuring perceived work effort specific to one's job were taken from a 10-item work effort and quality scale developed by Kuvaas and Dysvik (2009), while 4 items measuring general perceived work effort were taken from a 9-item scale developed by Meltzer et al. (2004). *Job-related Self-efficacy* was measured using 3 items from a larger work empowerment scale developed by Spreitzer (1995). While the items were initially developed to measure perceived work competence, they have since been successfully used to capture job-related self-efficacy (Reynolds, 2006). *Work-specific conscientiousness* was measured using a modified version of Conscientiousness items drawn from the International Personality Item Pool (IPIP). As in other frame of reference studies (Bowling, Wang, Tang, & Kennedy, 2010; Lievens, De Corte, & Schollaert, 2008), the tag 'at work' was added to each item to create a work-specific measure as opposed to general personality (e.g. I am always prepared *at work*.) Work-specific

personality measures have been shown to be valid predictors of work related outcomes even when general personality measures are controlled for (Wang & Bowling, 2016) therefore the use of this scale was deemed appropriate for this research.

In order to minimize common method variance, the order of the items in the three larger scales (job-related self-efficacy, work-specific conscientiousness, and perceived effort) were all randomized in the survey.

An attention check was included to ensure that respondents were reading the questions properly and responding in an appropriate way. The attention check was in the form of the open-ended question; “In about a sentence, briefly explain how you feel about your job.” Any responses that did not sensibly answer the question were not included in analyses. For example; a description of an occupation, a generic definition of work enjoyment or similar concepts, non-related words (e.g. nice, survey), were all excluded from analysis. Single-word answers were accepted as long as they were appropriate to the question (e.g. “good” was accepted as it is a response someone may give when asked how they feel about their job).

### ***Design and Procedure***

Prior to data collection, the study and all its details were pre-registered with AsPredicted (<https://aspredicted.org/blind.php?x=fh38v8>). A self-report, cross-sectional design was used for this study. Responses were collected at one time point over the period of one day through the use of Mturk. Posted on Mturk was a short description of the study, the approximate time taken to complete the survey (5 minutes), and the target participant pool. Participants who chose to partake in the study were instructed to click on the link and complete the survey. Before any questions, respondents were first presented with an information sheet explaining the purpose of the study, what they would be required to do, and how the data would be anonymous and securely stored (see Appendix A). Participation in the study was voluntary

and completely anonymous. Participants were paid 75 cents (USD) for completing the survey, based on the US minimum wage.

## Results

All statistical analysis was performed using IBM SPSS. Mean index variables were created for Work Behaviour, Perceived Norms, Perceived Effort, Work-Specific Conscientiousness, Job-Related Self-Efficacy, and Change Intentions. Correlations between these index variables, along with reliability coefficients ( $\alpha$ ) and descriptive statistics, are presented in Table 1.

Table 1  
*Means, standard deviations, and correlations of all variables*

Variable	M	SD	1	2	3	4	5	6
1 Work Behaviour	4.03	1.44	(.77)					
2 Perceived Norms	4.07	1.19	.58**	(.84)				
3 Perceived Effort	4.09	.68	.18**	-.06	(.88)			
4 Job-Related Self-Efficacy	4.26	.65	-.08	-.01	.59**	(.72)		
5 Work-Specific Conscientiousness	3.91	.74	-.31**	-.31**	.51**	.56**	(.91)	
6 Change Intentions	2.62	1.24	.52**	.48**	.01	-.17**	-.54**	(.93)

*Note.* N=273. \*\*Significant at  $p < 0.01$ . Cronbach alpha values ( $\alpha$ ) are displayed on the diagonal.

As shown in Table 1, all scales produced reliability coefficients above the minimum acceptable value of .70, demonstrating acceptable reliability (Cronbach, 1951).

### ***Testing Hypotheses***

As shown in Table 1, Perceived Norms was significantly negatively correlated with Work-Specific Conscientiousness ( $r = -.31$ ,  $p < .001$ ) which indicates that higher Perceived

Norms were associated with lower levels of Work-Specific Conscientiousness. This result provides preliminary support for Hypothesis 1a, as it suggests that the perception of work norms as high is associated with lower levels of work-specific conscientiousness as a self-evaluation. This relationship was not evident, however, for the other self-evaluation measures, which is contradictory to Hypothesis 1a. Table 1 also shows a significant positive correlation between Perceived Norms and Change Intentions ( $r=.48$ ,  $p<.01$ ), indicating that higher Perceived Norms were associated with higher levels of Change Intentions. This provides preliminary support for Hypothesis 2a, as it suggests that the higher the work norms are perceived to be, the greater the intention to change – more specifically increase – work behaviour.

While these correlations provide an indication of possible relationships, they only provide information about how respondents perceive work norms and not whether their own behaviour is above or below these perceived norms. In order to capture this missing component, a new variable was created which reflects how much a respondent's own work behaviour deviates from the perceived norms – Norm Deviance – by subtracting the Perceived Work Norms mean from the Work Behaviour mean for each participant. Negative Norm Deviance scores indicate work behaviour below the norm, while positive scores indicate work behaviour above the norm.

Regression analyses were then run one by one for all dependent variables with Perceived Norms and Norm Deviance as predictors, and Tenure and Gender as control variables. Please note that the pre-registration included an interaction, where Norm Deviance was to be proposed to be a moderator of the relationship between Perceived Norms and the dependent variables. However, this interaction is not included in the following analyses as the theoretical basis for its inclusion was no longer deemed appropriate at the time of data analysis.

However, as it was pre-registered, the analysis with the interaction is included as supplementary material (see Appendix I).

Table 2  
*Results of regression testing main effects of Perceived Norms and Norm Deviance predicting Perceived Effort*

Variable	Perceived Effort			VIF
	$\beta$	SE	<i>p</i>	
Constant	4.06	.048	.00	
Tenure	.019*	.007	.004*	1.050
Gender	.107	.087	.223	1.032
Perceived Norms	.049	.035	.163	1.118
Norm Deviance	.096*	.034	.005*	1.203

Note. N=273. \*Significant at  $p < 0.05$ .

Table 2 illustrates results of the regression predicting Perceived Effort. Results of the regression indicate significant main effects for Tenure ( $\beta = .019$ ,  $p < 0.05$ ) and Norm Deviance ( $\beta = .096$ ,  $p < 0.05$ ). These effects suggest that those who have worked in their occupation longer, and perceive themselves as working more than most people, perceive their work effort to be higher, the latter providing support for Hypothesis 1a.

Table 3  
*Results of regression testing main effects of Perceived Norms and Norm Deviance predicting Job-Related Self-Efficacy*

Variable	Job-Related Self-Efficacy			VIF
	$\beta$	SE	<i>p</i>	
Constant	4.27	.047	.000	
Tenure	.02*	.007	.002*	1.050
Gender	-.025	.085	.768	1.032
Perceived Norms	-.04	.035	.268	1.118
Norm Deviance	-.057	.033	.087	1.103

Note. N=273. \*Significant at  $p < 0.05$ .

Table 3 illustrates results from the regression predicting Job-Related Self-Efficacy. Tenure was the only variable with a significant main effect ( $\beta = .02$ ,  $p < 0.05$ ). This finding

suggests that individuals who have worked in their occupation longer have greater job-related self-efficacy than those who have spent less time in their occupation.

Table 5  
*Results of regression testing main effects of Perceived Norms and Norm Deviance predicting Work-Specific Conscientiousness*

Variable	Work-Specific Conscientiousness			VIF
	$\beta$	SE	$p$	
Constant	3.89	.05	.000	
Tenure	.02*	.007	.002*	1.050
Gender	.08	.091	.4	1.032
Perceived Norms	-.24*	.037	.000*	1.118
Norm Deviance	-.105*	.036	.003*	1.103

*Note.* N=273. \*Significant at  $p < 0.05$ .

Table 5 illustrates results from the regression predicting Work-Specific Conscientiousness. Similar to findings from the other regressions, significant main effects were found for Tenure ( $\beta = .02, p < .05$ ), Perceived Norms ( $\beta = -.23, p < .05$ ), and Norm Deviance ( $\beta = -.13, p < .05$ ). These results suggest that those who perceive the norms to be lower have higher levels of work-specific conscientiousness, providing partial support for Hypothesis 1a. Results also suggest that those who perceive their work behaviour to be above the norm have lower levels of work-specific conscientiousness than those who perceive their behaviour to be below the norm, which does not support Hypothesis 1a which predicted that those who perceive themselves as above the norm and therefore engage in downward comparison would have higher levels of work-specific conscientiousness.

Table 4  
*Results of regression testing main effects of Perceived Norms and Norm Deviance predicting Change Intentions*

Variable	Change Intentions			VIF
	$\beta$	SE	<i>p</i>	
Constant	2.65	.075	.000	
Tenure	-.02	.011	.102	1.050
Gender	-.12	.135	.38	1.032
Perceived Norms	.61*	.055	.000*	1.118
Norm Deviance	.32*	.053	.000*	1.103

Note. N=273. \*Significant at  $p < 0.05$ .

As evidenced in Table 4, the regression revealed significant main effects for Perceived Norms ( $\beta = .61$ ,  $p < .05$ ) and Norm Deviance ( $\beta = .31$ ,  $p < .05$ ) in predicting Change Intentions. These results suggest that individuals who perceive work norms to be high have a greater intention to increase their own work input, providing partial support for Hypothesis 2a. However, the results also suggest that those who perceive their own work behaviour to be above the norm also have greater intention to increase their work input, which does not support Hypothesis 2a which predicted that perceiving one's own work behaviour to be below the norms would be associated with greater intentions to change work behaviour.

## Study 2

While Study 1 provided insight into how individuals perceive the norms for work behaviour relative to their own work behaviour, the nature of the study only allowed social comparison to be observed through the difference between the reported behaviour of others and the reported behaviour of the self. In order to observe social comparison more clearly, the norms for work behaviour need to be clearly distinct from the behaviour of the individual. This way, the direction of the comparison is clear. Therefore, Study 2 includes an experimental manipulation in which individuals are presented with feedback placing them unmistakably above or below the norms for work behaviour. This allows for a clear direction

of social comparison and therefore provides further insight into the role social comparison direction plays in the relationship between work norms, change intentions, and self-evaluations.

### ***Participants***

Participants in this study were full-time working adults over the age of 18 from Canada and the United States. As in Study 1, these participants were recruited through Mturk. Because the effect size is unknown, the sample size was calculated using G power assuming a small to moderate effect size. Based on the planned analysis, number of groups, and significance level ( $p < .05$ ), this produced a target sample size of approximately 300. Therefore, to account for attrition, 356 respondents completed the survey. A total of 236 participants produced useable responses, while the rest failed to pass the attention check. This attention check was in the form of an open-ended question asking respondents to briefly summarize the feedback they received in their own words. Any respondent who did not sensibly answer the question was removed from further analyses. A sensible response was deemed as one that either directly answered the question (provided a summary of the feedback) or one which demonstrated that the respondent read and understood the feedback correctly (e.g. some respondents wrote that they were surprised by how the feedback compared to their own perception of their work behaviour, and while this is not technically a summary of the feedback, it does demonstrate that they read the feedback and understood what it meant). A large number of participants (120) failed the attention check by not providing a response even close to indicating an understanding of the feedback (e.g. “good” or “yes”) signifying a low-quality participant pool.

The average age of participants was 37 years, consisting of 63.6% males and 36% females. The average tenure of participants in their current occupation was 7.5 years, with the majority of participants reporting as workers (53%) closely followed by managers/

supervisors (33.1%). The most commonly reported industry was Technology Engineering (18.2%) followed by Retail (12.7%) and Healthcare (10.2%).

### ***Measures***

All measures from Study 1 were used in this study, excluding the Perceived Norms scale. This study also included a *manipulation check* in the form of the question “*How accurate do you think the feedback about your work behaviour was?*” with responses on a five-point scale (*1=very inaccurate, 5=very accurate*). This question was included to measure how believable the feedback was in order to gauge whether or not the manipulation was successful in facilitating social comparison in the intended direction.

Following on from the exploratory factor analyses conducted in Study 1, this study included a confirmatory factor analyses on the Work Behaviour and Change Intentions scale which were developed for the purpose of these studies.

*Work Behaviour:* A 1-Factor model was evaluated and revealed a relatively poor fit (CFI=.93, RMSEA=.23, SRMR=.05,  $\chi^2(2)=26.6, p<.001$ ). A 2-Factor model - splitting items into those which asked about work at home and those which asked about prolonged time spent in the workplace - was then evaluated and showed significantly improved fit (CFI=1, RMSEA=.00, SRMR=.003,  $\chi^2(1)=.12, p=.73$ ). However, these two factors were significantly correlated ( $r=.86$ ), therefore it is argued that due to the large amount of overlap between factors, the items are likely capturing two dimensions of the same overall factor, and therefore the one-dimension scale was deemed appropriate for use.

*Change Intentions:* A 1-Factor model was then evaluated for the Change Intentions scale which again revealed relatively poor fit (CFI=.94, RMSEA=.29, SRMR=.03,  $\chi^2(2)=44.1, p<.001$ ). However, the evaluation of a 2-Factor model did not reveal a better fit (CFI=.94, RMSEA=.41, SRMR=.03,  $\chi^2(1)=40.9, p<.001$ ) as though the chi-square was

lower, the RMSEA was higher. As the reliability for the scale was above the recommended cut-off ( $\alpha=.91$ ), its use in this study was deemed appropriate, however any future research using the scale would be advised to perform further evaluation of the measurement properties.

Correlations between the Work Behaviour, Perceived Effort, Work-Specific Conscientiousness, Job-Related Self-Efficacy, and Change Intentions index variables, along with reliability coefficients ( $\alpha$ ) and descriptive statistics, are presented in Table 6.

Table 6  
*Means, standard deviations, and correlations of all variables*

Variable	M	SD	1	2	3	4	5
1 Work Behaviour	3.87	1.51	(.82)				
2 Perceived Effort	4.13	.67	.24**	(.89)			
3 Job-Related Self-Efficacy	4.29	.73	-.15*	.43**	(.79)		
4 Work-Specific Conscientiousness	4.24	.61	-.07	.61**	.60**	(.92)	
5 Change Intentions	2.11	.99	.31**	-.02	-.28**	-.33**	(.91)

*Note.* N=236. \*\*Significant at  $p<0.01$ . \*Significant at  $p<.05$ . Cronbach alpha values ( $\alpha$ ) are displayed on the diagonal.

### ***Design and Procedure***

Prior to data collection, the study and its main analyses were pre-registered with AsPredicted (<https://aspredicted.org/blind.php?x=vb3ae8>). A self-report, cross-sectional design was used for this study. Responses were collected at one time point over the period of one day through the use of Mturk. Posted on Mturk was a short description of the study, the approximate time taken to complete the survey (5 minutes), and the target participant pool. Participants were paid 75 cents (USD) for completing the survey, based on the US minimum wage. Participation in the study was voluntary and completely anonymous. Participants who chose to partake in the study were instructed to click on the link and complete the survey.

Before any questions, respondents were first presented with an information sheet explaining the purpose of the study, what they would be required to do, and how the data would be anonymous and securely stored. The Work Behaviour questions were presented first, followed by the demographic questionnaire. Once the demographic information was submitted, respondents were presented with a loading screen telling them that their responses were being matched to a data set. Once this loading was concluded, respondents were presented with the feedback page where they were told “*Based on the demographic information you just provided, your responses were matched against those of workers most similar to you.*” They were then presented with two statements; one regarding their comparative work input, and one their comparative work availability (hours worked outside of contracted work hours). Respondents in the upward comparison condition were told their work input and availability were generally *lower* than most workers similar to them, while respondents in the downward comparison condition were told their work input and availability were generally *higher* than most workers similar to them. Respondents in the control group were informed that their work input was generally *the same* as workers most similar to them. This method of providing feedback about participants’ standing with regard to an average in order to facilitate social comparison is similar to the method employed by another social comparison experiment by Klein (1997). Directly following this feedback was the attention check question (described above). Once this question was completed, respondents went on to complete the self-evaluation and change intention scales.

At the conclusion of the survey, respondents were first presented with the manipulation check (further discussed below) before they were debriefed about the real purpose of the survey and notified that the feedback presented to them was fabricated and not representative of their actual comparative work behaviour.

## Results

### ANOVA

A one-way between-subjects ANOVA was conducted to compare the effect of social comparison on Perceived Effort, Work-Specific Conscientiousness, Job-Related Self-Efficacy, and Change Intentions in the upward comparison, downward comparison, and equal comparison (control) conditions. The means for each group are presented in Table 7.

Contrary to Hypotheses 1a and 1b, there was no significant effect of social comparison on Perceived Effort [ $F(2,233)=1.72, p=.181$ ], Job-Related Self-Efficacy [ $F(2,233)=.65, p=.52$ ], or Work-Specific Conscientiousness [ $F(2,233)=2.45, p=.09$ ] at the  $p<.05$  level for the three conditions. This means that there was no significant difference in the level of these self-evaluations between those who engaged in upward comparison, those who engaged in downward comparison, and those who engaged in equal comparison. These results suggest that direction of comparison had no influence on the self-evaluations of individuals. Though no significant effect was evident from the pairwise comparisons, the means presented in Table 7 show the pattern of responses to be in line with what was predicted. As hypothesized, levels of Perceived Effort were highest for those engaging in downward comparison ( $M=4.23$ ) and lowest for those engaging in upward comparison ( $M=4.03$ ). The same pattern was true for Job-Related Self-Efficacy, with highest levels in the downward comparison condition ( $M=2.38$ ) and lowest levels in the upward comparison condition ( $M=2.42$ ). The same was again true for Work-Specific Conscientiousness, with the highest levels from those who engaged in downward comparison ( $M=4.33$ ) and the lowest levels from those who engaged in upward comparison ( $M=4.12$ ). This suggests that the general effects may be present, although not strong enough to meet the criterion for significance in the pairwise comparisons. It is possible that with fewer response exclusions and a larger final sample size, the variance would be lower, increasing power and making the effects significant.

**Table 7***Means and standard deviations for dependent variables in each condition*

Variable	Comparison Direction	N	Mean	SD
Perceived Effort	Upward	86	4.03	.72
	Equal	80	4.14	.69
	Downward	70	4.23	.58
Job-Related Self-Efficacy	Upward	86	4.24	.79
	Equal	80	4.28	.72
	Downward	70	4.38	.66
Work-Specific Conscientiousness	Upward	86	4.12	.62
	Equal	80	4.28	.59
	Downward	70	4.33	.59
Change Intentions	Upward	86	2.29	1.09
	Equal	80	1.91	.93
	Downward	70	2.12	.88

There was a significant effect of social comparison on Change Intentions at the  $p < .05$  level for the three conditions [ $F(2,233)=3.23, p=.041$ ]. A post hoc Tukey test showed that the upward comparison and equal comparison groups differed significantly at  $p < .05$ . Comparing the estimated marginal means showed that the equal comparison group had the lowest levels of Change Intentions ( $M=1.91$ ) compared to the upward comparison group ( $M=2.29$ ). This finding provides partial support for Hypothesis 2a, as it indicates that the upward comparison group had significantly higher intentions to change and increase their work behaviour compared to the equal comparison group. However, the downward comparison group was not significantly different from the other two groups at the  $p < .05$  level. This is contradictory to Hypotheses 2a and 2b, as the downward comparison group did not have significantly lower Change Intentions than the upward or equal comparison groups, nor did the upward comparison condition have significantly higher Change Intentions than the downward comparison group. It should be noted that none of the mean Change Intentions for any of the conditions were above the midpoint (3), with the highest mean held by the upward comparison group only 2.29 ( $SD=1.09$ ). This indicates that even though the Change Intentions for the upward comparison group were significantly higher than that of the equal

comparison group, participants in both groups still had low intentions to change and specifically increase their work behaviour.

### *ANCOVA*

A one-way ANCOVA was conducted to determine a statistically significant difference between upward comparison, downward comparison, and equal comparison groups on the self-evaluations and change intentions of respondents, when controlling for tenure and gender. Results showed that there was a significant effect of social comparison direction on Change Intentions when controlling for tenure and gender [ $F(2,231)=3.33$ ,  $p=.038$ ]. They also showed that gender significantly adjusts the association between the comparison condition and Change Intentions [ $F(1,231)=4.29$ ,  $p=.04$ ]. This suggests that Change Intentions following social comparison are partly influenced by gender. Post-hoc comparison showed the nature of the relationship between social comparison group and Change Intentions to remain unchanged after controlling for gender and tenure, with the upward comparison group having significantly higher Change Intentions than the equal comparison group at  $p<.05$ .

### *Exploratory Analyses*

Further analyses were conducted to identify the presence of any differences between those who believed the feedback to be true (passed the manipulation check) and those who did not, and how these differences may have impacted results. Any participant who gave a response of 3 or more out of 5 for the accuracy of their feedback was classed as passing the manipulation check, while the rest were classed as failing the manipulation check and were excluded from the following analyses. In total, 57 respondents were classed as not believing the feedback, 39 of which were in the upward comparison condition. With an initial total of 86 in the upward comparison condition, this indicates that almost half of all respondents in this condition did not believe the feedback and therefore did not believe the manipulation.

Both the equal comparison and downward comparison conditions had 9 respondents not believe the feedback.

Once those who failed the manipulation check were excluded, another one-way between subject ANOVA was conducted with the same variables as the previous ANOVA. Results from this ANOVA showed the effect of social comparison on Change Intentions for the three conditions to greatly increase in significance [ $F(2,176)=6.84, p=.001$ ]. A post-hoc Games-Howell test (chosen over Tukey due to the assumption of homogeneity of variances now being violated) showed that the differences between conditions were the same as that observed with the full sample, with the upward comparison group having significantly higher Change Intention scores than the equal comparison group at the  $p<.05$  significance level. This post hoc test also revealed that at a more liberal significance level of  $p<.1$ , there was a significant difference in Change Intentions between the downward comparison and equal comparison group, with the downward comparison group having higher levels of change intention than the equal comparison group. These findings contradict Hypothesis 2b which predicted that downward comparison would be associated with lower levels of Change Intentions, as it suggests that those who engage in downward comparison intend to increase their work behaviour more than those who engaged in equal comparison.

Additionally, the effect of social comparison on Perceived Effort and Work-Specific Conscientiousness for the three conditions became closer to achieving significance [ $F(2,176)=2.67, p=.072; F(2,176)=2.79, p=.064$ , (respectively)]. At a lower significance threshold of  $p<.1$ , these results would indicate the effect of social comparison on Perceived Effort and Work-Specific Conscientiousness for the three conditions to be significant when only those who believed the manipulation are included. A post hoc Games-Howell test showed that Perceived Effort was significantly higher for the downward comparison group compared to the upward comparison group at the  $p<.1$  significance level, which partially

supports Hypotheses 1a and 1b. The post hoc Games-Howell test also showed that Work-Specific Conscientiousness was significantly higher for the downward comparison group compared to the upward comparison group at the  $p < .1$  significance level, again providing partial support for Hypotheses 1a and 1b. These results suggest that the influence of social comparison direction becomes more pronounced in the nature hypothesized when only those who believed the feedback and on which the manipulation was successful are included. These results, however, are only evident when employing a more liberal significance cut-off ( $p < .1$ ), and only when it is assumed that those who failed the manipulation check were in fact not convinced by the manipulation feedback or at all influenced by it. Further analyses with a larger sample are needed to support these exploratory findings.

## **Discussion**

The social environment of the workplace and the way in which it develops and feeds norms for workplace behaviour has been widely acknowledged in the literature (Brett & Stroh, 2003; Hammer, Saksvik, Nytrø, Torvatn, & Bayazit, 2004; Latané, 2000). As work norms are an informal set of expectations which are rarely explicitly outlined or enforced (Morrison, 1993), their development and influence is largely facilitated by social comparison processes, where employees look to their colleagues and compare them to themselves in order to assess whether they are behaving in line with the majority of their peers (Nicholson & Johns, 1985). Social comparison which reveals a disparity between an individual's behaviour or preferences and that of the social norm can often result in feelings of stress (Hammer et al., 2004), impacted self-concept (Morse & Gergen, 1970) and create pressure to engage in work behaviours which are excessive or unhealthy (Cooper & Lu, 2019; Lu, 2011). Building on previous literature, the current study aimed to highlight how the process of social comparison to work behaviours specifically can impact individuals in terms of their self-

evaluations specific to them as workers, as well as their intentions to alter their own work behaviour.

While previous literature surrounding the impact of social comparison in the workplace has focused on employees engaging in comparison with their work outcomes and the work outcomes of others, such as performance (Yperen et al., 2006), the current study focused on the comparison of work input and availability in isolation in order to understand how social comparison of work behaviours alone, without knowledge of outcomes or circumstance, can impact individual workers. Understanding social comparison in this way would add to current literature by identifying the influence of comparison of behaviours separate from that of outcomes, therefore creating a more complete picture of how the process of social comparison can influence employees as individuals and the work attitudes and behaviours encompassing social work norms. This study utilised social comparison theory (Festinger, 1954) and understandings of social comparison motivations and effects (Pelham & Wachsmuth, 1995; Wheeler, 1966; Wills, 1981) to investigate the relationship between social comparison to norms for work input and work availability and the work-specific self-evaluations and change intentions of employees. These relationships were investigated in order to further understand the role of social comparison in the workplace on the reinforcement of norms for work behaviour and the impact of falling outside of social work norms. Specifically, the present study investigated whether upward comparison – comparison to norms for work behaviour which are higher than one's own – was related to poorer work-specific self-evaluations and greater intentions to increase work input and work availability. Additionally, it investigated whether employee gender or tenure in their current occupation moderated the relationship between social comparison and the aforementioned outcomes. This was investigated through two studies; one correlational (Study 1) and one experimental (Study 2).

## **Overall Findings**

The results of Study 2 indicate that engaging in social comparison to a norm for work input which is higher than one's own work input is associated with greater intentions to increase work behaviour in terms of work input and work availability. However, findings from Study 1 suggest that engaging in social comparison to norms for work input which is lower than one's own work input is also associated with greater intentions to increase work behaviour. This effect was not significant in Study 2, though results did indicate that the lowest intentions to change work behaviour were from the equal comparison group and not the downward comparison group as hypothesised. The association between upward comparison and higher levels of change intentions is consistent with previous social comparison research which has found engaging in upward comparison to produce an assimilation effect where individuals strive to alter their behaviour in order to become closer to the comparison target (Collins, 1996; Wheeler & Miyake, 1992). It is also consistent with research on work norms which posits that employees actively alter their work behaviour in order to align with the behaviour of their colleagues and peers (Brett & Stroh, 2003; Derks et al., 2015; Latané, 2000). However, the association between downward comparison and intention to increase work input and availability in Study 1 runs contrary to both past research and the expectations of the present study, as it indicates an intention to move further away from the norm. A possible explanation for this unexpected result is the previously discussed positive association between heavy work input and worth as a worker (Clarkberg & Moen, 2001; Williams et al., 2013). Because of this association, working more in comparison to the norm may produce a contrast effect of being 'better off' than others (Pelham & Wachsmuth, 1995), causing a self-enhancement motivation where individuals perceive that they are better and therefore further strive to maintain this contrast between them and the lesser group

(Wills, 1981; Wood et al., 1985). However, this explanation is speculative and further research is needed to better understand the nature of the relationship.

Results from Study 1 indicate that engaging in social comparison with a norm for work input perceived as being higher than one's own work behaviour is associated with lower levels of perceived work effort, while engaging in social comparison with a norm for work input perceived as being lower than one's own work behaviour is associated with higher levels of perceived work effort. This is consistent with previous social comparison research which has found upward comparison to result in a decrease in self-evaluations (Cash et al., 1983; Morse & Gergen, 1970; Thornton & Moore, 1993) and downward comparison to result in an increase in self-evaluations (Wheeler & Miyake, 1992; Wills, 1981). This effect was not significant in Study 2, where the direction of social comparison was facilitated rather than measured as it naturally occurred for each individual. This disparity in findings between studies could be due to the more personal nature of comparison in Study 1, where respondents compared to their peers and people they know, as opposed to Study 2, where respondents compared to workers 'similar to them' but whom they did not know. Findings from Study 1 also indicate that engaging in social comparison with a norm for work input perceived as being lower than one's own work behaviour is associated with lower levels of work-specific conscientiousness, which is not consistent with the previous social comparison research just discussed. A possible explanation for this finding could be the presence of a compensatory effect, where individuals compensate for a lack of conscientiousness at work by putting in more hours or making themselves more available. Similar to the argument that people work harder to compensate for a lack of talent (Chamorro-Premuzic, 2016), it is possible that those who find it harder to stay on task and remain goal focused perceive themselves to work longer and more often than others out of necessity. This result was not present in Study 2, where social comparison was manipulated rather than observed in a real-

life context, which may further suggest that work-specific conscientiousness is not influenced by social comparison to work norms, but rather that how we evaluate our own work ethic may influence how much time we dedicate to work relative to our peers. Further research is needed to better understand this relationship. Findings from both studies suggest that social comparison to work norms has no impact on perceptions of job-related self-efficacy as a self-evaluation.

While the pattern of relationships between social comparison direction and self-evaluations were the same across both studies regarding perceived work effort, relationships which were significant in Study 1 failed to reach significance in Study 2. A possible explanation for this is the small sample size of Study 2 causing it to be underpowered in comparison to Study 1. It could also be due to the different designs of the studies – one measuring how people perceive their own work behaviour relative to those around them, and one where social comparison is actively facilitated – the nature of the manipulation in the second study, demographic differences of respondents (particularly industry), or underlying factors which were not captured in either of the studies.

### **Theoretical and Practical Implications**

The current study has several theoretical and practical implications. Firstly, to our knowledge it is the first study to explore social comparison in the workplace specific to work behaviours and highlight how social comparison to work norms is associated with intentions to change work behaviours. While the existence of norms for work behaviour within organisations has been established (Brett & Stroh, 2003; Latané, 2000), and the concept of social comparison as a common workplace process identified (Greenberg et al., 2007), the way social comparison influences intentions to assimilate to work norms for behaviour had not yet been quantitatively explored until the current study. The association found in this study between social comparison to work norms we fall below or within and an intention to

increase our work input and availability adds to the existing body of literature by providing more specific insight into the role of social comparison in the formation and escalation of norms for work behaviour. The findings provide a possible explanation for why current trends in escalating work input (Jacobs & Gerson, 2001) do not seem to match the increased value of leisure and balance among newer generations of workers (Lub et al., 2012; Sullivan et al., 2009).

This study also provides new insight into how social comparison between employees may impact self-evaluations in terms of how employees appraise themselves as workers and the extent to which they perceive themselves as a ‘hard worker.’ This study provides preliminary evidence of an association between social comparison and employee self-perceptions of work-specific conscientiousness and perceived work effort. Though the direction and strength of these associations was not in the hypothesized direction, this research still provides a basis for understanding the link between engaging in social comparison and these self-evaluations, something which has not been identified in other research. The exact nature of this relationship and how it impacts the daily lives of employees could be expanded on in future research.

Findings from this research may be used by organisations to consider how their current policies to prevent overwork and excessive availability – such as work-life balance policies, contracted hours, and formal obligations for outside of work contact – could be revamped to account for the influence of social comparison. As this study found social comparison to be associated with a greater intention to increase work behaviour, organisations should use this knowledge to inform new approaches to managing overwork and excessive availability in their organisations. As social comparison is often an unavoidable process, organisations could update their performance evaluation systems as a means of providing alternative social comparison information which is more related to actual

performance rather than work behaviour only. Past research has acknowledged that social comparison in the workplace occurs more often when more objective, performance related means of comparison are lacking (Brett & Stroh, 2003). By providing a means of comparison more related to work outcomes, it is possible that the assimilation effect suggested by the results of the current study would be mimicked with performance rather than input, with workers striving to meet the same level of performance rather than input or availability.

It could also be possible to use the comparison process evident in this study for other work components, such as work stress, in order to feed into the same assimilation process. For example, having employees anonymously log their stress levels each week and having these results cumulated and presented to employees could be used to facilitate social comparison in order to produce contrast rather than assimilation effects; if employees engage in upward comparison (when they are more stressed than the norm therefore worse off) the same assimilation motivation may be provoked, but instead of *increasing* work input to meet norms for work behaviour, they may *decrease* their work input to meet norms for work stress levels. While the current study cannot provide evidence that these proposed changes would work, it does demonstrate that the association between social comparison and intentions to change work behaviour does exist and therefore social comparison processes are worth considering when developing plans to address unhealthy work norms.

### **Methodological Considerations**

Along with the interpretations of the findings and their theoretical and practical applications, the studies' limitations must also be considered. One methodological limitation of both studies is that they were based on self-report measures. Self-report data is susceptible to biases such as social desirability bias, which is the tendency to respond in a way that would be viewed favorably by others due to their social desirability (Podsakoff, MacKenzie, & Podsakoff, 2012). Social desirability bias may have been evident in both studies not only

with the self-evaluation questions, many of which asked about the extent to which respondents performed their job well (see Appendix D, E and F), but also with the work behaviour questions due to the positive connotations associated with hard work (Aron, 1987; Pied, 2019; Williams et al., 2013). The current study aimed to mitigate this social desirability bias by ensuring participants that their responses would be anonymous, which can reduce fears that others will see and judge their responses (Krumpal, 2013). Future studies may wish to control for the effects of social desirability by including a social desirability measure in their survey (Van de Mortel, 2008). Another limitation of self-report data is the risk of common method variance (Sharma, Yetton, & Crawford, 2009). Common method variance is the variance shared between constructs due to the use of a common measurement tool rather than the constructs themselves (Spector & Brannick, 2009). The result of this variance is the potential inflation or deflation of the relationship between constructs, which causes bias when interpreting these relationships (Spector, 2006). In an attempt to limit the impact of common method variance in Study 1, where both the independent and dependent variables were measured via self-report surveys, all scales were presented on separated pages with the question order in each scale randomized between participants (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). Despite these limitations, self-report is the most appropriate way to measure individual attitudes and perceptions as they are not directly observable, therefore its use is justified for this type of research (Paulhus & Vazire, 2007).

A further methodological limitation is the cross-sectional design of both studies. Because all data was collected at one time point for each study, it is not possible to determine causality or the directionality of the relationship between the dependent and independent variables (Spector, 1994). While it is predicted that engaging in social comparison has an impact on the level of self-evaluations and change intentions, because of the cross-sectional design it is not possible to confirm this in the current research. Even in Study 2 where

direction of comparison is manipulated, it is not possible to confirm the directionality of the relationship between comparison direction and self-evaluations and change intentions. A cross-sectional design was considered the most practical for the current study in order to maintain a large enough sample size. Additionally, the inclusion of both a correlational study and an experimental allowed the relationships to be tested in two different ways; the correlational study (Study 1) provides an understanding of association without directionality, while the experimental study (Study 2) lends rigor as it does not suffer from the limitations of common method variance and cross-sectional design. Additionally, the results of Study 1 are consistent with the pattern of relationships observed when implementing an experimental design, making the findings more trustworthy.

Another methodological limitation specific to Study 2 is the random assignment of participants to conditions which did not match well with their work behaviour. This means that some participants were assigned to conditions which provided them with feedback which would be considered unrealistic given their previous behaviour responses; for example, some people reported that they never came into work early or worked outside of work hours, yet the feedback told them their work input and work availability were higher than most other workers. Although random assignment is considered the optimal sampling method because of its ability to better control for bias and confounding variables (Wilkinson, 1999), in this study it may have acted to undermine the manipulation for some participants. However, assigning participants to certain conditions based on their responses would increase the risk of other extraneous factors influencing the results, for example individuals who work very high hours may have other, unmeasured differences to individuals who work very low hours. Because of this, random assignment was considered the most appropriate method of assignment for the current study despite the issues.

A final limitation of this research was the use of Mturk for sourcing participants. Although studies have found Mturk respondents to be reliable and not significantly different from participants sourced in more traditional ways (Bartneck, Duenser, Moltchanova, & Zawieska, 2015; Crowston, 2012), in Study 2 the number of low quality respondents was higher than expected resulting in a large amount of attrition and a final sample size which fell below the target. More recent research on the use of Mturk for data collection has found that the quality of data is increasingly declining due to the use of virtual private servers who gain access to studies and provide fraudulent and unusable responses (Kennedy et al., 2020). While the inclusion of an attention check did result in high attrition, it did assure the quality of the final participant pool, therefore the trade-off for sample size was advantageous for the studies overall rigor. The final sample size did not fall so low as to make it inadequate, therefore the use of Mturk for efficiency and yield of participants was still beneficial.

### **Suggestions for Future Research**

The current research has provided evidence that engaging in social comparison with work norms is associated with different levels of intentions to increase work input and work-specific self-evaluations depending on whether individuals fall above or below these work norms. While this provides preliminary insight into how social comparison processes influence individuals to conform to work norms, further research is needed to better understand the possibility of a causal link between the impact norm deviance has on individual's self-evaluations through social comparison and their subsequent intentions to alter their work behaviour in a way that meets the norms. This could be achieved through a similar study which includes a temporal separation between the presentation of normative information and the measure of self-evaluations and change intentions, which would allow for the investigation of temporal precedence between the two processes. Studies may also find it useful to consider self-evaluations as a potential mediator of the relationship between

social comparison to work norms and intentions to change work behaviour. While findings from Study 1 do suggest the two constructs are significantly related (see Table 1 for correlations), the design of the study does not allow for the interpretation of any causal relationship.

Future research should also consider how individual differences could influence the extent to which people are impacted by work norms or social comparison information. One individual factor which has been explored in social comparison research is self-esteem, with many findings indicating that an individual's self-esteem level can influence not only their social comparison preferences (Gibbons & McCoy, 1991; Smith & Insko, 1987) but also the extent to which social comparison information impacts their self-perception (Gibbons & McCoy, 1991; Jones & Buckingham, 2005). Understanding how self-esteem impacts the influence of social comparison information and work norms would provide a more complete understanding of how work norms influence some people more than others and perhaps provide insight into what type of people create and lead norms and which people follow and comply with norms. Gaining this insight would further aid organisations who are struggling with norms for excessive work input to identify ways to empower employees to champion balance in their lives over social conformity.

### **Conclusion**

With the consequences for overwork increasingly being recognized, identifying the role of norms for work behaviour within organisations is crucial to provide understanding of why individuals give so much time to work – both inside and outside of the workplace – despite it not being in their best interests. The current research highlights a gap in the literature by identifying social comparison as a process which is strongly associated to work norms and the propensity of workers to comply with them. Although further research is needed to ascertain direction of causality, results from the current studies show strong

associations between social comparison to work norms, intentions to increase work input and availability, and work-specific self-evaluations. Both studies identified relationships between social comparison and intention to increase overall work input, suggesting that norm compliance generates pressure for those outside of the norm to assimilate. Findings also suggest that unfavorable social comparisons in which individuals found themselves outside of the norm were associated with lower levels of work-specific self-evaluations, suggesting that being outside of work norms also impacts how workers evaluate themselves and their ability as workers. Organisational leaders should use the findings from this research to re-evaluate their policies aimed at reducing overwork or poor work-life balance by considering the impact of work norms and social comparison processes which may be undermining these policies. Having a greater understanding of a process as subtle yet powerfully influential as social comparison is crucial if organisations are to develop ways to effectively reduce overwork among their staff and prevent the formation of norms which are unrealistically high for the majority of their workforce.

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## **Appendices**

### **Appendix A Information Sheet for Survey Participants**

My name is Emma Maheno, and I am doing my Postgraduate degree in Applied Psychology. This survey is to collect data as part of a study I am conducting to fulfil the requirements for my Master's Degree. The aim of this study is to understand work norms and how they can influence the behaviour and work-specific self-evaluations of individuals. Continuing with the survey implies consent.

Participants in this study are full time working adults over the age of 18.

If you choose to participate in this study, you will only be required to answer the questions in this survey. The survey should take approximately 5-10 minutes to complete. Participation is completely voluntary, and you may withdraw at any time by closing the internet browser. You will not be required to provide your name in the survey.

The results of this study may be published, but the data gathered will remain completely confidential and your identity anonymous. The data will be securely stored on password-protected computers and will only be accessible to the researcher and supervisors of the study. The thesis itself is a public document and when complete will be available through the UC library.

The dissertation is being completed by Emma Maheno under the supervision of Katharina Näswall, who can be contacted at [katharina.naswall@canterbury.ac.nz](mailto:katharina.naswall@canterbury.ac.nz).

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants may forward any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch ([human-ethics@canterbury.ac.nz](mailto:human-ethics@canterbury.ac.nz)).

Thank you for taking the time to fill out this survey.

## Appendix B Work Behaviour Scale

*Developed for the purpose of this study*

<i>“When answering these questions, please think about your own work behaviour displayed the majority of the time.”</i>														
1		2		3		4		5		6		7		
Never		Once a month or less		A couple times a month		At least once a week		At least twice a week		Three times a week or more		Every day		
WB1		How often do you do work outside of work hours?												
WB2		How often do you respond to emails outside of work hours?												
WB3		How often do you stay late at work?												
WB4		How often do you come into work early?												
20-24	25-29	30-34		35-39		40-44	45-49	50-54	55-60	60-64	65-69	70-74	75-79	80+
WB5		How many hours on average do you work in a week (including work performed outside of contracted hours)?												
0-4		5-9		10-14		15-19		20-24		25-29		30-34		35+
WB6		How many hours on average do you work outside of regular work hours in a week?												

## Appendix C Perceived Norms Scale

*Developed for the purpose of this study*

<i>“When answering these questions, please think about other people you know or work with.”</i>													
1		2		3		4		5		6		7	
Never		Once a month or less		A couple times a month		At least once a week		At least twice a week		Three times a week or more		Every day	
N1		How often do you think most people work outside of work hours?											
N2		How often do you think most people respond to emails outside of work hours?											
N3		How often do you think most people stay late at work?											
N4		How often do you think most people come into work early?											
20-24	25-29	30-34	35-39	40-44	45-49		50-54	55-60	60-64	65-69	70-74	75-79	80+
N5		How many hours on average do you think most people work in a week (including work performed outside of contracted hours)?											
0-4		5-9	10-14	15-19			20-24		25-29		30-34		35+

N6	How many hours on average do you think most people work outside of regular work hours in a week?
----	--

### Appendix D Perceived Effort Scale

Kuvaas, B., & Dysvik, A. (2009). Perceived investment in employee development, intrinsic motivation and work performance. *Human Resource Management Journal*, 19(3), 217-236. Doi:10.1111/j.1748-8583.2009.00103.x

Meltzer, L., Reddy, R., Pollica, L. S., Roditi, B., Sayer, J., & Theokas, C. (2004). Positive and Negative Self-Perceptions: Is There a Cyclical Relationship Between Teachers' and Students' Perceptions of Effort, Strategy Use, and Academic Performance? *Learning Disabilities Research and Practice*, 19(1), 33-44. Doi:10.1111/j.1540-5826.2004.00087.x

<i>"Please indicate the extent to which you agree with each of the below statements."</i>				
1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
E01	I often expend extra effort in carrying out my job			
E02	I usually don't hesitate to put in extra effort when it is needed			
E03	I intentionally expend a great deal of effort in carrying out my job			
E04	I try to work as hard as possible			
E05	I almost always expend more than an acceptable level of effort			
E06	In general, I am hard worker.			
E07	I spend as much time as I need to get the work done.			
E08	I finish my work even when it is boring.			
E09	I don't give up even when the work is difficult.			

### Appendix E Job-Related Self-Efficacy Scale

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of management Journal*, 38(5), 1442-1465.

<i>"Please indicate the extent to which you agree with each of the below statement."</i>				
1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
SE01	I am confident about my ability to do my job			
SE02	I am self-assured about my capabilities to perform my work activities			
SE03	I have mastered the skills necessary for my job			

## Appendix F Work-Specific Conscientiousness Scale

International Personality Item Pool: A scientific Collaboratory for the Development of Advanced Measures of Personality and other Individual Differences. Retrieved from <https://ipip.ori.org/>. Retrieved 2020 <https://ipip.ori.org/>

<i>“Please indicate the extent to which you agree with each of the below statement.”</i>	
1	2
Strongly Disagree	Somewhat Disagree
3	4
Neither Agree nor Disagree	Somewhat Agree
5	Strongly Agree
C01	I am always prepared at work
C02	I pay attention to details at work
C03	I like order at work
C04	I follow a schedule at work
C05	I am exacting in my work
C06	I do things according to plan at work
C07	I continue until everything is perfect at work
C08	I make plans and stick to them at work
C09	I love order and regularity at work
C010 (R)	I like to tidy up at work
C011 (R)	I leave my belongings around at work
C012 (R)	I make a mess of things at work
C013 (R)	I often forget to put things back in their proper place at work
C014 (R)	I shirk my duties at work
C015 (R)	I neglect my duties at work
C016 (R)	I waste my time at work
C017 (R)	I do things in a half-way manner at work
C018 (R)	I find it difficult to get down to work

## Appendix G Change Intentions Scale

*Developed for the purpose of this study*

4	3	2	1
Definitely yes	Probably yes	Probably not	Definitely not
CH1	Do you think you should work more hours?		
CH2	Do you think you should do more work outside of contracted work hours?		
<i>“Please indicate the extent to which you agree with each of the below statement.”</i>			
1	2	3	4
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree
5			
Strongly Agree			
CH3	I will try and increase the number of hours I work		
CH4	I will try and increase the number of hours I work outside of the workplace		

## Appendix H

### Exploratory Factor Analyses for Newly Developed Scales

#### Work Behaviour

Table 1  
*Factor Analysis<sup>a</sup> for items measuring Work Behaviour*

		Factor 1	h <sup>2</sup>
WB1	How often do you do work outside of work hours?	.899	.808
WB2	How often do you respond to emails outside of work hours?	.579	.335
WB3	How often do you stay late at work?	.549	.301
WB4	How often do you come into work early?	.702	.493
Eigenvalue		2.39	
Percentage of variance (after extraction)		59.83%	

<sup>a</sup>Principal axis factor analysis, Oblimin rotation

#### Perceived Norms

Table 2  
*Factor Analysis<sup>a</sup> for items measuring Perceived Norms*

		Factor 1	h <sup>2</sup>
N1	How often do you think most people work outside of work hours?	.806	.650
N2	How often do you think most people respond to emails outside of work hours?	.707	.500
N3	How often do you think most people stay late at work?	.775	.601
N4	How often do you think most people come into work early?	.744	.554
Eigenvalue		2.724	
Percentage of variance (after extraction)		68.11%	

<sup>a</sup>Principal axis factor analysis, Oblimin rotation

#### Change Intentions

Table 3  
*Factor Analysis<sup>a</sup> for items measuring Change Intentions*

		Factor 1	h <sup>2</sup>
CH1	Do you think you should work more hours?	.893	.797
CH2	Do you think you should do more work outside of contracted work hours?	.882	.777
CH3	I will try and increase the number of hours I work	.877	.768
CH4	I will try and increase the number of hours I work outside of the workplace	.827	.684
Eigenvalue		3.27	
Percentage of variance (after extraction)		81.69%	

<sup>a</sup>Principal axis factor analysis, Oblimin rotation

## Appendix I

### Regression Results with Interaction Included

These are the step 2 results of hierarchical regressions run with the inclusion of the interaction term (Perceived Norms X Norm Deviance). As shown, the interaction was not significant for any of the dependent variables except for Work-Specific Conscientiousness. What this interaction indicates is discussed below Figure 1.

#### *Results of moderation regression testing main effects and interaction effect of Perceived Norms and Norm Deviance predicting Perceived Effort*

Variable	Perceived Effort			VIF	$\Delta R^2$
	B	SE	p		
Constant	4.05	.49	.00		
Tenure	.019*	.007	.006*	1.055	
Gender	.103	.087	.24	1.033	
Perceived Norms	.053	.036	.136	1.129	

Norm Deviance	.085*	.035	.017*	1.203	
Interaction	-.025	.024	.2303	1.135	.004

Note. N=273. \*Significant at  $p < 0.05$ .  $\Delta R^2$  = change in  $R^2$  when the interaction term was added.

*Results of moderation regression testing main effects and interaction effect of Perceived Norms and Norm Deviance predicting Job-Related Self-Efficacy*

Variable	Job-Related Self-Efficacy			VIF	$\Delta R^2$
	B	SE	p		
Constant	4.27	.048	.000		
Tenure	.02*	.007	.003*	1.055	
Gender	-.03	.085	.761	1.033	
Perceived Norms	-.04	.035	.282	1.129	
Norm Deviance	-.06	.035	.088	1.203	
Interaction	-.006	.023	.813	1.135	.000

Note. N=273. \*Significant at  $p < 0.05$ .  $\Delta R^2$  = change in  $R^2$  when the interaction term was added.

*Results of moderation regression testing main effects and interaction effect of Perceived Norms and Norm Deviance predicting Change Intentions*

Variable	Change Intentions			VIF	$\Delta R^2$
	B	SE	p		
Constant	2.65	.076	.000		
Tenure	-.02	.011	.09	1.055	
Gender	-.12	.135	.37	1.033	
Perceived Norms	.61*	.055	.000*	1.129	
Norm Deviance	.31*	.055	.000*	1.203	
Interaction	-.023	.037	.53	1.135	.001

Note. N=273. \*Significant at  $p < 0.05$ .  $\Delta R^2$  = change in  $R^2$  when the interaction term was added.

*Results of moderation regression testing main effects and interaction effect of Perceived Norms and Norm Deviance predicting Work-Specific Conscientiousness*

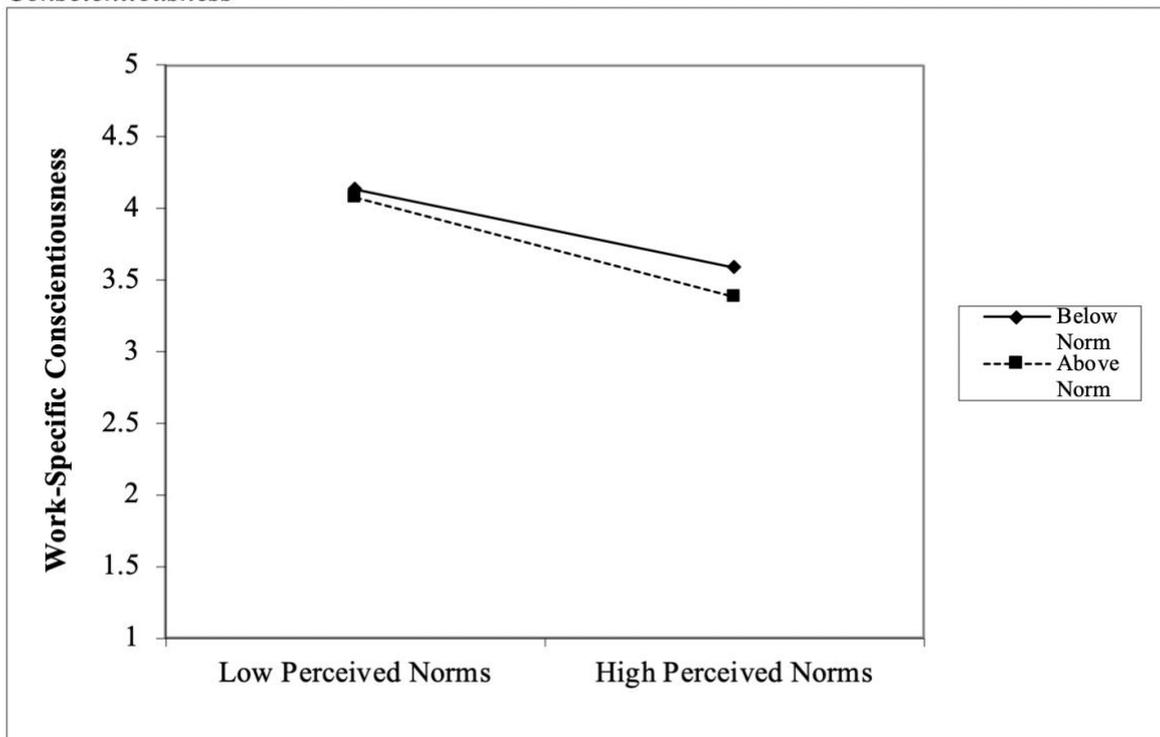
Variable	Work-Specific Conscientiousness			VIF	$\Delta R^2$
	B	SE	p		
Constant	3.86	.051	.000		
Tenure	.02*	.007	.002*	1.055	
Gender	.07	.091	.45	1.033	

Perceived Norms	-.23*	.037	.000*	1.129	
Norm Deviance	-.13*	.037	.000*	1.203	
Interaction	-.061*	.025	.015*	1.135	.018

Note. N=273. \*Significant at  $p < 0.05$ .  $\Delta R^2$  = change in  $R^2$  when the interaction term was added.

**Figure 1**

*Interaction effect of Perceived Norms and Norm Deviance on Work-Specific Conscientiousness*



The interaction in Figure 1 suggests that when work norms are perceived to be lower, individuals above or below the norm do not significantly differ in Work-Specific Conscientiousness levels. However, when the work norms are perceived to be high, there is a greater difference in Work-Specific Conscientiousness levels between individuals who are above the perceived norm and those who are below the perceived norm. As Figure 1 demonstrates, individuals in this sample who are above the perceived norm have lower levels of Work-Specific Conscientiousness when norms are perceived to be high, whereas individuals

who are below the perceived norm have higher levels of Work-Specific Conscientiousness when norms are perceived to be high.