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Effect of a ubiquitous moral cue on ethical leadership, moral disengagement and goal difficulty: Real-world outcomes of a novel behavioural intervention by mobile application technology

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Effect of a Ubiquitous Moral Cue on Ethical Leadership, Moral Disengagement and Goal Difficulty: Real-world Outcomes of a Novel Behavioural Intervention by Mobile Application Technology

by
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Abstract

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Tan Boon Heon

Firms invest significant resources in their ethical infrastructure to influence the ethical decision-making of employees. The advent of mobile technology has extended the frontier of interventions that may discourage unethical behaviour, through the use of ubiquitously-present mobile-based moral cues.

I conducted a prospective, randomized field experiment, to study how a ubiquitous moral cue may positively enhance ethical decision-making. Sales professionals working in a pharmaceutical firm in China were assigned randomly by teams to either receive, or not, a mobile application from their firm's compliance department. Over six months, participants completed three cross-sectional surveys, and were randomly monitored by an independent external third party for non-compliant behaviour. The interactions of the mobile application with individual, team and firm factors that influence ethical decision-making were studied using ANOVA and regression methods to identify direct and indirect effects of the intervention.

The results showed that a ubiquitous moral cue strengthened the negative relationship between ethical leadership and unethical behaviours. This result was demonstrated both by team self-reported unethical behaviours as well as third-party audit findings. Also, more third-party audit findings were found among participants

reporting high difficulty in achieving their goals in the control arm, but not among those receiving a ubiquitous moral cue. Supplementary analyses also suggested that the greater the perceived ubiquity of the application, the lower the team self-reported unethical behavior, an outcome that supports the need to conduct further study of this new concept. However, contrary to expectation, a ubiquitous moral cue strengthened the effect of moral disengagement on team self-reported unethical behaviour.

This study answers the call for more empirical research on the effectiveness of ethical and compliance infrastructure, and has immediate implications on the use of a ubiquitous moral cue as a behavioural intervention in practice.

Table of Contents

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Effect of a Ubiquitous Moral Cue on Ethical Leadership, Moral Disengagement and Goal Difficulty: Real-world Outcomes of a Novel Behavioural Intervention by Mobile Application Technology

Chapter 1: Unethical Behaviour: A Clear and Present Danger

Unethical behaviour impacts victims, the firm and its owners, and various external stakeholders, and can cause consequential damage to corporate reputation when uncovered. For example, in 2014, settlements by the financial industry hit a record $56 billion (Arnold 2014). More recently, the US Department of Justice and Environmental Protection Agency settled with Credit Suisse, Deutsche Bank, Takata and Volkswagen for a collective $17.8bn (Masters 2017). The banks had been either charged with misleading consumers about mortgage-backed securities or with manipulation of foreign exchange markets, while Volkswagen was charged with allegations of wrongdoing around vehicle emissions.

In addition to firm losses, unethical decision-making may lead to personal liability, as had happened to several senior executives of Glaxo SmithKline in the People's Republic of China recently (Waldmeir 2014). Meanwhile, the prosecution of Volkswagen executives is still going on (Masters 2017). Clearly, the problem of unethical decision-making in firms is a clear and present danger to all concerned.

Faced with such substantial risks to a business, it is unsurprising that firms devote significant resources to the management of ethical and compliant behaviour of their employees. Many firms broadly follow the US Sentencing Guidelines (2016) in

implementing these measures, referred to as "ethical infrastructure" in the business ethics literature (Treviño 2006).

What complicates the work of the ethics and compliance officer is that employees make decisions in a dynamic environment, influenced by irrational emotions, biases, and situational factors including individual, team, and firm factors (Treviño 2006, Hayibor 2009). How can companies and their leaders ensure that employees make ethical decisions in the face of such complexity? Not surprisingly, practitioners in Chinese-speaking cultures use the saying "道高一尺，魔高一丈" – meaning "evil will find a way around good" – to reflect how employees find loopholes and gaps in a firm's ethical infrastructure to commit non-compliant acts.

One such potential gap is insufficient exposure of employees to a firm's ethical infrastructure due to methodological or technological limitations (Murphy 1988, Kaptein 2008, Treviño & Weaver 2001, Bowen 2004). Hence, industry practitioners continue to take advantage of new technology to develop methods to combat unethical behaviour. Indeed, technology now exists that enables firms to be continuously linked to their employees by way of software applications on their *mobile devices* (Chiu 2007). The ubiquity of mobile applications makes it possible for firms to extend their ethical infrastructure into the hands of employees twenty-four hours a day. Hence, *if* the secret to defeating unethical behaviour lies in the ability of the ethical infrastructure to be everywhere at any time, technology may now finally be available to build the ultimate weapon against undesirable decision-making in the form of a *ubiquitous* moral cue.

To test this hypothesis, I conducted a field experiment in China in the sales operations of a mid-sized European pharmaceutical firm. Over a period of six months,

employees were assigned randomly to an experimental arm that received a ubiquitous moral cue in the form of a mobile application on their work tablet, or to a control arm which did not. Longitudinal data were obtained through surveys conducted at baseline, two months and six months, to measure personal, team, and firm factors that were known antecedents of ethical decision-making, as well as a measure of unethical behaviour. Non-compliant behaviour was also measured through audit checks on employees' activities conducted by a third party. Technology Acceptance measures were included to further understand how well the mobile application was accepted, and to explore the relatively novel concept of ubiquity.

The results demonstrated that a ubiquitous moral cue may play a role in influencing ethical behaviour in three ways. First, it appears to enhance the impact of ethical leadership of team leaders on the behaviour of team members. Specifically, participants in the experimental arm reported less unethical behaviour in their teams when ethical leadership was high, but not in the control arm. Secondly, it may neutralize the negative effect of high goal difficulty. Participants reporting high difficulty in achieving their goals were found to have more third-party audit reports of non-compliance when compared to those reporting low goal difficulty in the Control arm, but not in the Experimental arm. These outcomes support the use of a ubiquitous moral cue in practice and emphasize the critical role played by ethical leadership and goal-setting.

An unexpected third finding was that a ubiquitous moral cue moderated the relationship between moral disengagement and team self-reported unethical behaviour in a direction that was *not* expected. Among participants with high moral

disengagement scores at baseline, those in the experimental arm scored higher on team self-reported unethical behaviour than those in the control arm after six months.

Chapter 2: Contributions to theory and practice

This study makes several contributions in the study of behavioral science, ethical decision-making and technology acceptance. First, to my knowledge, this is the first scientific effort to collect real-world time-series experimental data to study the implementation of a novel ethical infrastructure program using mobile application technology as a ubiquitous moral cue. For practitioners, this study demonstrates how a real intervention can be tested and validated in a real-world environment in order to measure its effectiveness, and demonstrate the return on a firm's investment in such infrastructure.

Second, the study provides real-world empirical evidence for relationships hypothesized in existing theoretical models and non-experimental studies, and discovers further insights into areas which have been limited by the methods used to study them. It answers the call by scholars for more empirical studies to further our understanding of ethical decision-making with greater evidence of causality and with greater real-world relevance (e.g., Ford 1994, O'Fallon 2005, Craft 2013, Eden 2017). For practitioners who are concerned about how they can realistically intervene in the real world, this study isolates a specific intervention and demonstrates its usefulness amidst a host of other factors that practitioners cannot realistically influence (such as gender and other demographic factors).

Finally, the study contributes new findings on the impact of technology acceptance on ethical decision-making. I introduce a new construct, *Perceived Ubiquity*,

that integrates research in the fast-growing field of mobile application technologies with business management applications in the decision-making sciences.

In the following sections, I will first describe a neurocognitive approach to the study of ethical decision-making, reviewing the evidence in the extant literature that suggests that ethical decision-making is influenced by multiple individual demographic, personality, team and firm factors. I will then distil the factors I believe to be most relevant to the implementation of a ubiquitous moral cue in the field, and hypothesize their relationships with ethical behaviour. The field experiment is then described in detail, including the setting, experimental manipulation, description and measurement of the dependent and independent variables in the study, control variables and how they were selected, and baseline demographics. Then, I present the results, assessing the support for the hypotheses, and discussing the outcomes in the context of both the theoretical contributions and the practical implications of my study. Finally, I discuss the weaknesses and limitations of this study, and propose directions for future research.

Chapter 3: Theory & Hypotheses

Theoretical basis of behavioural change

Rationalist versus non-rationalist approaches. Researchers of ethical decision-making tend to follow a rationalist or non-rationalist approach (van Dijke 2014). Scholars of the former school draw on the theory of planned behaviour (Ajzen 1985) in an attempt to understand ethical versus unethical behaviour by studying how decisions are made. This approach has its grounding in the expectancy-value model of attitudes and the theory of reasoned action (Fishbein & Ajzen 1975). According to Ajzen (1985), people behave in a certain way based on the interaction of their attitudes

towards a behaviour, their perceived ability to control it, and subjective norms. Thus, when faced with potential ethical implications, an individual will weigh all of its associated attributes, such as rewards to the perpetrator, the actual damage done to victims, social norms (approval, or apathy), and other factors.

A dimension of moral reasoning has been proposed as an evolution of this approach, in part based on research that shows that ethical intention does not always lead to ethical behaviour (Ajzen 1985, Weber 2002). Rest (1986) summarized this approach as a four-step process: recognizing that there is a moral issue, making a moral judgment, establishing moral intent, and then acting on that (i.e. moral behaviour). Building further on this model, with the theoretical contributions of Treviño (1986), Ferrell & Gresham (1985), and Hunt and Vitell (1986), Jones (1991) proposed the Issue-Contingent Model. Jones (1991) also contributed the theory of moral intensity to explain how different factors may influence the degree of "ethical-ness" of an issue. The higher the moral intensity perceived by a decision-maker, the more likely a decision based on moral reasoning and motivated by commitment to morality would be made. Different situational factors interact to influence moral intensity.

While the earlier approaches established a systematic approach to the study of ethical decision-making, they did not always reflect the "real world" situation in which decisions are made in rather complex and multifaceted environments. Thus, researchers turned to the study of behavioural ethics in organizations (Treviño 2006, van Dijke 2014), with Bandura's pioneering (1986, 2002) work on social learning theory and moral disengagement forming the basis for much subsequent research.

Bandura (1986, 2002) provided an explanation for the common observation that people who are engaged in acts that are considered unethical do not consider them to be unethical themselves. To provide an extreme example, in times of war, opposing armies justify the otherwise unethical act of killing innocents in order to save other innocents. In the context of a day-to-day situation, one might justify stealing in order to feed one's family. Hence, by appealing to other reasons or rationale, acts that could be unethical in the eyes of others may appear to be morally correct to, or even encouraged by, a perpetrator. In a series of laboratory experiments, Detert (2008) showed that moral disengagement predicted unethical decision-making at the individual level. Another similar concept, ethical fading, was studied and described by Tenbrunsel & Messick (2004).

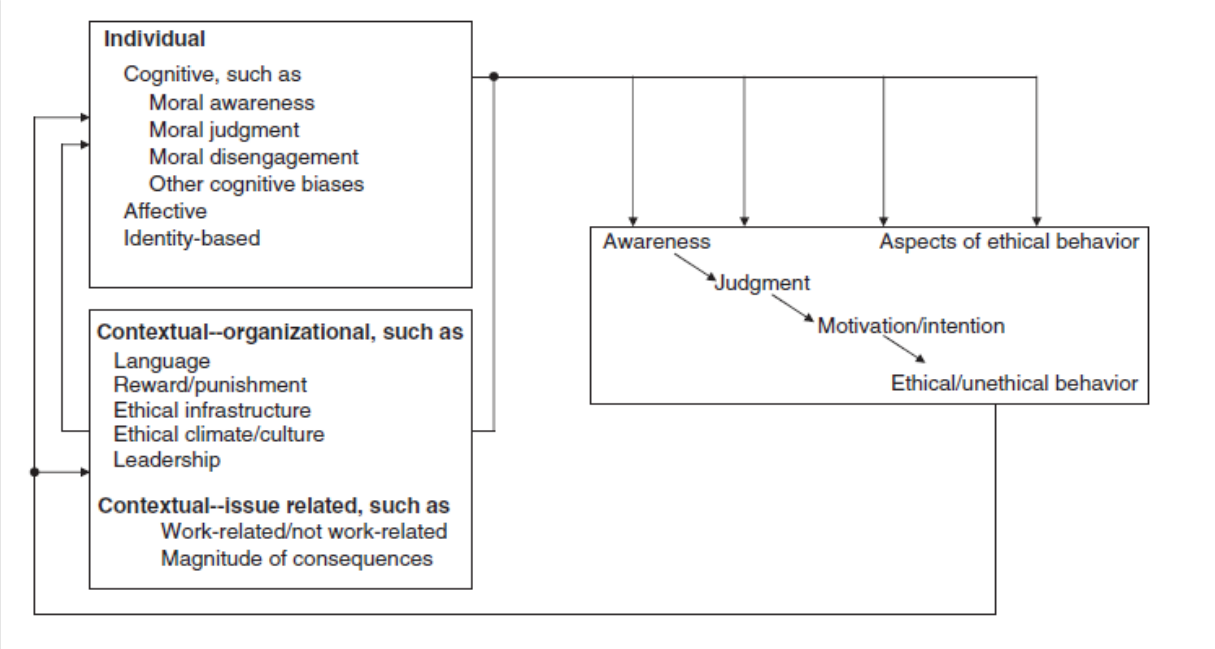

Figure 1. Categories of influences on behavioural ethics outcomes (Treviño, 2006)

The increased knowledge of the complexity of the ethical decision-making process from this latter research led to Treviño's (2006) model (*Figure 1*), which expands on that of Jones (1991). Treviño's model included such factors as influencers and moderators in the ethical decision-making process. As described by Treviño, considerable complexity can be expected in how different factors interact with one another, and with the interventions that firms implement in practice to influence behaviour.

An explanation for the balance between the rationalist and non-rationalist approaches was proposed by Reynolds (2006) in his neurocognitive model of ethical decision-making. Reynolds argued that an individual has two decision-making systems: the X-system which is reflexive and pattern-matching, and the C-system, which is a higher-order conscious reasoning system. This model considers ethical intentions and behaviours to be one and the same, and proposes several mechanisms that lead to unethical behaviour: failure to match a situation with the right prototype, failure to get enough information, failure to structure information that is vague and ambiguous, and finally the saliency of X-system vs C-system judgment. New ethical prototypes are formed when the X-system fails to recognize a situation, often with the input of external inputs such as the norms of the social group to which the individual belongs including the influence of ethical leadership and firm ethical climate. Reynold's model is supported by subsequent research by others showing the effect of situational factors (Hayibor 2009, Ariely 2013) on ethical decision-making.

The definition of ethical decision-making in firms. An ethical decision is defined as "a decision that is both legal and morally acceptable to the larger community"

(Jones 1991, p367). In this study, I define ethical decision-making as *making choices that are legally and morally acceptable according to the prevailing codes of conduct adopted by multinational firms*. It must be noted that one of the issues faced by compliance officers in firms is that a person working for a company in a location with ethical values that diverge from the firm's ethical values is required to comply with, and make decisions according to, the firm's code of conduct regardless of his or her own ethical system beliefs (Ho, 2010). In practice, while multinational firms recognize that there are differences between the ethical values reflected in their codes of conduct as compared to the cultures in which their affiliates operate, there is essentially no question that mandatory compliance policies are to be implemented and adhered to strictly.

The use of cues as a behavioural change tool

Role of the availability heuristic in ethical decision-making. The role of affect and cognitive biases (Tversky & Kahneman 1974) has been well-studied in the decision-making literature. More recently, Haidt (2001) showed that individuals are most likely to react to a situation instinctively, based on moral values that are more or less already ingrained in their psyche, while Hayibor (2009) showed that the availability heuristic played a key role in influencing ethical decision-making. Hayibor also proposed that the important role played by heuristics meant that ethical decision-making in practice was significantly influenced by situational factors.

The availability heuristic lends itself to interesting laboratory experiments that can neatly demonstrate its impact. For example, Ariely (2013) showed that the presence of moralistic cues such as placing a code of conduct in plain sight reduces the instance

of unethical behaviour. Gunia (2012) demonstrated that priming subjects through contemplation and conversation impacted subsequent ethical decision-making. In firms, a similar rationale explains the repeated training on ethical infrastructure and the strategic placement of moral cues such as screensavers and boilerplates on internal communications. However, realistically it has not been possible in the past for firms to place moral cues at each point of a decision involving moral implications. This is particularly the case with sales personnel who are on the road or with customers most of the time.

What if a moral cue can be presented each time field employees have to make a decision, or at least at a far greater frequency during the ordinary course of the day's work? The advent of ubiquitous mobile applications has now presented such an opportunity.

Prior research on cues. Research work on cues has tended to be laboratory-based. For example, Gino (2011), Shu (2012), Ariely (2013), and Welsh (2014b) have demonstrated how cues can be utilized to successfully change behaviour. In a series of experiments on cheating, Ariely (2013) showed that effective ways to prevent cheating included priming decision-makers with cues about ethical behavior.

I argue that a cue works by activating any of the considerations salient to the specific decision-maker at the point in time when such a decision is needed (see *Figure 1*). For example, in a specific situation, a cue may remind a decision-maker of the inherent morality of a situation. In another situation, the cue may remind the decision-maker of the potential sanctions from being caught.

Training is a form of infrequent cues. Warren (2014) showed that the effects of training wore off after two years, necessitating repeat training. Awasthi (2008) found that training had a short-term impact on ethical awareness, while Kaptein (2008) found that a code of conduct was more effective when complemented by ethics training and an ethics office.

The limitations associated with training may well be because the temporal impact of that specific type of cue is limited to the aftermath of its exposure, whereas employees are required to practice ethical behaviour, days, weeks or months after training. Understanding this, firms seek to reinforce training with short training vignettes in between formal, extensive training, and use cues and reminders to keep lessons salient. Ideally, employees should be cued just before a decision needs to be made, and since this could occur anytime throughout the workday, a cue that is *ubiquitous* may be more effective than traditional cues that are temporally or physically constrained.

Delivering cues by ubiquitous mobile applications. Researchers have been interested to understand how new technology is adopted, especially disruptive technology with the advent of computing, mobile telephony, and the internet (see for example, Robinson 2005, Marler 2006, Okazaki 2011). Today, another new technological wave is sweeping the Earth – that of ubiquitous mobile technology, a term I loosely use to describe handheld device-based systems that provide users round-the-clock connectivity (Gurtner 2013). For the first time, cues may be provided round-the-clock in a ubiquitous fashion via a mobile application.

Studies on the Technology Acceptance Model (Davis 1989, Venkatesh 2003, Robinson 2005) have indicated that the perception of usefulness and ease of use are important antecedents of user acceptance. Kim (2013), showed that perceived interactivity (developed by McMillan, 2002) had a significant impact on the effectiveness of mobile applications. Okazaki's (2011) comprehensive review showed that mobile platforms have become an important technology in commercial applications, and suggested that ubiquity is a key unique feature of the mobile channel that is an important area for future theory development.

In addition to business applications (Okazaki 2011), studies have been conducted on the use of mobile technology in other settings. Reviewing the use of ubiquitous mobile technology in medical interventions, Lindheim (2015) found that mobile technology was associated with better medical outcomes, working through increased contact, alarms and reminders, real-time feedback (assessment and data-collection), and through skills acquisition and utilization.

Hence, with mobile application technology, it is now possible to provide cues for ethical behaviour in a ubiquitous manner that has heretofore not been possible. I argue that the existence of a ubiquitous moral cue has a direct effect on the behaviour of employees. Its very presence reminds employees of the need to make ethical decisions, thus decreasing the incidence of unethical behaviour.

Hypothesis 1. A ubiquitous cue will directly reduce unethical behaviours.

Individual, team and firm factors that influence ethical behaviour

In the present section, I draw upon narrative and meta-analytic reviews conducted previously by scholars in ethics research (see, for example, Ford &

Richardson 1994, Loe 2000, O'Fallon & Butterfield 2005, Craft 2013, and Lehnert 2015) and my own review of relevant literatures to identify individual, team, and firm factors that are likely to interact with a ubiquitous cue in influencing ethical behaviour, and I propose hypotheses based on these relationships.

Kish-Gephart (2010) found that antecedents of ethical decision-making were more correlated with actual ethical behaviour than ethical intention. In any given situation where the time available for an individual to react is limited, individuals will draw on their experience (that is, based on availability or recall heuristics) – matching their known prototypes to the situation, and then behaving accordingly – resulting in a reflexive judgment of the X-system proposed by Reynolds (2006). In other words, unethical behaviour is not always something which people set out to do, but rather, is affected by the multiple different factors acting within a given situation.

As might be expected in practice, a fundamental challenge of any ethical infrastructure intervention is that it is usually a "one size fits all" solution that would be perceived differently by each employee of a firm depending on his or her specific circumstances (Weaver 1999). As a key objective of this study was to study practical applications in the field, I have focused on factors which can be influenced or controlled by a practitioner (e.g. ethical leadership, goal setting), or for which interventions can be customized based on distinct stratification (e.g. moral disengagement, age, or gender). A ubiquitous moral cue could be expected to interact with these relationships.

In *Figure 2,* I have summarized these interactions into two conceptual models. In one, a ubiquitous moral cue modifies the effect of factors on unethical behaviour (H3-5, 12-13), while in the other, factors modify the influence of a ubiquitous moral

cue on unethical behaviour (H2, 6-11). The rationales for these relationships are further detailed below. Specifically, I propose that, in the first model, when a factor tends to influence an employee to make unethical decisions, a ubiquitous moral cue weakens that relationship. And vice versa, where a factor tends to influence an employee to make ethical decisions, a ubiquitous moral cue strengthens that relationship. In the second model, factors that potentially influence a subject's receptiveness of a ubiquitous moral cue are expected to strengthen the effectiveness of the ubiquitous moral cue on ethical decision making.

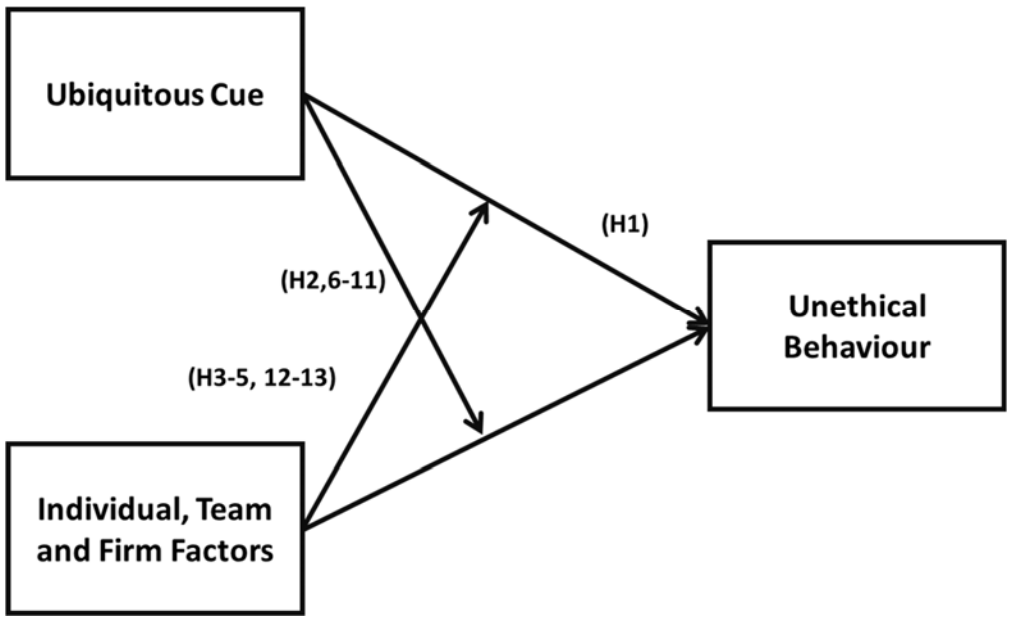

Figure 2. Interactions of a ubiquitous moral cue with individual, team and firm factors on unethical behavior. Annotations in parentheses () refer to hypotheses tested in this study.

Individual factors. Much research has focused on understanding how individual factors influence ethical decision-making (Ford & Richardson 1994, Loe 2000, O'Fallon & Butterfield 2005, Craft 2013, Lehnert 2015). Individual factors

include demographic factors, personality differences and other individual characteristics.

Age and gender. Age (e.g. Valentine 2007, Forte 2004, Elango 2010) has been correlated with ethical judgment. Valentine (2007) found that higher age and female gender improved ethical decision-making, although Forte's (2004) results show that older employees appear to be "jaded" through experience and view their organizational ethical climates more pessimistically. Studies on gender (e.g. Valentine 2007, Marques and Azevedo-Pereira 2009, Nguyen 2008) suggest that women make more ethical decisions. It stands to reason that because younger people and males are more likely to behave unethically, a ubiquitous cue has a better likelihood of changing their behavior relative to older people and females who are already more likely to behave ethically and therefore there is less opportunity for behavioral change.

Hypothesis 2a. A ubiquitous moral cue will weaken the negative relationship between higher age and unethical behaviours. The relationship between age and unethical behaviour would be weaker in the experimental condition than in the control condition.

Hypothesis 2b. A ubiquitous moral cue will weaken the negative relationship between female gender and unethical behaviours. The relationship between gender and unethical behaviour would be weaker in the experimental condition than in the control condition.

Formalistic ethical pre-disposition. The ethical predispositions of people determine how they approach ethical decision-making. Typically, these can be divided into either a utilitarian approach, or a formalistic approach (Brady 1996, Pearsall 2011).

Employees with a formalistic predisposition are more likely to consider an ethical situation objectively and make judgements based on their rationalization in the absence of considerations of the perspective of individuals (Brady 1996, Pearsall 2011, Wiltermuth 2013). Similarly, Pearsall, found that people that have a formalistic predisposition tend to make decisions which rely on conformity to patterns and rules, and thus are more likely to be aligned to a firm's code of conduct.

Hence, formalistic predisposition may strengthen the positive relationship between a ubiquitous moral cue and ethical behaviour by drawing the attention of the individual to the moral issue at hand.

Hypothesis 3. As formalistic predisposition increases, it will strengthen the negative relationship between a ubiquitous moral cue and unethical behaviours. The difference between the experimental arm and control arm would be greater among participants with higher formalistic predisposition than those with lower formalistic predisposition.

Goal orientation. Goal orientation (Button 1996) has been studied in the context of performance (Colquitt 1998). Based on definitions provided by VandeWalle (2001), a learning goal orientation "is a focus on developing one's competence by acquiring new skills, mastering new situations, and learning from experience" while a proving goal orientation "is a focus on demonstrating one's competence and the gaining of favorable judgments from others." A third goal orientation is avoiding goal orientation, which is "a focus on avoiding negation of one's competence and the avoiding of negative judgments from others" (VandeWalle 2001, pp. 630).

VandeWalle (2001) argued and showed that people with learning and proving goal orientation responded favorably to feedback, but not those with avoiding goal orientation, because of the differing mediation effects of effort, self-efficacy and goal-setting in response to feedback on each of these predispositions. The ubiquitous moral cue employed in this experiment behaves as a form of feedback in two ways. First, it contains quizzes that allow subjects to test their knowledge of the firm's code of conduct, and second, it allows subjects to raise questions to compliance subject experts, or to gather feedback from their team members. In this way, colleagues have access to their feedback ubiquitously through the cue. Hence, I argue that learning and proving goal orientations in employees would strengthen the effect of a ubiquitous moral cue on them, whereas those with avoiding goal orientation will not benefit from the cue.

Hypothesis 4a. As learning goal orientation increases, it will strengthen the negative relationship between a ubiquitous moral cue and unethical behaviours. The difference between the experimental arm and control arm would be greater among participants with higher learning goal orientation than those with lower learning goal orientation.

Hypothesis 4b. As proving goal orientation increases, it will strengthen the negative relationship between a ubiquitous moral cue and unethical behaviours. The difference between the experimental arm and control arm would be greater among participants with higher proving goal orientation than those with lower proving goal orientation.

Mindfulness. Mindfulness refers to an individual's awareness, both internally and externally (Ruedy 2010). Ruedy found that individuals who exhibited high

mindfulness tended to exhibit less unethical behaviour, although mindfulness did not eliminate unethical behaviour entirely. Individuals who have high mindfulness may be more likely to consider if a situation in which they find themselves in merits an ethical or compliance consideration. Hence, it is expected a ubiquitous moral cue would be more effective in mindful employees compared to employees who are not mindful.

Hypothesis 5. As mindfulness increases, it will strengthen the negative relationship between a ubiquitous cue and unethical behaviours. The difference between the experimental arm and control arm would be greater among participants with higher mindfulness than those with lower mindfulness.

Moral Disengagement. Moral disengagement was defined by Bandura (1986) as the suppression of self-regulatory mechanisms during the ethical decision-making process. In a series of experiments, Detert (2008) showed that moral disengagement was correlated with unethical behaviour and mediated the effect of other individual factors on unethical behaviour. In individuals who are morally disengaged, one could expect to witness a higher incidence of unethical behaviour, even if not deliberate. I argue that the presence of a ubiquitous cue would reduce the positive correlation between moral disengagement and unethical behaviour, by reminding individuals of the morality of a situation.

Hypothesis 6. A ubiquitous moral cue will weaken the positive relationship between moral disengagement and unethical behaviours. The relationship between moral disengagement and unethical behaviour would be weaker in the experimental condition than in the control condition.

Other individual factors have been studied. For these factors, please refer to the works by other researchers, including work experience (McCullough 2005, Valentine 2007, O'Fallon 2005), empathy, trait cynicism, and locus of control (Detert, 2008), moral attentiveness (Reynolds 2008), and Big 5 personality traits like hedonism and pragmatism (Watson 2009).

Team & firm factors. While individual factors may affect an employee's behaviour on their own, the reality of a real-world situation is that employees work together in teams where teammates influence one another, and are led by leaders whose behaviours directly impact theirs. They are also subjected daily to the influence of the ethical and compliance infrastructure (Treviño 2006) of their firm, and the latter's surveillance and monitoring processes.

Ethical infrastructure: the role of monitoring. A moral cue is part of the ethical infrastructure of the firm. Treviño (2006) found that various elements of ethical infrastructure in firms exerted their effects on all four stages of the Rest model (*Figure 1*). Many studies have shown that individual elements of an ethical infrastructure would not prevent unethical behaviour unless integrated with effective training, and enforcement (Kaptein 2008, Treviño & Weaver 2001). Treviño & Weaver found that when firms failed to follow-through on their prescribed ethical program, employees would perceive the lack of follow-through as organizational injustice and become demotivated to adhere to the ethical program. In a similar vein, McKinney (2010) found that employees of firms with a written code of conduct demonstrated better ethical judgment, while other studies found that codes of conduct were not effective (e.g. Yallop 2012, O'Leary & Stewart 2007, and Rottig 2011). Deshpande (2009) found that

codes of ethics were not enough by themselves, and suggested that additional processes needed to be in place as part of ethical decision-making. The effect of firm leadership as part of this infrastructure is important, for example setting the right management tone at the top (Sweeney 2010). Armstrong (2004) and Jackson (2013) found that when management tolerated wrongdoing, there was an increase in subsequent ethical violations and practices. A moral cue would serve to reinforce other, existing, elements of the ethical infrastructure.

Firms implement checks and balances by various means, including monitoring of employees' activities, such as spot checks on activities or audits on expense reports. When such monitoring is perceived as being effective – that is, one is not likely to get away with wrong behaviour - employees are less likely to make unethical decisions (Tenbrunsel 1999, Smith 2007). A ubiquitous moral cue may effectively strengthen this effect as the cue itself could be perceived as a way for management to "keep track" of employees, even though it, in fact, does not possess such an ability.

Hypothesis 7. A ubiquitous moral cue will strengthen the negative relationship between workplace monitoring and unethical behaviours. The relationship between workplace monitoring and unethical behaviour would be stronger in the experimental condition than in the control condition.

Ethical leadership & injustice. The extant literature on ethical leadership has shown that ethical leadership is linked with positive work outcomes such as organizational citizenship behaviour, and ethical behaviour (see Schminke 2005). In contrast, Armstrong (2004) and Jackson (2013) found that when management tolerated wrongdoing, there was a perception of injustice, and an increase in subsequent ethical

violations and practices. Abusive leadership (Hannah, 2013) also motivated unethical behaviour among subordinates.

In a fast-paced sales organization, managers connect with their teams on a day-to-day basis. They constantly remind their subordinates of their ethical obligations, and model those behaviours themselves (Treviño 1986, Brown 2005). Hence, the behavior and expectations of immediate supervisory leadership will have a disproportionately large effect as sales personnel receive daily communication, instruction and coaching from sales managers. I argue that the intervention of an additional moral cue would effectively strengthen the negative relationship between ethical leadership and unethical behaviour as the cue behaves as a ubiquitous reminder of the participant's immediate supervisor.

Hypothesis 8. A ubiquitous moral cue will strengthen the negative relationship between ethical leadership and unethical behaviours. The relationship between ethical leadership and unethical behaviour would be stronger in the experimental condition than in the control condition.

As described previously (Armstrong 2004, Jackson 2013), perceived injustice, which, in the context of this study, is the observation that colleagues who break the rules may get away with it, may influence colleagues to think that they can get away with ethical breaches, unless they are reminded of its consequences. Hence, a ubiquitous moral cue may attenuate the influence of perceived injustice on unethical behaviours.

Hypothesis 9. A ubiquitous moral cue will weaken the positive relationship between perceived injustice and unethical behaviours. The relationship between

perceived injustice and unethical behaviour would be weaker in the experimental condition than in the control condition.

Ethical Climate. Studies have shown that ethical climate is an important antecedent to ethical intention or behaviour. Victor and Cullen (1988) argued that ethical climate in a firm is important because of its basis in ethical moral reasoning and impact on a firm's rewards and sanctions systems that ultimately guide ethical behaviour. In their study, they proposed that different kinds of ethical climate prevail in firms based on their characteristics. Importantly, they found a strong link between individual commitment to firms and an ethical climate based on principles and rules, a description that describe firms in the controlled industries which are strictly governed by international norms and mandatory rules.

Based on the foundational work of Victor & Cullen, others have investigated specific influences of ethical climate on ethical behaviour in firms. For instance, Shafer (2011) and Zhang (2009) found that ethical culture or climate had a positive effect on ethical judgment and actual behaviour. In a study on human resource professionals, Bartels (1998) found a correlation between ethical climate of a firm and the seriousness of ethical violations, as well as between perception of ethical climate and a firm's success in responding to ethical issues. Barnett (2000) showed that ethical climate had a strong moderating influence on ethical intent of marketing managers. Findings have not always been consistent. DeConinck (1997) found no correlation between perception of ethical climate and sales managers' willingness to intervene in unethical acts of their salespersons.

Two of the empirically-derived climate types – Ethical Climate-Law and Code (EC-Law) and Ethical Climate-Rules (EC-Rule), describe the kind of climate that the ethical and compliance infrastructure of firms in controlled industries tend to foster. Whereas EC-Law is focused on the strict adherence to societal legal rules and industry professional norms, EC-Rule is about meeting the company's expectations and following its prescribed standards.

A ubiquitous moral cue is part of an infrastructure that emphasizes laws, regulations, principles and rules. Like traditional communication methods such as the occasional training or reminders, a ubiquitous cue is expected to emphasize and enhance the effectiveness of existing rules and principles, except that it does so in a continuous and unrelenting manner. It is expected that a ubiquitous cue would further enhance the expected negative impact of ethical climate on unethical behaviour.

Hypothesis 10a. A ubiquitous moral cue will strengthen the negative relationship between EC-Law and code and unethical behaviours. The relationship between EC-Law and unethical behaviour would be stronger in the experimental condition than in the control condition.

Hypothesis 10b. A ubiquitous moral cue will strengthen the negative relationship between EC-Rule and unethical behaviours. The relationship between EC-Rule and unethical behaviour would be stronger in the experimental condition than in the control condition.

Goal setting and competition. Goal setting (see Locke & Latham, 2002) is now widely accepted as an effective management tool. However, it is not without its challenges, and investigators like Ordóñez (2009) and Schweitzer (2004) have found

that unethical behaviour could be motivated by bad goal-setting. Schweitzer & Gibson (2008), and Kouchaki (2015) showed that anxiety at work is an antecedent for unethical behaviour, reasoning that individuals who feel anxious and threatened looked to restore themselves to a safe state, which may then overcome other ethical considerations. Welsh (2014a) conducted studies which showed that ratcheting up business objectives in consecutive business cycles drained the self-regulatory resources of individuals, and led to more unethical behaviour. In the real world, it is not uncommon, especially in fast-growing emerging economies, for firms to set unreasonable or challenging targets (from the Economist Corporate Network's *Asia Regional Strategic Forecast* meeting in Hong Kong, September 30, 2014). Such target-setting is then cascaded down to the individual level salesperson. Goal setting is also closely correlated with competition (Brown 1998).

In a fast-growing international emerging market where income mobility and complex socio-economic conditions exist, excessive goal setting plus attractive sales-based incentives may encourage employees to discount compliance considerations in favor of personal financial gratification, or job security, leading to brinksmanship and "willful blindness" to the firm's code of conduct (Jackson 2013, Waldmeir 2014). Within the pharmaceutical industry, for example, Glaxo SmithKline has started a trend to move away from relying on salespersons' goals based on commissions (Eye For Pharma, 2017), in order to reduce the pressure to perform and the difficulty of achieving their objectives. Thus, one could expect that when goal difficulty is higher, employees are more likely to demonstrate unethical behaviour compared to those reporting lower

goal difficulty. However, the presence of a ubiquitous moral cue would potentially counteract the effect of high goal difficulty and hence weaken that relationship.

Hypothesis 11. A ubiquitous moral cue will weaken the positive relationship between goal difficulty and unethical behaviours. The relationship between goal difficulty and unethical behaviour would be weaker in the experimental condition than in the control condition.

Other team factors have been studied in the context of decision-making. For these please refer to the work of other researchers, such as research on team cohesion (Thau 2015, Pitesa 2013, Pearsall 2011, Jackson 2013), team information sharing (Bunderson and Sutcliffe 2012, p881, Lin 2012), and moral identification (Detert 2008, Reynolds 2010, May 2015, Pitesa 2013).

Technology acceptance and perceived ubiquity. For any form of cue to work, it has to meet the objective of being exposed to the individual being influenced at the right frequency. In the case of technology-based cues, the user's acceptance of the technology or the technology's interactive capabilities are likely to determine the extent to which the cue is effective. Past studies on technology acceptance help demonstrate if a specific application or program has its intended effect of becoming part and parcel of working life of subjects (Davis 1989, Venkatesh 2003, Robinson 2005). It may be inferred that a ubiquitous cue will work better when user acceptance of the mobile application is high.

Hypothesis 12. As User Technology Acceptance of the mobile application intended as a cue increases, unethical behaviours will decrease.

As pointed out by Okazaki (2011), acceptance of a specific type of technology need not necessary equate with ubiquity. In order for a ubiquitous moral cue to work, individuals should be exposed to it multiple times in a day. However, despite findings pointing to its growing importance, and the need for further theory development of the concept of ubiquity, the ubiquity construct itself has not been well-explored or even defined. Up until now, there has been no focused way to study ubiquity, nor any validated measure for this new construct (Okazaki 2011).

I propose a new construct, *Perceived Ubiquity*, as a new measure to quantify the penetration of the app into the consciousness of users. *Perceived ubiquity* is defined as the perception of how persistent a cue delivered through a mobile application remains in the recallability of an individual. The proposed construct is further described in the Methods section. I argue that when the ubiquity of the mobile application is increased in the user's perception, the effectiveness of the moral cue increases as a result, leading to fewer unethical behaviours.

Hypothesis 13. As Perceived Ubiquity of the mobile application intended as a cue increases, unethical behaviours will decrease.

Chapter 4: Methods

Much research in ethical decision-making has centered on laboratory-based experiments (Tenbrunsel 1999, Schweitzer 2004, Ruedy 2010, Gino 2011, Pearsall 2011, Gunia 2012). A number of field-based studies have been based on case research (Murphy 1988, Bowen 2004), or cross-sectional survey data (Skarlicki 1997, Weaver 1999, Schminke 2005, Marler 2006, Cole 2008, Detert 2008, Pitesa 2011, Treviño 2011, Hannah 2013). Some studies use a combination of methods including laboratory

experiments and non-experimental field studies (Reynolds 2008, Kouchaki 2015, May 2015, Thau 2015).

Laboratory experiments offer many advantages such as the ability to precisely control the manipulation, the ease of replicating studies under different circumstances, and the ability to isolate variables that are not possible in the field (see for example, Ariely 2013). However, they also suffer from not being "real-life," taking place under artificial conditions and completed in timelines that are not reflected in the workplace. Understandably, researchers continue to call for further validation of their findings through field experiments to overcome challenges of ecological validity and generalizability (Craft 2013, Lehnert 2015, Eden 2017). Field experiments have in particular found new relevance in an era of evidence-based management (Rousseau 2005).

A field experiment was conducted for this study for a number of reasons. First, field experimentation is considered by some to be a "gold standard" in organizational research methodology (Highhouse 2007, Eden 2017). In particular, it allows for the testing of causal hypotheses, to validate the results of studies using other methodologies that are unable to provide strong evidence of causality. Secondly, because it is conducted in a "real-world" setting, it may help overcome challenges of ecological validity and external validity by testing hypotheses in a sample of participants who are employees facing real-life ethical dilemmas with real-life consequences. Thirdly, such a study allows us to build knowhow on conducting "win-win" industry-academia collaborative studies which provide realistic and relevant feedback to the participating

firm on a topic critical to its operations, while deepening the body of scientific evidence that contribute to academic theory.

Participants, design and measures

This study was conducted with sales personnel belonging to the sales division in the affiliate of a multinational pharmaceutical firm operating in China. The chosen firm, a European-based mid-sized pharmaceutical firm ("PharmaCorp"), had sales of over €4 billion in 2016, and has been operating in China for a number of years. At the beginning of the experiment, the sales function comprised 568 personnel (including 75 managers and 493 sales representatives) operating in 120 cities across three therapeutic area divisions. PharmaCorp's sales teams were designated by therapeutic franchise and geography in a traditional hierarchical tree structure. Each team of one-to-six colleagues reported to a single manager, and some managers were responsible for more than one team. There were 106 teams in total. Fifty-six percent of the employees were female. This was a relatively young sample, where 33% of employees were below 30 years of age, and 62% were between 30 and 39 years of age. Fifty-seven percent of employees had worked for the firm for two years or fewer at the time of randomization.

Versus the number randomized, the number of participants completing the three waves of surveys were 382 or 67% at Wave 1, 202 or 36% at Wave 2, and 128 or 23% at Wave 3. Soon after randomization and before Wave 1, a major company restructuring led to the departure of 127 colleagues from one of the 3 sales divisions. One participant decided to opt out of the study after the completion of Wave 3. Excluding these 127 colleagues and the participant who dropped out, the final participation rate was 86% at Wave 1, 46% at Wave 2, and 29% at Wave 3. The relatively poor survival of the test

population reflected the difficulties in getting busy sales executives to complete relatively long online surveys in the middle of their busy schedules.

Employees in the sales function are all subject to rigorous training in PharmaCorp's ethical and compliance code of practice. Such training includes periodic online and classroom training. In addition, employees are reminded of the firm's code of practice through screensavers, the availability of the code in electronic as well as handbook format, and through frequent contact with the firm's Compliance department colleagues. In line with established practice in the industry, "tone from the top" is a priority, with the country Managing Director cascading messages of ethics and compliance frequently down the chain of command to each individual.

To supplement the already robust ethical and compliance infrastructure, PharmaCorp contracted with a vendor to develop a mobile application to support its sales teams in ethical decision-making. The application includes resources that colleagues can refer to easily, such as the firm's code of practice, and processes for running promotional activities, with interactive features allowing the firm to take questions, host discussions and push messages. Importantly, the mobile application served as a ubiquitous cue, residing as a distinct icon on the mobile device belonging to each sales person. The characteristics of the application is described further in the next section.

Manipulation: ubiquitous cue

The experimental design is presented in *Figure 3*. This study utilized a two-group pretest-posttest stratified experimental design (Trochim & Donnelly 2008). To ensure that all geographic and therapeutic areas were well represented in both arms of

the experiment, the 106 teams were randomly assigned to either the experimental condition or control condition by area as indicated in *Figure 3*. Even though all personnel were initially assigned to either the experimental or control group groups, participation in the study (i.e., completion of surveys and inclusion of other data in the study) was voluntary and all participants provided informed consent. Confidentiality of participation was assured, and participants were allowed to withdraw from the experiment at any time. To protect the privacy of participants, all data were submitted directly to a third party, who removed or encrypted all identifiers before providing the data to the investigator for analysis.

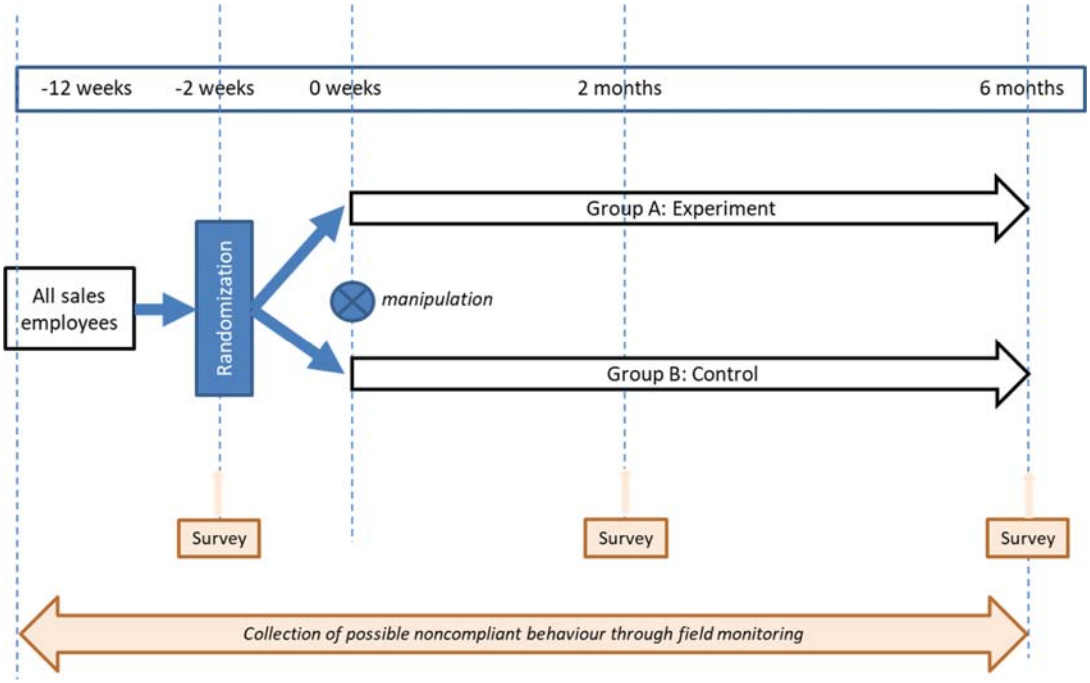

Figure 3. Experimental Design

All sales teams in each of the three sales divisions were randomized into two arms at the beginning of the experiment. To reduce possible bias in the data due to geography and variability in practices between sales divisions, a stratified

randomization approach was taken, with three strata as indicated in *Figure 4* including sales division and geography.

All participants in the *experimental arm* received the mobile application intended to function as a ubiquitous cue. All members within the same team, including managers and sales representatives, received the same manipulation. Instructions on how to download the application were pushed to participants at the start of the study. The *control arm* did not receive the option to download the mobile application.

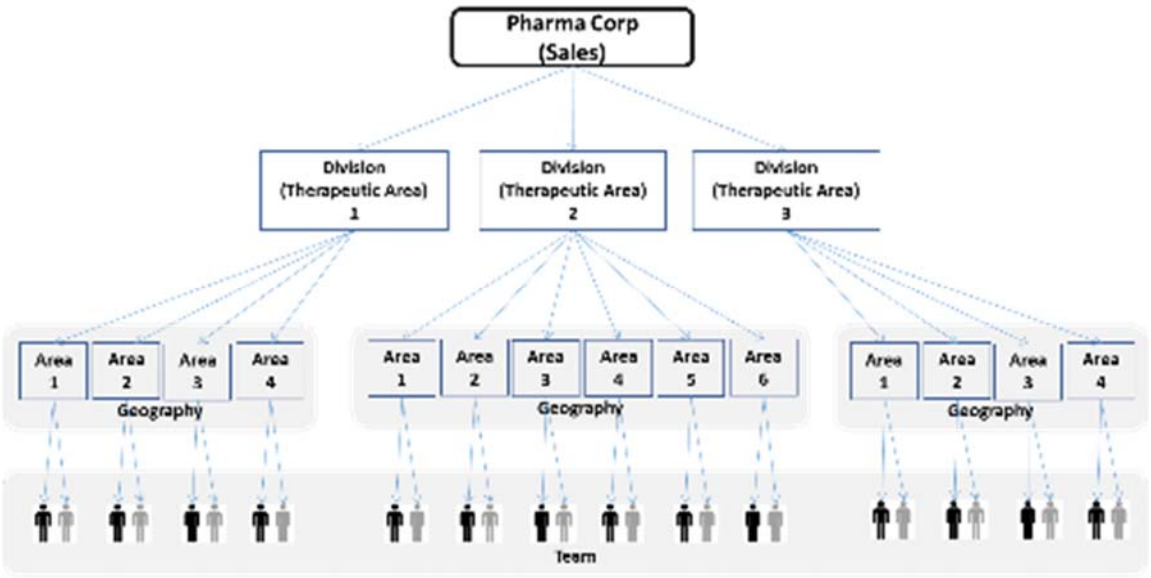

Figure 4. Stratified randomization design with two stratum

Mobile application as a ubiquitous cue. The mobile application commissioned by PharmaCorp replicates the available online versions of PharmaCorp's code of conduct and other ethical and compliance-related rules, procedures and processes, such as applications to organize promotional events, and allows colleagues to start and participate in discussions. Quizzes were posted occasionally to test the knowledge of colleagues. Like typical mobile applications

residing on a mobile device, the mobile application had a logo (a black-and-white cartoon panda on a green background) which was visually attractive and immediately visible to colleagues whenever they looked at their mobile devices. Colleagues accessed their mobile devices on a daily basis frequently in order to assess materials for their daily work such as marketing and promotional materials, training material, submit expense claims and applications for resources, and to report their day's activities to headquarters. In a given work day, each colleague is expected to access his or her mobile device multiple times.

Figure 5 shows a number of screenshots of the ubiquitous cue during development. Language options included both English and Simplified Chinese.

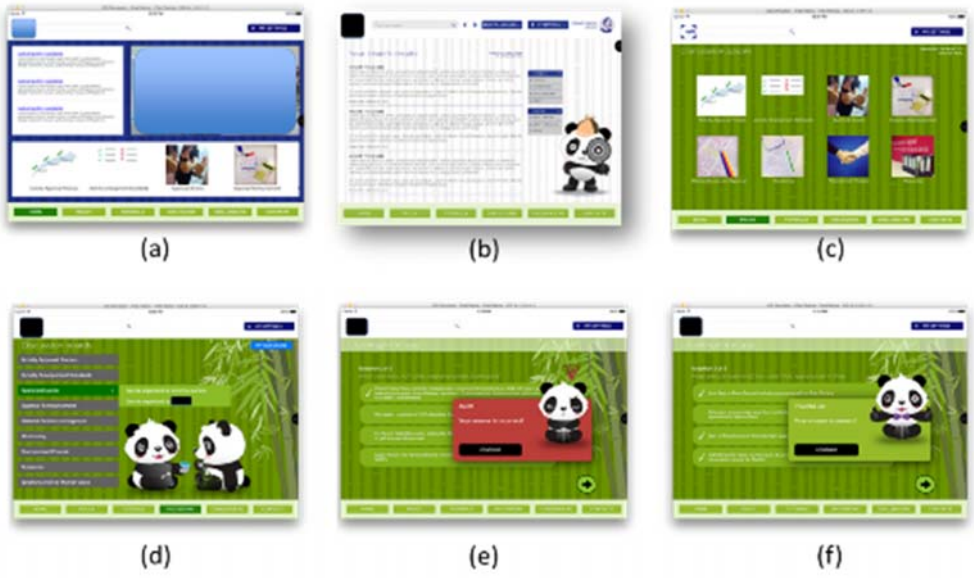

Figure 5. Screenshots of the Mobile Application. Information that may reveal the identity of the firm have been masked. Index: (a) main interface with video of the business leader (masked) with a compliance message; (b) search screen; (c) catalog of company polices, rules and regulations; (d) discussion boards; (e) pop quiz with wrong response, and (f) pop quiz with correct response.

The mobile application served as a passive resource and ubiquitous onscreen cue as well as an interactive tool. Interactive features included "push" messages from headquarters, a discussion board to ask questions to colleagues and in-house ethics and compliance experts, as well as pop-quizzes. Push messages were about updates on compliance policies and rules; only two such notices were sent over the course of the experiment. To control for the possibility that mere communication from PharmaCorp, and not compliance-specific messages were enough to influence behaviour, the Control group received messages simultaneously from the firm as well on their mobile devices about matters not related to compliance, whenever there were updates on the application.

The application was not intended to be a main source of information about compliance, as the firm's code of conduct was frequently communicated through face-to-face training and was also easily available in print and online electronic versions. Employees would use the application only when they had very specific questions on a matter they were not familiar with, and thus would not be expected to assess the application regularly. On the other hand, the application served the function of a ubiquitous cue as it was present each time the employee turned on his or her mobile device multiple times during the course of the day.

Online surveys and third-party audits. Online surveys were administered at baseline (Wave 1), two months post-intervention (Wave 2), and six months post-intervention (Wave 3). Detailed items of all the scales used in this dissertation can be found in the appendix, including response formats and anchors. A third party contracted by PharmaCorp randomly sampled about 25% of planned field activities and audited

them for compliance with the firm's code of conduct (discussed in further detail below). A total of 448, or 79% of the participants, were sampled at least once. Six months after the mobile application was first rolled out, the last online survey was administered, and the mobile application was rolled out to all participants in the control arm thereafter. A final debriefing note was then sent to all participants with a final opportunity to withdraw from the study, and to thank them for their participation.

Manipulation checks – technology measures

Kim (2013), showed that perceived interactivity had a significant impact on the effectiveness of mobile applications. Hence, for participants in the experimental arm who received the mobile application, Measure of Perceived Interactivity (MPI), developed by McMillan (2002), was used to determine if the mobile application achieved the desired effect it was designed to do.

The MPI scale (α=.89) comprised eight questions scored on a 1-7 Likert scale, with 1 being "Strongly Disagree" and 7 being "Strongly Agree." The questions covered multiple aspects of interactivity one would expect of an App, such as "The (App) enables 2-way communication," "The (App) provides immediate answers to questions," and "It is easy to find my way around the (App)." MPI was measured at Wave 2 to determine if the App had the desired effect on its subjects.

Ninety-two participants out of 99 in the Experimental Arm who completed most of the survey questions responded with a highly positive response (Mean±SD = 5.55±1.04, Mode = 6), indicating a high level of awareness of the Mobile App and acknowledgement of its interactivity with the subjects. The MPI questions were not

administered to participants in the Control Arm because such participants did not have access to the app and therefore would not have been able to answer the questions.

Survey instrument

Three longitudinal surveys were conducted over the course of the experiment. This included a baseline survey (Wave 1) two weeks before the start of the experiment, and surveys after two months (Wave 2) and six months (Wave 3). The wave 1 survey included demographic and personality or individual characteristic questions including moral disengagement, mindfulness, ethical predisposition, and goal orientation, as well as team and firm questions on ethical leadership at work, goal difficulty, work monitoring and perceived injustice. Waves 2 and 3 excluded demographic and personality or individual characteristic questions, while including team self-reported unethical behavior, and technology acceptance and perceived ubiquity measures. Some team and firm questions were also repeated in Waves 2 and 3 as they were possibly influenced by other extraneous changes in the environment.

All survey questions were originally in English. While the Ethical Climate Questionnaire (ECQ) has been translated by others (e.g. Shafer 2011), it was not possible to obtain Chinese translations of the other measures. For reasons of expediency and consistency, PharmaCorp opted to engage a professional firm familiar with the scientific translations based in Beijing, China, to translate the survey questions, with minor parts supplemented by another firm based in Hong Kong. All translations were vetted by the investigator and a PharmaCorp collaborator, both of whom have bilingual fluency, to validate the accuracy of the translation. To provide a deeper level of assurance, back translations in English were provided post-hoc by a

third agency based in Hong Kong. Out of 168 scale questions, there were 18 meaning errors (see Brislin 1970). Of these, 7 were not used in the final data set. The remaining 11 were reviewed again and 10 were deemed to be equivalent despite the meaning error, and only 1 was found to be unequivalent ("co-workers" translated inaccurately into "working partner".) However, as the only working partners in the subject population were co-workers, this difference was deemed to be acceptable.

Dependent variables

Measures of unethical behaviour. Unethical behaviour can be measured in a number of ways. In laboratory experiments, the use of well-developed tasks that are validated to differentiate ethical from unethical behaviour have been well-demonstrated (see for example Ariely 2013, Ruedy 2010). However, in the less controlled environment of the field, measurement of unethical behaviour is fraught with various challenges, including the bias of individuals in the case of self-reported behaviours, and statistical limitations in the case of random checks and audits.

Unethical behaviour has been measured using self-reported ethical behaviour scales (e.g. McCabe 1996, Peterson 2002), response to ethical vignettes (e.g. Cleek 1998, Stohs 1999, Christie 2003, Fritzsche 2000, McKinney 2010), open-ended interviews (e.g. Adams 2001, Ho 2010) and laboratory experiments (e.g. Ruedy 2010, Beams 2003). In this experiment, unethical behaviour was measured by two different methodologies – self-reports and independent third-party auditing.

Self-reports included reporting by participants of unethical behaviour they observed *within their teams*. Independent third-party auditing identified instances

where participants violated prescribed rules of behaviour when organizing field promotional activities involving customers.

Team self-reported unethical behaviour. Team Self-reported unethical behaviour (TSRUB) was measured by adapting a scale used by Peterson (2002) and others. The basis for measuring team, rather than individual, self-reported unethical behaviour, is that despite assuring anonymity, it is possible that participants will find self-reporting of their own individual unethical behaviour to be uncomfortable, and are more likely to provide unbiased reports of others' behaviours in their teams. As such, rather than reporting their own unethical behaviour, respondents were asked to what extent they had witnessed within their team each of 10 possible misdemeanors at work. These ranged from the seemingly trivial such as "taking longer than necessary to do a job," to more serious misbehaviors such as "using company resources for personal use" or "padding an expense account". Responses ranged from "Never" to "Always" on a 1-5 point Likert Scale. To determine if there was a causal effect of the experimental condition, TSRUB was measured at three time-points: Wave 1(α=0.96), Wave 2(α=0.98) and Wave 3 (α=0.97). The potential downsides of measuring self-reported unethical behaviour at the team level rather than collecting individual reports on oneself are discussed further below.

Non-compliant behaviour recorded by third-party field audit. PharmaCorp contracted an independent firm operating in the area of corporate security to audit the firm's sales activities for compliance with stated objectives. The auditors were given access to the firm's internal activity request system, from which about 25% of sales activities were randomly selected to be audited. The *modus operandi* is as follows: the

auditors announced to the selected activities' organizers (sales representatives) their intention to audit their activity on the day before, and show up at the activity the next day with an audit checklist furnished by the firm. The auditors used the checklist to check all aspects of the activity at risk of non-compliant behaviour against the approved activity plan in the system. A copy of the checklist summary is included in the appendix.

Four kinds of sales activities were covered by this audit - group selling activities, mini-salons, local symposia, and a fourth category for "others." *Group selling activities* were meetings between sales personnel and small groups of physicians where the only expenses typically involved meals for the meeting attendees. *Mini-salons* were small departmental meetings within an institution involving a paid speaker from another department or institution. *Local symposia* were scientific meetings involving multiple speakers and attendees from multiple institutions. Finally, there were one-off events which may not fall into the above categories. For each activity, sales personnel have to apply to the company for internal approval through PharmaCorp's internal activity request system. Detailed information including venue, speakers and speakers' topics, speaker fees, expected number of attendees, hospitality expenses and other information are required in the request. Sales personnel have to execute each activity according to the approved request, and any deviation from it is non-compliant behaviour.

The non-compliant behaviour detected during the audit, (including both ethical and non-ethical violations) are classified as 'major' and 'minor' findings. Minor findings are typically procedural lapses (such as changing a meeting venue without updating the record in advance). Such findings do not generally constitute ethical breaches. On the other hand, major findings represent serious breaches of procedure

as well as violations of the code of practice such as providing gifts and conducting unapproved activities. Over a nine-month period, beginning from three months before the experimental manipulation, to six months post-intervention, a total of 170 major findings and 418 minor findings were recorded. Since minor findings are typically non-consequential and do not represent ethical breaches, only major findings were analyzed for this experiment.

Major findings of the field audit were reported in three-monthly increments, with the baseline value corresponding to the three months prior to the start of the experiment (from March to June), and subsequent measures at the next three months after the start of the experiment (from July to September), and the next three months (from October to December, labeled as MJPos23M in the study). As each sales personnel's plans are planned in advance by at least a month, it was not expected that outcomes in the first three months following the start of the experiment would demonstrate any effect of the intervention since many would have been planned prior to the intervention. As such, MJPos23M – major findings in the three-month period prior to the end of the experiment - was the dependent variable in this study.

Independent variables

Individual data. Individual data include demographic parameters like age and gender, and the following personality traits and characteristics.

Ethical predisposition was measured with Brady's (1996) Measure of Ethical Viewpoints. Participants were asked their opinion about 13 characteristic traits and to score them on a 1-7 Likert scale with responses ranging from "Very unimportant to me" to "Very important to me." Traits indicating a Formalistic disposition included

"Principled," "Dependable," "Trustworthy," "Honest," "Noted for integrity," and "Law-abiding." Formalistic Predisposition (α=.92) was measured at Wave 1 and used in all subsequent evaluations.

Goal Orientation was measured with 12 items from the scale of Button (1996). The questions included eight items scoring participants on Learning Goal Orientation, such as "the opportunity to extend the range of my abilities is important to me," while another four questions score participants on Proving Goal Orientation, such as "I feel smart when I can do something better than most other people." All questions were scored on a 1-7 Likert Scale ranging from "Strongly disagree" to "Strongly agree." Both measures – Learning Goal orientation (α=.88) and Proving Goal Orientation (α=.71), were measured at Wave 1 and used in subsequent evaluations.

Mindfulness was measured with the Mindfulness Attention Awareness Scale (MAAS) developed by Brown & Ryan (2003). The scale measures a person's awareness of his or her situation and activities on a general basis. Participants are asked to indicate their level of agreement about whether a number of statements describe themselves accurately. The 20 questions include questions like "I find it difficult to stay focused on what's happening in the present," and "I snack without being aware that I'm eating." Answers were scored on a 1-6 Likert scale ranging from "Almost never" to "Almost always." MAAS was measured at Wave 1 (α=.92) and used in subsequent evaluations.

Moral Disengagement was measured using the 24-item scale adopted by Detert (2008) from Bandura's (1986) earlier work. Participants were asked to assess their level of agreement or disagreement with statements around intrinsically moral issues in

different environments, such as “sharing test questions is just a way of helping your friend”, “people cannot be blamed for misbehaving if their friends pressured them to do it” and “some people deserve to be treated like animals.” Answers were scored on a 1-5 Likert scale with 1 corresponding to “Strongly disagree” and 5 to “Strongly agree.” Moral disengagement was measured at Wave 1 (α=.96) and used in evaluations subsequently.

Team & firm data. Team and firm measures asked participants to rate their supervisors, organizations or working environment, rather than themselves.

Workplace Monitoring measured the extent to which employees perceived the firm was keeping track of and evaluating their activities for conformity to the firm’s desired practices. These questions were adapted from those by George & Zhou (2001). They included six questions such as “It sometimes feels like PharmaCorp is always looking over my shoulder,” and “My organization likes to see things done in a certain way.” Answers were scored on a 1-5 Likert Scale, ranging from “Strongly disagree” to “Strongly agree.” As the perception of monitoring could conceivably change over time because of new measures, organizational changes or the introduction of new infrastructure, Workplace Monitoring was measured at three time points: Wave 1 (α=.96), Wave 2 (α=.81) and Wave 3 (α=.82), with the outcomes at each respective wave used in evaluating its relationship with the experimental condition and dependent variables

Researchers have demonstrated the link between ethical leadership of supervisors and ethical behaviour of their subordinates (see for e.g. Schminke 2005). The existence of clear supervisor-sales representative team dyads in this sample

allowed us to utilize Kalshoven's (2011) Ethical Leadership at Work (ELW) scale to measure employee perception of their immediate supervisors' ethical leadership. Participants were asked if they had observed practices of their supervisors related to ethical leadership, for example, "clearly explains the firm's ethical and compliance requirements" or model ethical behaviours themselves, for example "sets an example of how to do things the right way in terms of ethics." The answers to the 10 questions were scored on a 1-5 Likert Scale ranging from "Strongly agree" to "Strongly disagree" and averaged to obtain the ELW score. As the behaviour of supervisors could conceivably change over time because of externalities, ELW was measured at three time points: Wave 1 (α=.97), Wave 2 (α=.97) and Wave 3 (.97), with the outcomes at each respective wave used in evaluating its relationship with the experimental condition and dependent variables.

Perceived Injustice comprised of just one question scored on a 1-5 Likert Scale, ranging from "Strongly disagree" to "Strongly agree" - "Employees may get away with ethical misconduct because the firm is afraid to let them go for legal reasons (labor law protection)." The was a question specifically designed to address a specific complaint by field practitioners in the context of the Chinese pharmaceutical industry. Similarly, as Perceived Injustice could conceivably change over time because of specific incidences or externalities, it was measured at three time points: Wave 1, Wave 2 and Wave 3, with the outcomes at each respective wave used in evaluating its relationship with the experimental condition and dependent variables.

The classic *Ethical Climate Questionnaire* ("ECQ") of Victor & Cullen (1988) was used to measure the perception of ethical climate by individual sales personnel.

Individual data can be aggregated into sales team, experimental arm and firm level constructs. Twenty-six questions corresponding to five climate types were asked in the study, although only EC-Law, and EC-Rule, were eventually analyzed in detail as these climate types were the ones the firm idealized towards. Questions corresponding to EC-Law (α=.83) included "in this company, people are expected to strictly follow legal or professional standards," and "in this company, the law or ethical code of their profession is the major consideration." Questions corresponding to EC-Rule (α=.73) included "people in this company strictly obey the company policies," and "successful people in this company go by the book." Answers were scored on a 1-5 Likert Scale, ranging from "Strongly disagree" to "Strongly agree." Ethical Climate was measured at Wave 1.

Goal difficulty was a customized construct based on a combination of the Competitive Psychological Climate scale (Brown 1998), and purpose-designed questions that measured the perception of difficulty of achieving sales objectives and competition by participants in the specific context of this experiment. Participants rated seven statements on a 1-5 Likert Scale, ranging from "Strongly disagree" to "Strongly agree." The questions include 4 items from Brown's scale on individual objectives, such as "my manager frequently compares my results with those of other salespeople" and "my coworkers frequently compared their results with mine," and three further customized questions specific to the context of the business environment studied. The customized questions included "my work objectives are clearly defined," "I consistently meet my supervisor's expectations," and "I am given adequate resources to achieve my objectives." As the business environment and competition could

conceivably change over time because of externalities, Goal difficulty was measured at three time points: Wave 1 (α=.79), Wave 2 (α=.78) and Wave 3 (.78), with the outcomes at each respective wave used in evaluating its relationship with the experimental condition and dependent variables.

Technology Acceptance and Perceived Ubiquity. User acceptance of the technology was measured using a modified Attitude Towards Technology Usage measure developed by Kim (2014), while Perceived Ubiquity was a new construct created for the specific purpose of this study. The three questions on technology acceptance (Wave 2, α=.93 &Wave 3, α=.96) included "I am favorable toward using the App," "I like to use the App," and "I am positive towards using the App." The 3 questions measuring Perceived Ubiquity (Wave 2, α=.81 and Wave 3, α=.92), included "Everyone who has it is using the App now," "I use the App all the time," and "The App is indispensable for my daily work." All questions were scored on a 1- 7 Likert scale, with 1 being "Strongly Disagree" and 7 being "Strongly Agree."

As the rate at which people adopt technology may differ from individual to individual, it is conceivable that technology acceptance could be time-dependent. Hence, Technology Acceptance was measured over two time points, Wave 2 (α=.93) and Wave 3 (α=.96), and used in subsequent evaluations of its relationship with the dependent variables. Similarly, the time to which a technology becomes ubiquitous may differ from individual to individual, and therefore it is conceivable that Perceived Ubiquity could be time-dependent. Hence, Perceived Ubiquity measured over two time points, Wave 2 (α=.81) and Wave 3 (α=.92), and used in subsequent evaluations of its relationship with the dependent variables.

Controls

The results of this study were analyzed with and without controls. Following randomization, there were no significant differences between the experimental and control arms at baseline (see *Table 1*) on our key variables of interest, thus rendering controls based on potential baseline differences unnecessary. However, to ensure that no other factors which have strong effects on unethical behaviour are in fact distorting the results, linear regression analysis using OLS methodology was conducted on each dependent variable at baseline to determine their relative importance. In addition to variables in the hypothesized relationships, related variables (e.g. all five types of ethical climate, personal innovativeness) were also included in the regression. Results are presented in *Table 2* below for TSRUB, and *Table 3* for major audit findings.

Variable	Experiment Mean (SD)	Control Mean (SD)	ANOVA F-Value[sig]
Demographics & Individual Factors			
Gender	.54 (.50)	.57 (.50)	.23
Age Group	1.70 (.53)	1.74 (.57)	.49
Mindfulness (MAAS)	2.54 (.81)	2.52 (.81)	.05
Learning Goal Orientation (LrnGO)	5.96 (.66)	6.00 (.61)	.28
Proving Goal Orientation (ProGo)	5.46 (.90)	5.30 (.91)	2.51
Formalistic Predisposition (Formal)	6.42 (.68)	6.44 (.49)	.11
Moral Disengagement (MrlDis)	2.10 (.74)	2.13 (.70)	.17
Team & firm Factors			
Goal Difficulty (GoaDif)	3.83 (.50)	3.90 (.63)	.99
Workplace Monitoring (WeMon)	3.39 (.70)	3.30 (.75)	1.04
Ethical Climate- Law & Code (EC-Law)	4.30 (.53)	4.30 (.48)	.02

Ethical Climate – Rule (EC-Rule)	4.17 (.51)	4.19 (.48)	.11
Perceived Injustice (Just)	2.36 (1.21)	2.16 (1.17)	2.09
Ethical Leadership at Work (ELW)	4.22 (.62)	4.21 (.76)	.02
Dependent Variables			
Team Self-reported Unethical Behaviour (TSRUB)	1.55 (.74)	1.53 (.71)	.08
Major Audit Findings 3 months pre-intervention (MJPre3M)	.01 (.12)	.02 (.17)	.34

Gender: Female = 1, Age Group: "20-29" =1, "30-39"= 2, "above 40" = 3. There were no significant differences between the Experimental and Control arms for any of the variables measured. The short notations used to represent each variable throughout the experiment are included in parentheses () in the "Variable" column.

Table 1. Baseline Characteristics of the Experimental and Control Arms (wave 1 for survey data; MJPre3M for third party audit data)

The analysis on TSRUB demonstrated that at baseline, three variables had effect sizes that were more significant than that of other studied parameters (see *Table 6*), as a result of which they were included as controls to determine if the potential effects of the experimental condition were still valid under the dominating influence of those variables. All of these variables were hypothesized variables, including Moral disengagement (B=.41, t=4.64, p=.00), Ethical Climate- Law (B=.35, t=2.22, p=.03), and MAAS (B=.21, t=2.56, p=.03). The potential influence of these variables on the dependent variables as well as the experimental condition were explained above.

A fourth factor, Personal Innovativeness, achieved similar significance (B=.16, t=2.17, p=.03). As correlation between Personal Innovativeness and unethical behaviour is likely to be a result of its correlation with technology acceptance, it was not included as a control measure.

The results for TSRUB with and without controls arrived at the same overall conclusions. Hence, only results with controls are reported here.

Variable	*B*	*t*	*p*
Experimental Condition	.06	.63	.53
Ethical Leadership at Work	-.01	-.09	.93
Ethical Climate- Caring	-.07	-.48	.63
Ethical Climate – Rules	-.34	-1.87	.06
Ethical Climate – Law	.35	2.21	.03*
Ethical Climate – Instrument	.07	.64	.52
Ethical Climate – Independence	-.10	-.96	.34
Moral Disengagement	.41	4.64	.00**
Workplace Monitoring	.06	.72	.47
Utilitarian predisposition	.08	.61	.54
Formalistic predisposition	-.01	-.07	.94
Personal innovativeness	.16	2.17	.03*
MAAS	.21	2.56	.01*
Learning Goal Orientation	.14	1.29	.20
Proving Goal Orientation	-.12	-1.57	.12
Avoiding Goal Orientation	.07	.98	.33
Goal Difficulty	.01	.06	.96
Perceived Injustice	-.03	-.46	.65
Gender	-.11	-1.13	.26
Age	-.04	-.36	.72

** $p<.01$ * $p<.05$

Table 2. Results of linear regression of the effect of personal, team and firm factors on TSRUBs at baseline (Wave 1).

For Major Audit Findings, linear regression analyses demonstrated that Age had a significant effect on major audit findings at baseline (B=.04, t=2.17, p=.03), but most other factors had very small effects in the overall model. Given the theoretical findings that lower age is associated with higher unethical behaviour (Valentine 2007, Forte 2004, Elango 2010), Age was included as a control in the subsequent analysis of Major Audit Findings.

For Major Audit Findings, the addition of Age as a control factor resulted in significant findings different from the analyses without controls and with the same controls as TSRUB (both yielded no significant results). In this report, results of analyses with Age as a control are reported.

Variable	*B*	*t*	*p*
Experimental Condition	.01	.30	.77
Ethical Leadership at Work	-.02	-1.18	.24

Ethical Climate- Caring	-.00	-.09	.93
Ethical Climate – Rules	.11	.28	.78
Ethical Climate – Law	-.02	-.70	.49
Ethical Climate – Instrument	.00	.18	.86
Ethical Climate – Independence	.01	-.44	.66
Moral Disengagement	-.02	-.80	.42
Workplace Monitoring	-.01	-.54	.59
Utilitarian predisposition	.03	1.07	.29
Formalistic predisposition	-.02	-.78	.44
Personal innovativeness	.00	.17	.87
MAAS	-.01	-.40	.69
Learning Goal Orientation	-.05	-1.91	.06
Proving Goal Orientation	.02	1.31	.19
Avoiding Goal Orientation	-.02	-1.41	.16
Goal Difficulty	.02	.60	.55
Perceived Injustice	-.01	-.50	.62
Gender	.01	.55	.58
Age	.05	2.17	.03*

** $p<.01$ *$p<.05$

Table 3. Results of linear regression of the effect of personal, team and firm factors on major audit report findings at baseline (Wave 1).

Chapter 5: Results

All analyses in this study were conducted using IBM® SPSS® Statistics (Version 23) and the SPSS® application PROCESS (Hayes 2012). For direct effects of the experimental condition (Hypothesis 1), one-way ANOVA was conducted assessing the differences between the experimental arm and control arm. Moderation analyses (Model 1 within PROCESS) was used to test for moderation effects of the ubiquitous moral cue on individual, team and firm factors, or conversely, the effect of contingent factors on the effect of a ubiquitous moral cue, on unethical behaviour (Hypotheses 2-11). Finally, linear regression analyses were conducted to assess the relationship between technology acceptance or perceived ubiquity with unethical behaviour (hypotheses 12-13) at both Wave 2 and Wave 3.

Table 4 presents the means, standard deviations, and correlations between the variables studied. Reliability (Cronbach's α) of each scale variable are included in the

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Ubiquitous Cue	.50	.50	NA														
2. Age Group	1.72	.55	-.04	NA													
3.Gender	.55	.50	-.02	.00	NA												
4.Formalistic Predisposition W1	6.43	.59	-.02	.03	.05	.92											
5.Learning Goal Orientation W1	5.98	.66	-.03	.02	-.07	.49**	.88										
6.Proving Goal Orientation W1	5.38	.91	.09	-.04	-.03	.07	.31**	.71									
7.Mindfulness W1	2.53	.81	.01	.02	-.04	-.27**	-.37**	.15**	.92								
8. Moral Disengagement W1	2.12	.72	-.02	-.06	-.07	-.23**	-.33**	.00	.42**	.96							
9.Workplace Monitoring W1	3.35	.73	.06	-.12	.03	.00	-.04	.18**	.23**	.23**	.81						
10.Workplace Monitoring W2	3.35	.77	-.01	-.01	-.09	-.09	-.26**	.02	.20*	.28**	.14	.82					
11.Workplace Monitoring W3	3.36	.69	.27**	-.16	-.10	.01	.13	.20*	.23*	.31**	.21*	.30**	.77				
12. ELW W1	4.21	.69	.01	.10	.06	.28**	.33**	.09	-.23**	-.31**	.11	-.19*	-.15	.97			
13. ELW W2	4.34	.60	.08	.08	-.05	.31**	.36**	.11	-.27**	-.19*	-.08	.01	-.05	.45**	.97		
14. ELW W3	4.46	.53	.09	.02	-.05	.33**	.23*	.08	-.05	-.24*	.13	-.05	.07	.20*	.38**	.97	
15.Perceived Injustice W1	2.26	1.20	.08	-.08	.02	-.18**	-.24**	.08	.25**	.42**	.46**	.21*	.14	-.02	-.13	-.14	NA
16.Perceived Injustice W2	2.41	1.32	-.01	-.03	-.11	-.26**	-.33**	-.02	.32**	.46**	.10	.49**	.24*	-.25**	-.18*	-.21	.44**
17.Perceived injustice W3	2.18	1.17	.10	.01	-.14	-.08	.06	.02	.25*	.34**	.09	.23*	.53**	-.11	-.31**	-.22*	.28**
18.Ethical Climate-Rule W1	4.18	.49	-.02	.04	.04	.34**	.44**	.10	-.24**	-.30**	.03	-.23**	.00	.52**	.42**	.27**	-.18**
19.Ethical Climate-Law W1	4.30	.50	.01	.01	.04	.36**	.45**	.13*	-.23**	-.29**	.08	-.16	.08	.49**	.50**	.35**	-.18**
20.Goal Difficulty W1	3.86	.57	-.06	-.07	-.02	.19**	.25**	.19**	-.12*	-.12*	.36**	-.07	.15	.52**	.30**	.19	.24**
21.Goal Difficulty W2	4.03	.52	.02	.05	-.12	.19*	.14	.21*	.02	.04	.16	.29**	.14	.11	.52**	.21*	.07
22.Goal Difficulty W3	4.03	.53	.13	-.07	-.21*	.20*	.16	.21*	.10	-.12	.15	.16	.25**	.24*	.23*	.53**	.04
23. TecAtt W2	5.61	1.03	.b	.14	-.10	.26*	.37**	.08	-.12	-.02	.05	.02	.19	.34**	.49**	.23	.03
24. TecAtt W3	5.54	1.16	.b	.14	-.14	.15	.10	-.09	.16	.14	.05	.00	.35**	.14	.10	.33*	-.10
25. PUbi W2	5.46	1.09	.b	.18	-.03	.17	.24*	.02	-.01	.10	.10	.07	.24	.26*	.45**	.18	.13
26. Pubi W3	5.43	1.21	.b	.24	-.20	.15	.08	-.17	.17	.11	.02	.13	.33*	.22	.12	.24	-.06
27.TSRUB W1	1.54	.73	.02	-.08	-.14*	-.14*	-.26**	-.09	.32**	.50**	.16**	.23**	.24*	-.34**	-.06	-.20	.18**
28. TSRUB W2	1.59	.87	-.04	.04	-.18*	-.10	-.35**	-.11	.31**	.41**	.07	.33**	.06	-.28**	-.18*	-.12	.31**
29.TSRUB W3	1.47	.75	.10	-.07	-.10	-.06	-.02	.03	.22*	.34**	.00	.23*	.29**	-.05	-.12	-.29**	.16
30. MJPre3M	.02	.14	-.02	.11	.10*	.05	-.06	-.07	-.08	-.06	-.08	-.04	-.06	.04	.03	.01	-.06
31.MJPos23M	.25	.68	-.07	.10	.04	-.10	-.08	-.11*	.00	.07	.05	-.06	-.22*	-.03	-.04	.14	.05

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). b. Cannot be computed because at least one of the variables is constant

Note: N=567, Scale Validity reliabilities (Cronbach's Alpha) are on the diagnonals. For gender, 1=male, 0=female. For age, 1=20-29, 2=30-39, 3=40-49. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3

Table 4. Means, standard deviations, and Correlations between variables

diagonals. Participants in the two arms of the experiment were scored as "1"

for Ubiquitous Cue if they were in the experimental arm, and "0" if they were in the

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31.00
1.Ubiquitous Cue																
2. Age Group																
3.Gender																
4.Formalistic Predisposition W1																
5.Learning Goal Orientation W1																
6.Proving Goal Orientation W1																
7.Mindfulness W1																
8. Moral Disengagement W1																
9.Workplace Monitoring W1																
10.Workplace Monitoring W2																
11.Workplace Monitoring W3																
12. ELW W1																
13. ELW W2																
14. ELW W3																
15.Perceived Injustice W1																
16.Perceived Injustice W2	NA															
17.Perceived injustice W3	.35**	NA														
18.Ethical Climate-Rule W1	-.30**	-.02	.73													
19.Ethical Climate-Law W1	-.28**	-.07	.80**	.83												
20.Goal Difficulty W1	-.07	.15	.39**	.33**	.79											
21.Goal Difficulty W2	.23**	.08	.19*	.23**	.36**	.78										
22.Goal Difficulty W3	.11	.11	.41**	.36**	.45**	.52**	.78									
23. TecAtt W2	-.13	.03	.36**	.40**	.20	.36**	.29*	.93								
24. TecAtt W3	-.26	.18	.14	.20	.18	-.04	.21	.16	.96							
25. PUbi W2	-.01	.12	.26*	.32**	.17	.45**	.41**	.90**	.13	.81						
26. Pubi W3	-.20	.24	.13	.14	.21	.05	.20	.19	.93**	.23	.92					
27.TSRUB W1	.28**	.29**	-.29**	-.18**	-.14*	.13	-.08	.13	.24	.18	.28	.96				
28. TSRUB W2	.39**	.18	-.28**	-.30**	-.11	.02	.05	-.11	.07	-.05	.09	.48**	.98			
29.TSRUB W3	.33**	.37**	-.09	-.08	.07	.10	-.01	.00	.03	.07	.10	.48**	.50**	.97		
30. MJPre3M	-.08	.01	.09	.07	.05	.04	.15	-.16	.17	-.14	.17	-.05	.01	-.06	NA	
31.MJPos23M	.05	-.18	-.01	-.02	.01	.00	.12	.00	.11	-.08	.04	.01	.03	-.02	.01	NA

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). b. Cannot be computed because at least one of the variables is constant

Note: N=567, Scale Validity reliabilities (Cronbach's Alpha) are on the diagnonals. For gender, 1=male, 0=female. For age, 1=20-29, 2=30-39, 3=40-49. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3

Table 4. Means, standard deviations, and Correlations between variables…*cont*

control arm. For each of the measures, "W1" referred to outcomes of the Wave 1 of the survey (also known as the baseline survey), while "W2" and "W3" referred to the Wave 2 and Wave 3, measured after two and six months respectively. This applied to all survey questions including TSRUB.

As observed in Table 4, a ubiquitous moral cue was correlated with Workplace Monitoring in Wave 3, as well as Major Audit Findings in the 3 months post-intervention. TSRUB was highly correlated across a range of individual, team and firm variables. Notable correlations with TSRUB at Wave1, Wave 2 and Wave 3 respectively included Mindfulness (r=.32**, .31**, .22*), Moral Disengagement (r=.50**,.41**,.34**), Workplace Monitoring (r=.16**,.33**, .29**), ELW (r=-.34**, -.18*, -.29**), and Perceived Injustice (r=.18**,.39**,.37** at corresponding waves). On the other hand, field audit demonstrated strikingly few correlations with the independent variables.

Direct effects

There were no direct differences between the two arms in TSRUB and perceptions of ethical leadership following intervention (*Table 3*). The direct effect of a ubiquitous moral cue on unethical behaviour did not reach significance. Overall, support for hypothesis 1 was not found.

Workplace Monitoring was the only other measured variable in which a statistically significant difference was demonstrated between the experimental and control arms. After 6 months post-intervention, employees in the experimental arm felt more monitored by the firm than those in the control arm (Mean=3.55 vs 3.18, $p<.01$), even though the mobile application had no monitoring function, and all employees

were subject to the same systems of monitoring, checks and balances. While there was no correlation between Workplace Monitoring and TSRUB at this time-point, there was a negative correlation between Workplace Monitoring and major audit findings in the second 3 months after intervention (r = -.22, p<.05). However, there was no interaction effect of the Experimental Condition with Workplace Monitoring on either dependent variable.

Condition		MJPos23M	TSRUB W2	TSRUB W3	WEMonW2	WEMonW3
Experiment	#cases	58				
	Mean (SD)		1.56 (.86)	1.54 (.80)	3.35 (.80)	3.55 (.57)
Control	#cases	83				
	Mean (SD)		1.62 (.88)	1.40 (.70)	3.36 (.74)	3.18 (.74)
ANOVA F-Value[sig]		2.24	.23	1.13	.01	9.20**

[sig] = ** p<.01
*p<.05

Table 5. Selected number of Findings, Means and Standard Deviations and differences between Conditions. MJPos3M = Major Audit Findings in the immediate 3 months post-intervention, MJPos23M = Major Audit Findings in the second 3 months post-intervention, TSRUB = Team Self-reported Unethical Behaviour, WEMon = Workplace Monitoring

Moderation effect of ubiquitous cue on individual and firm factors

Individual Factors. *Tables 6* summarizes the results of moderation analyses to test hypotheses 2 to 6. Where significant results were obtained, the effect sizes of control factors are also shown in italics.

Age and gender. The effect of a ubiquitous moral cue on age in its relationship with TSRUB was not significant at either Wave 2 (B=.23, *p*=.51) or Wave 3 (B=.11, *p*=.76), nor with major audit findings in the second 3 months post-intervention (B=-.016, *p*=.91). Similarly, the interaction between a ubiquitous moral cue and gender on its effect on TSRUB was not significant at either Wave 2 (B=.15, *p*=.55) or Wave 3

(B=-.35=6, *p*=.25), nor with major audit findings in the second 3 months post-intervention (B=-.17, *p*=.28). Thus, hypotheses 2a and 2b were not supported.

Variable	*B*	*SE*	*t*	*p*
DV: Self-reported Unethical Behaviour TSRUBW2				
Age	.04	.24	.14	.89
Ubiquitous Cue	-.24	.66	-.36	.72
Age*Ubiquitous Cue (H2a)	.16	.37	.44	.66
Gender	-.38	.19	-2.07	.04*
Ubiquitous Cue	-.12	.19	-.65	.52
Gender*Ubiquitous Cue (H2b)	.22	.25	.87	.39
Ubiquitous Cue	-1.68	1.55	-1.09	.28
Formalistic Predisposition	-.16	.22	-.72	.47
Ubiquitous Cue*Formalistic Predisposition(H3a)	.26	.24	1.10	.27
Ubiquitous Cue	.09	1.30	.07	.94
Learning Goal Orientation	-.23	.19	-1.26	.21
Ubiquitous Cue*Learning Goal Orientation (H4a)	-.02	.21	-.09	.93
Ubiquitous Cue	.96	.87	1.11	.27
Proving Goal Orientation	.00	.12	.01	.99
Ubiquitous Cue*Proving Goal Orientation (H4b)	-.17	.16	-1.11	.27
Ubiquitous Cue	-.18	.44	-.42	.67
MAAS	.13	.12	1.09	.28
Ubiquitous Cue*MAAS (H5)	.07	.16	.45	.65
Moral Disengagement	.21	.14	1.55	.12
Ubiquitous Cue	-.38	.38	-1.00	.32
Moral Disengagement*Ubiquitous Cue (H6)	.18	.17	1.07	.28
DV: Team Self-reported Unethical Behaviour TSRUBW3				
Age	.23	.27	.84	.40
Ubiquitous Cue	.70	.69	1.01	.32
Age*Ubiquitous Cue (H2a)	-.23	.38	-.59	.56
Gender	.01	.24	.04	.97
Ubiquitous Cue	.38	.25	1.50	.14
Gender*Ubiquitous Cue (H2b)	-.44	.33	-1.33	.19
Ubiquitous Cue	-.13	2.41	-.05	.96
Formalistic Predisposition	-.02	.34	-.06	.95
Ubiquitous Cue*Formalistic Predisposition (H3a)	.03	.37	.09	.92
Ubiquitous Cue	1.39	1.61	.86	.39
Learning Goal Orientation	.32	.24	1.37	.17
Ubiquitous Cue*Learning Goal Orientation (H4a)	-.21	.26	-.81	.42
Ubiquitous Cue	1.24	1.05	1.18	.24
Proving Goal Orientation	.11	.13	.81	.42
Ubiquitous Cue*Proving Goal Orientation (H4b)	-.21	.19	-1.10	.28
Ubiquitous Cue	-.31	.50	-.63	.53
MAAS	-.01	.13	-.07	.95
Ubiquitous Cue*MAAS (H5)	.17	.19	.88	.38
Moral Disengagement	.10	.17	.59	.56
Ubiquitous Cue	-.86	.47	-1.83	.07
Moral Disengagement*Ubiquitous Cue (H6)	.47	.22	2.17	.03*
Ethical Climate – Law	-.04	.17	-.22	.83
MAAS	.06	.11	.57	.57
DV: Major Audit Findings 2nd 3 months post-intervention				
Age (N=336)	.12	.09	1.36	.17
Ubiquitous Cue	-.10	.25	-.39	.70
Age*Ubiquitous Cue (H2a)	-.02	.14	-.11	.91
Gender (N=235)	.14	.13	1.09	.28
Ubiquitous Cue	-.01	.14	-.04	.28
Gender*Ubiquitous Cue (H2b)	-.18	.18	-.98	.33
Ubiquitous Cue	.81	1.13	.72	.47
Formalistic Predisposition (N=205)	-.07	.14	-.51	.61
Ubiquitous Cue*Formalistic Predisposition (H3a)	-.14	.17	-.81	.42
Ubiquitous Cue	-.77	.91	-.85	.40
Learning Goal Orientation (N=201)	-.17	.11	-1.52	.13

Ubiquitous Cue*Learning Goal Orientation (H4a)	.11	.15	.71	.48
Ubiquitous Cue	-.75	.58	-1.29	.20
Proving Goal Orientation (N=201)	-.13	.07	-1.72	.09
Ubiquitous Cue*Proving Goal Orientation (H4b)	.12	.11	1.10	.27
Ubiquitous Cue	-.56	.33	-1.69	.09
Mindfulness (N=202)	-.04	.08	-.54	.59
Ubiquitous Cue*Mindfulness (H5)	.17	.13	1.35	.18
Moral Disengagement (N=193)	.06	.10	.66	.51
Ubiquitous Cue	-.08	.31	-.28	.78
Moral Disengagement*Ubiquitous Cue (H6)	-.02	.14	-.13	.90

Additional data for control variables in italics are shown for significant results

Bootstrap results for conditional effect of ubiquitous cue on the relationship between Moral disengagement and TSRUB at 6 months post-intervention, **controlling for MAAS and EC-Law** $F(5,87)=3.41$, $r^2=.16$, $p=.01$

Control Arm	.10	.17	.59	.56	-.23	.43
Experimental Arm	.57	.16	3.48	.00*	.24	.89

** $p<.01$ * $p<.05$

Table 6. Results of Moderation Analysis on the interaction between Individual Factors and a ubiquitous cue.

Ethical Predisposition. Ethical predisposition of participants did not appear to moderate the effect of a ubiquitous moral cue on unethical behaviour. The interaction of Formalistic Predisposition with a ubiquitous moral cue on its effect on TSRUB was not significant at either Wave 2 (B=.19, *p*=.41) or Wave 3 (B=.00, *p*=1.00), nor with major audit findings in the second 3 months post-intervention (B=-.07, *p*=.61). Thus, hypotheses 3 was not supported.

Goal Orientation. Goal Orientation did not have a significant interaction with a ubiquitous moral cue on its effect on unethical behaviour. The interaction of Learning Goal Orientation with a ubiquitous moral cue on TSRUB did not reach significance at either Wave 2 (B=.20, *p*=.33) or Wave 3 (B=-.23, *p*=.36), nor with major audit findings in the second 3 months post-intervention (B=.14, *p*=.25). Likewise, the interaction of Proving Goal Orientation with a ubiquitous moral cue on TSRUB did not reach significance at either Wave 2 (B=-.21, *p*=.16) or Wave 3 (B=-.17, *p*=.33), nor with

major audit findings in the second 3 months post-intervention (B=.04, *p*=.62). Thus, hypotheses 4a and 4b were not supported.

Mindfulness. The interaction between MAAS and ubiquitous moral cue on TSRUB was not significant at either Wave 2 (B=.20, *p*=.19) or Wave 3 (B=.26, *p*=.15), nor with major audit findings in the second 3 months post-intervention (B=.13, *p*=.18). There was no support for hypothesis 5.

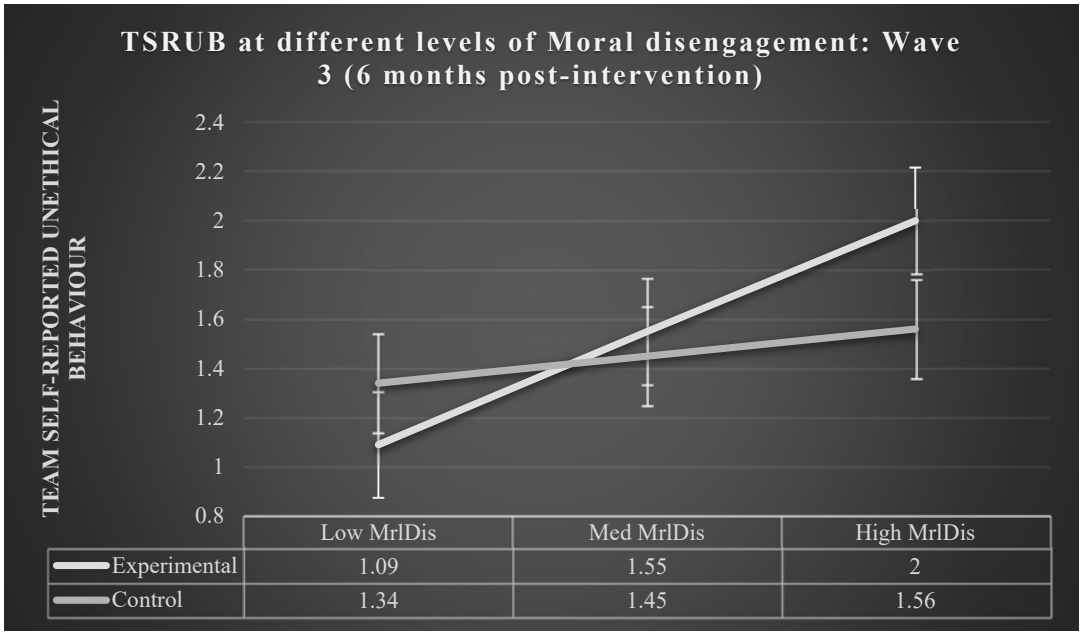

Figure 6. Conditional effect of Moral Disengagement at Wave 3 (6 months post-intervention). The effect of moral disengagement on TSRUB was significant in only in the experimental arm (p<.01). There was an interaction effect between the experimental condition and moral disengagement (p=.03).

Moral Disengagement. A ubiquitous cue significantly moderated the relationship between Moral Disengagement and TSRUB at 6 months post-intervention (F(5,87)=3.41, r^2=.16, *p*=.01). A ubiquitous moral cue significantly strengthened the effect of Moral Disengagement on TSRUB. To illustrate this visually, interactions are plotted at one standard deviation above and below the means (Aiken & West, 1991) for

moral disengagement in *Figure 6*. A test of simple slopes demonstrated that moral disengagement significantly increased team self-reported unethical behaviour in the experimental arm (B=.57, *p*=.00) but not in the control arm (B=.10, *p*=.56). These outcome runs contrary to the hypothesized relationship, that is, a ubiquitous moral cue strengthened, rather than weakened, the relationship between moral disengagement and unethical behaviour.

Team & Firm Factors. *Table 7* summarizes the results of moderation analyses to test hypotheses 7 to 11. Where significant results were obtained, the effect sizes of control factors are also shown in italics.

Variable	*B*	*SE*	*t*	*p*
DV: Team Self-reported Unethical Behaviour W2				
Workplace Monitoring W2	.26	.13	1.96	.05*
Ubiquitous Cue	.29	.61	.48	.63
Workplace Monitoring W2*Ubiquitous Cue (H7)	-.09	.18	-.50	.62
Ethical Leadership at Work W2	.05	.18	.25	.80
Ubiquitous Cue	1.10	1.00	1.10	.27
Ethical Leadership at Work*Ubiquitous Cue (H8)	-.25	.23	-1.10	.27
Perceived Injustice	.16	.08	1.98	.05*
Ubiquitous Cue	.13	.27	.49	.63
Perceived Injustice*Ubiquitous Cue (H9)	-.05	.10	-.45	.65
Ethical Climate- Rule	-.19	.27	-.70	.49
Ubiquitous Cue	-1.10	1.13	-.98	.33
Ethical Climate- Rule*Ubiquitous Cue (H10)	.26	.26	.99	.33
Ethical Climate- Law	-.17	.21	-.83	.41
Ubiquitous Cue	.60	1.13	.53	.60
Ethical Climate- Rule*Ubiquitous Cue (H10)	-.14	.26	-.53	.60
Goal Difficulty W2	.12	.20	.62	.53
Ubiquitous Cue	1.23	1.04	1.18	.24
Goal Difficulty* Ubiquitous Cue (H11)	-.30	.26	-1.18	.24
DV: Team Self-reported Unethical Behaviour W3				
Workplace Monitoring W3	.31	.16	1.88	.06
Ubiquitous Cue	.22	.88	.24	.81
Workplace Monitoring W3*Ubiquitous Cue (H7)	-.05	.25	-.22	.83
Ethical Leadership at Work W3	-.10	.22	-.45	.66
Ubiquitous Cue	2.95	1.40	2.11	.04*
Ethical Leadership at Work*Ubiquitous Cue (H8)	-.63	.31	-2.03	.05*
MAAS	.07	.11	.65	.52
Moral disengagement	.28	,12	2,23	,03
Ethical Climate – Law	.18	.18	1.03	.31
Perceived Injustice	.30	.11	2.70	.01*
Ubiquitous Cue	.45	.35	1.28	.21
Perceived Injustice*Ubiquitous Cue (H9)	-.16	.14	-1.22	.23
Ethical Climate- Rule	.15	.34	.43	.67
Ubiquitous Cue	.34	1.45	.24	.81
Ethical Climate- Rule*Ubiquitous Cue (H10)	-.06	.34	.43	.67
Ethical Climate- Law	.13	.28	.47	.64
Ubiquitous Cue	.91	1.52	.60	.55
Ethical Climate- Law*Ubiquitous Cue (H10)	-.19	.35	-.53	.59

Goal Difficulty W3	.13	.21	.62	.54
Ubiquitous Cue	1.25	1.36	.92	.36
Goal Difficulty* Ubiquitous Cue (H11)	-.28	.33	-.86	.39
DV: Major Audit Findings 2nd 3 months post-intervention				
Workplace Monitoring W2 (N=123)	.09	.13	.72	.47
Ubiquitous Cue	.88	.66	1.34	.18
Workplace Monitoring * Ubiquitous Cue (H7)	.11	.13	.82	.41
Ethical Leadership at Work W2 (N=123)	.43	.17	2.48	.01*
Ubiquitous Cue	3.56	.98	3.64	.00**
Ethical Leadership at Work*Ubiquitous Cue (H8)	-.86	.22	-3.83	.00**
Age	.02	.13	.14	.89
Perceived Injustice W2 (N=123)	.13	.08	1.59	.11
Ubiquitous Cue	.11	.30	.36	.72
Perceived Injustice*Ubiquitous Cue (H9)	-.11	.11	-1.02	.31
Ethical Climate- Rules (N=193)	-.01	.15	-.03	.97
Ubiquitous Cue	.39	.86	.45	.65
Ethical Climate- Rules*Ubiquitous Cue (H10)	-.12	.21	-.60	.55
Ethical Climate- Law (N=193)	.00	.14	.00	1.00
Ubiquitous Cue	.62	.86	.73	.47
Ethical Climate- Law*Ubiquitous Cue (H10)	-.17	.20	-.87	.38
Goal Difficulty W2 (N=123)	.47	.21	2.23	.03*
Ubiquitous Cue	2.65	1.08	2.45	.02*
Goal Difficulty*Ubiquitous Cue (H11)	-.71	.27	-2.61	.01*
Age	.04	.13	.28	.78

Additional data for control variables in italics are shown for significant results

	Boot Effect size	*Boot SE*	*t*	*p*	*LL 95% CI*	*UL 95% CI*
Bootstrap results for conditional effect of ubiquitous cue on the relationship between Ethical leadership at Work and TSRUB at 6 months post-intervention, **controlled for MAAS, Mrl Dis, and EC-Law** F(6,86)=3.73, r^2=.21, *p*=.00						
Control Arm	-.10	.22	-.45	.66	-.54	.34
Experimental Arm	-.73	.24	-3.08	.00**	-1.20	-.26
Bootstrap results for conditional effect of ubiquitous cue on the relationship between Ethical leadership at Work and Major Audit Findings in the second 3 months post-intervention, **controlled for MAAS, Mrl Dis, EC-law** F(6,131)=1.58, r^2=0.07, *p*=.16						
Control Arm	.21	.19	1.10	.27	-.17	.58
Experimental Arm	-.36	.17	-2.19	.03*	-.69	-.03
Bootstrap results for conditional effect of ubiquitous cue on the relationship between ELW and Major Audit Findings in the second 3 months post-intervention, **with age as a control** F(4,118)=4.38, r^2=.13, *p*=.00)						
Control Arm	.43	.17	2.48	.01*	.09	.77
Experimental Arm	-.43	.14	3.05	.00**	-.72	-.15
Bootstrap results for conditional effect of ubiquitous cue on the relationship between Goal Difficulty and Major Audit Findings in the second 3 months post-intervention, **with age as a control** F(4,118)=2.26, r^2=.07, *p*=.07						
Control Arm	.47	.21	2.23	.03*	.05	.89
Experimental Arm	-.24	.17	-1.42	.16	-.56	.09

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

Table 7. Results of moderation analysis on firm and team factors

Workplace Monitoring. A ubiquitous cue did not have a significant interaction with Workplace Monitoring in its influence on unethical behaviour at either Wave 2 (B=-.01, *p*=.97) or Wave 3 (B=-.14, *p*=.54) nor with major audit findings in the second 3 months post-intervention (B=-.05, *p*=.78). Hence, there was no support for hypothesis 7.

Ethical Leadership at Work. A ubiquitous cue significantly moderated the relationship between ELW and TSRUB at 6 months post-intervention ($F(5,87)=5.59$, $p=.00$, $r^2=.31$). Interactions are plotted at one standard deviation above and below the means for ethical leadership at work in *Figure 7*. Tests of simple slope showed that at six-months post-intervention, ethical leadership at work significantly decreased team self-reported unethical behaviour in the experimental arm ($B=-.73$, $p=.00$) but not in the control arm ($B=-.10$, $p=.66$). While a similar trend was observed at 2 months post-intervention, this interaction did not reach significance (overall model: $F(6,131)=6.33$, $p=.00$, $r^2=.22$; interaction effect: $t=-1.10$, $p=.27$).

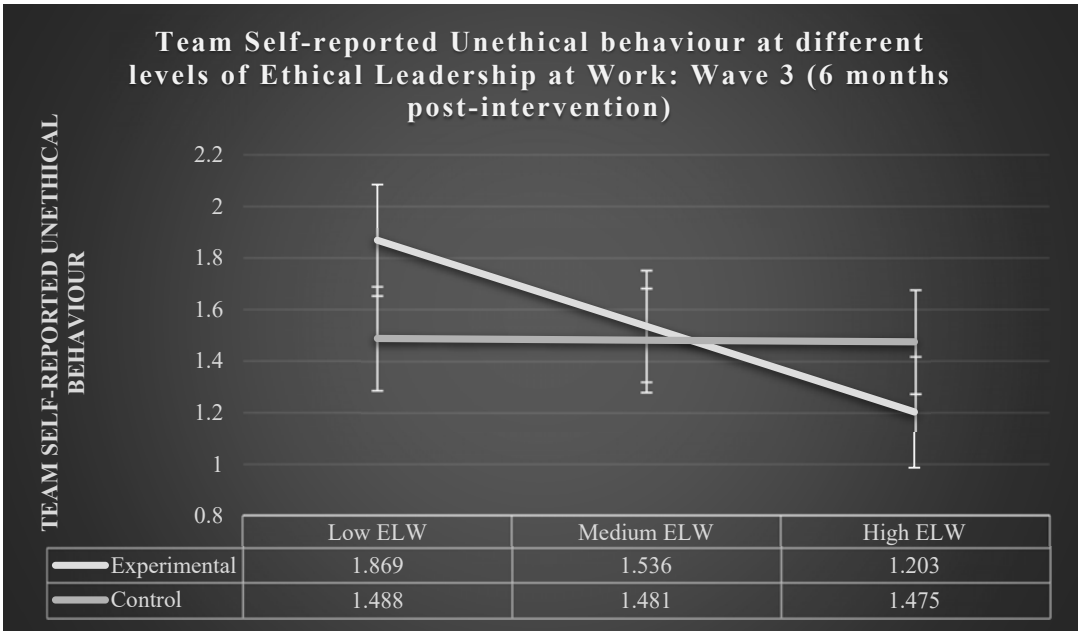

Figure 7. Conditional effect of ELW at Wave 3 (six months post-intervention). The effect of ELW on TSRUB was significant in only in the experimental arm ($p=.04$). There was an interaction effect between the experimental condition and ELW ($p=.03$).

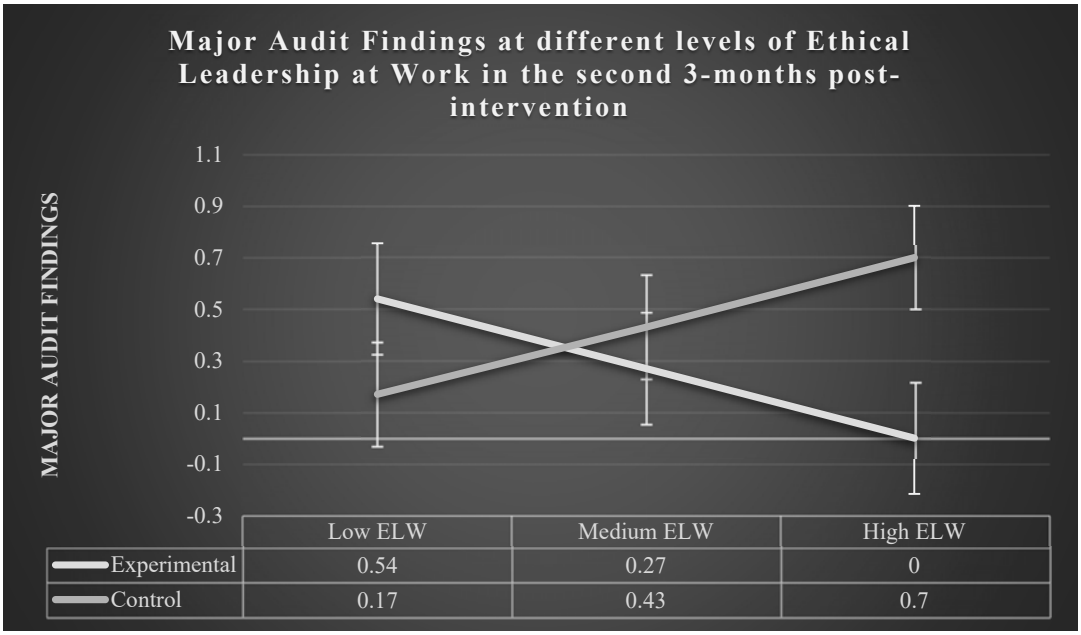

Figure 8. Conditional effect of a ubiquitous cue on the relationship between ELW and Major Audit Findings in the second 3-months post-intervention. The effect was significant in both the experimental (p=.01) and control arms (p=.00). There was an interaction effect between the experimental condition and ELW (p=.00).

A ubiquitous cue significantly moderated the relationship between ELW and major audit findings in the second three months post-intervention (F(4,118)=4.38, r^2=.13, p=.00). *Figure 8* illustrates this relationship. In the control arm, ELW was positively correlated with unethical behaviour, that is, at low levels of ELW, participants also had lower major audit findings (B= .43, p=.01). On the other hand, in the experimental arm, ELW was inversely correlated with unethical behaviour, that is, at low levels of ELW, participants had *higher* major audit findings (B=-.43, p=.01). The unusual finding in the Control arm is likely to be due to other factors in work in the environment beyond the ubiquitous cue as ELW should theoretically be negatively correlated with unethical behaviour, that the relationship was reversed in the experimental arm demonstrates that a ubiquitous cue enhances the effect of ethical leadership on unethical behaviour. Thus, hypothesis 8 was supported.

Perceived Injustice. Perceived injustice, like workplace monitoring, was correlated with TSRUB (both $p<.05$) however there was no significant interaction effect of a ubiquitous cue on that relationship at either Wave 2 (B=-.03, p=.77) or Wave 3 (B=-.14, p=.28) nor with major audit findings in the second three months post-intervention (B=-0.17, p=.13). Hence, there was no support for hypothesis 9.

Ethical Climate. There was no significant interaction effect of a ubiquitous cue on the effect of EC-Rule on TSRUB at either Wave 2 (B=.21, p=.45) or Wave 3 (B=.02, p=.96) nor with major audit findings in the second three months post-intervention (B=-.02, p=.92). Similarly, there was no significant interaction effect of a ubiquitous cue on the effect of EC-Law on TSRUB at either Wave 2 (B=.14, p=.60) or Wave 3 (B=-.19, p=.59), nor with major audit findings in the second three months post-intervention (B=.01, p=.96). Hence, there was no support for hypothesis 10.

Goal Difficulty. The interaction between goal difficulty and ubiquitous moral cue on TSRUB was not significant at either Wave 2 (B=-.39 p=.13) or Wave 3 (B=-.14, p=.65). However, goal difficulty moderated the relationship between a ubiquitous cue and major audit findings in the second three months post-intervention. While the overall model approached significance ($F(4,118)=2.26$, $r^2=.07$, p=.07), the interaction effect was significant (B=-.71, t=-2.61, p=.01), and the conditional effect in the control was significant compared to the experimental arm. *Figure 9* illustrates this relationship.

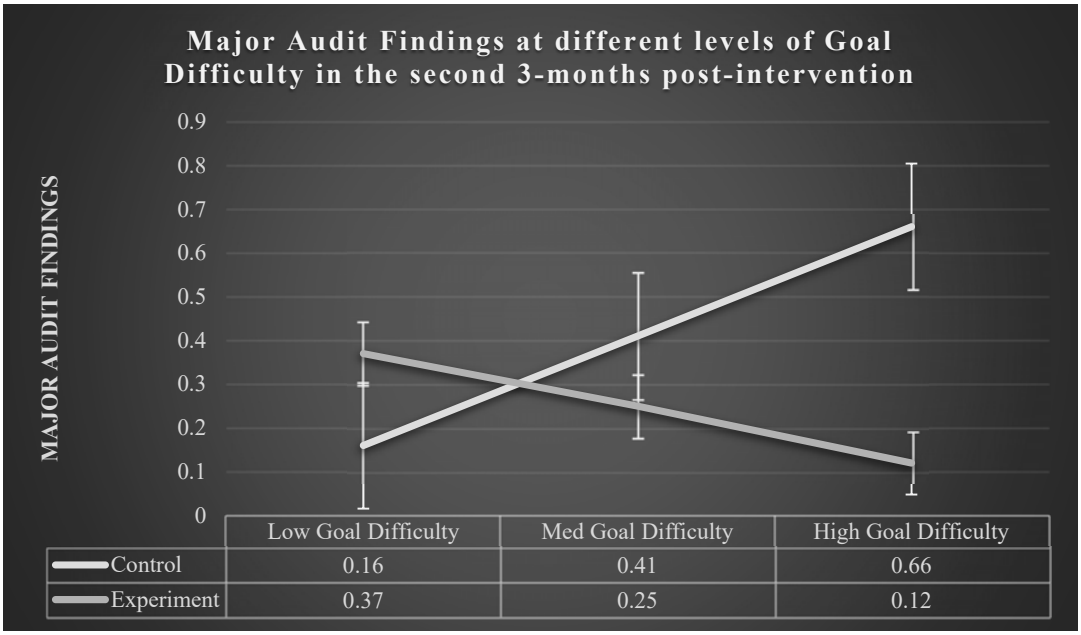

Figure 9. Conditional effect of experimental condition on the relationship between goal difficulty and Major Audit Findings in the second 3-months post-intervention. The outcome for control arm was significant (p=.03), but not for the experimental arm (p=.16)

More unethical behaviour was reported in the control arm when goal difficulty was high (p=.03). However, for the experimental arm, unethical behaviour was not significantly different among participants reporting low, medium or high goal difficulty. Thus, there was partial support for hypothesis 11.

Effect of technology acceptance and perceived ubiquity

Both Technology Acceptance and Perceived Ubiquity were not correlated with any of the dependent variables at Wave 2 or Wave 3, suggesting that the effect of acceptance of the cue was or its ubiquity is likely to be minimal on subsequent unethical behaviour. Linear regressions on the dependent variables with Technology Acceptance, Perceive Ubiquity and the Control Variables confirmed this for TSRUB.

For TSRUB at Wave 2, the overall model was statistically significant ($F(5,66)=5.00$, $p<.01$) and was largely driven by Moral Disengagement (B=.39, $p<.01$) whereas Technology Acceptance (B=.13, $p=.57$) and Perceived Ubiquity (B=-.08, $p=.69$) had non-significant effects. At Wave 3, the overall model was statistically significant ($F(5,36)=2.96$, $p=.03$) but was again driven by Moral Disengagement (B=.57, $p<.01$) and not Technology Acceptance (B=-.01, $p=.98$), or Perceived Ubiquity (B=.12, $p=.72$).

In the case of Major Audit Findings in the second 3-months post-intervention, there was no direct correlation between Perceived Ubiquity and the audit findings. However, when other factors such as Moral Disengagement, and Ethical Climate-Law, were included in the model, the importance of Perceived Ubiquity as a predictor increased (B=-.36, $p=.04$), even though the overall model was statistically not significant. The effect of Technology Acceptance was also not significant (B=.29, $p=.13$). The results indicate that hypothesis 12 is not supported, while hypothesis 13 had relatively weak support.

Chapter 6: Discussion

When firms introduce ethical infrastructure comprising of multiple components, it can be expected that the components will interact with one another, and with personal, firm and environmental factors that are salient to the employees who have to make decisions on a daily basis (Treviño 2006, Hayibor 2009). This field experimental study was designed specifically to isolate one such intervention – a ubiquitous moral cue – to study its effects holding all other factors unchanged. However, as the measured incidence rate of unethical behaviour across both arms was relatively low, an

intervention designed to modify this behaviour would not be expected to have a large effect from a statistical perspective. Hence, the lack of results reaching significance in this study was not surprising.

The experiment did not detect any direct effects of the ubiquitous moral cue on behaviour. It is possible that the effect size of a moral cue is too small to be detected by the experimental method due to the larger effect sizes of other factors in the field, including mindfulness, moral disengagement, ethical climate and age. In addition, considering the relatively low base rate of unethical behaviors (the vast majority of behaviors are in fact ethical), there is relatively little unethical behavior to be changed and therefore it is unsurprising that no direct effect was observed. The only indication that a ubiquitous cue may have an important effect on reducing unethical behaviour was seen in the analyses of the impact of Perceived Ubiquity on Major Audit Findings in the second 3-months post-intervention, where among many factors, Perceived Ubiquity had a significant effect size suggesting it reduced unethical behaviour. However, the number of remaining samples and degrees of freedom in the analyses of the data make this at best an intriguing possibility.

Other investigators have shown that "tone from the top" is an indispensable component of any compliance infrastructure, and the wrong tone has led to disastrous results (Premeaux 2004, Jackson 2013). One of the most salient features of a pharmaceutical sales representative's work day is his or her daily interaction with the sales supervisor, a person partly responsible for resource allocation, target setting, and who can certainly make his or her life a comfortable or uncomfortable one. Ethical leadership – which measures the extent to which leaders demonstrate strong ethics in

their own behaviour, and communicate to their subordinates the importance of being ethical (Kalshoven 2011) – is correlated with better outcomes at work such as job satisfaction and various measures of organizational citizenship behaviour and dysfunctional workplace behaviour (Brown 2010).

In this study, the effect of ethical leadership at work on unethical behaviour was found to be significantly influenced by a ubiquitous moral cue for both dependent variables: self-reported ethical behaviour, as well as major audit findings. In the presence of a ubiquitous cue, employees appeared to be more sensitive to the ethical leadership of their immediate supervisors: team self-reported unethical behaviour was low when ethical leadership was high. On the other hand, in the control arm, no such relationship was found. The findings for major audit findings demonstrated a similar effect. In the experimental arm, participants reporting higher ethical leadership at work also had fewer major audit findings, whereas participants reporting lower ethical leadership at work had more major audit findings. Curiously, in the control arm, the reverse was found, which suggested that other environmental factors could have been in play which completely negated the otherwise inverse relationship between ethical leadership at work and unethical behaviour. One possible environmental factor that might account for this is the divestment of part of the business just before the experiment, which resulted in the departure of a quarter of the team, and might have decreased employee morale and eroded trust in management. This also highlights one of the strengths of a controlled experiment, which is able to control for such environmental factors that both arms are otherwise equally exposed to.

Another effect found was that of goal difficulty on major audit findings. It has long been suspected by practitioners that when employees are under pressure to perform, they tend to "push the envelope" in their ethical decision-making, an outcome that has also been borne out in scientific research (Ordóñez, 2009). In this study, it was found that high goal difficulty was more strongly correlated with reports of major audit findings among participants in the control arm, and conversely, goal difficulty was more weakly correlated with fewer reports of major audit findings in the experimental arm. This result supports the finding of other investigators (Treviño 2006, Hayibor 2009, Ariely 2013) (albeit from correlational and/or laboratory studies) that circumstantial factors in the environment have an important effect on the ethical decision-making process, and suggests for the first time that a ubiquitous cue may play a role in negating that effect to some extent.

In this study, a ubiquitous moral cue demonstrated a conditional effect on moral disengagement. However, the effect was contrary to the hypothesized expectation. As shown by previous investigators (Jones1991, Bandura 2002, Detert 2008), moral disengagement is an important antecedent of unethical behaviour. Under "normal" circumstances, one would expect people with high moral disengagement to commit more unethical acts. In this experiment, I found that participants with high moral disengagement, and under constant reminders about the firm's ethical and compliance infrastructure through a ubiquitous moral cue, reported more unethical behaviour in their teams, suggesting that a ubiquitous cue, contrary to the intended effect of negating the effects of moral disengagement, may actually have accentuated its effects instead. On the other hand, the opposite effect was observed with participants with low moral

disengagement – a ubiquitous cue reinforced the low propensity for unethical behaviour.

As others have determined, increased monitoring or sanctioning may have undesired effects, if colleagues feel that there is too much of it, or if the lack of follow-through demotivates them (Kaptein 2008, Treviño & Weaver 2001). Hence, conceivably, colleagues in the experimental am who were already morally disengaged may have felt cynical towards the Mobile App, and its presence instead of reminding them to stay compliant may have only served to remind them of their disenchantment.

No statistically significant effects of the ubiquitous cue were found with other known antecedents such as monitoring, gender, age, and with other personal characteristics like goal orientation or ethical predisposition. It is likely that this reflects the challenges of conducting a field to experiment with its limitations such as organizational changes, turnover and participant withdrawal. In particular, the departure of participants over time, as well as the significant amount of "noise" in the environment, rendered the effect size of many situational factors relatively small and limited the degrees of freedom, hence reducing the power of some of the statistical outcomes. However, as noted in the literature review, contradictory or non-conclusive findings have also been reported by others.

Additionally, there were important correlations between several independent and dependent factors apart from the ubiquitous moral cue, indicating the potential importance of some of these factors, including possible interactions between them. Factors such as ethical leadership, ethical climate, mindfulness and workplace

monitoring appear to affect behaviour independent of the ubiquitous cue and are the subjects of further analyses.

In summary, a ubiquitous cue did not appear to have significant effects on its own, but appeared to influence ethical leadership positively, while attenuating the negative effects of high goal difficulty.

Limitations and Future Research

As with any study, this experiment suffered from certain limitations. Firstly, due to the limited intervention in the manipulation itself, not all participants in the experimental arm necessarily downloaded the mobile application as instructed or on time, thus potentially affecting the effectiveness of the manipulation. Although this may have led to underestimation of the effect size of the ubiquitous cue in the studied relationships (as might have been achieved if, for example, ALL employees in the experimental arm downloaded the mobile application), it reflects a real-world situation where an intervention may not always be perfectly executed.

Secondly, the possibility of demand effects cannot be ruled out, since participants from the experimental and control groups do come together for various purposes such as training as well as social engagements. During such time, participants from the control arm could be made aware of the existence of the Mobile App on the devices of their colleagues. However, the effects is expected to be minimal as instructions to download the Mobile App was sent only to the experimental arm, and hence it is very unlikely for participants in the control arm to download the Mobile App.

Thirdly, all scales used in this experiment were translated into Simplified Chinese by professional translators and verified by two native Chinese speakers.

However, these scales have not been previously validated in a Chinese population. Thus, the use of these scales in this study population may not be entirely appropriate, and only those that were found to have strong scale reliability were included in the final analyses.

Also, reflecting the difficulty of carrying out a real-world experiment in a real firm having changing priorities and business challenges, the implementation of the project did not go according to plan all the time, with potential implications on the outcomes of this study. For example, due to the voluntary nature of the study and the competition for time with busy salespeople constantly on the road, the self-administered surveys were collected over a period of two weeks and therefore do not accurately reflect a cross-section at a point in time. Finally, field monitoring was collected by a third-party subject to their own business priorities and project timelines. The extent of field monitoring was initially inconsistent around the start of the experiment but stabilized subsequently.

Finally, one important limitation is the inherent difficulty in defining and measuring non-ethical behaviour objectively and accurately. As noted in the methods section, instead of measuring self-reported individual unethical behaviour, I measured each individual's report of his or her team's unethical behaviour. Focusing on the team unit of analysis was appropriate for team factors such as ethical leadership, and firm factors such as goal setting, since entire teams were assigned to the study arms and hence the reported behaviours would be applicable to the team variable being reported. However, in the case of personal factors like moral disengagement, it is possible that reporting team unethical behaviours do not accurately reflect the relationship between

the variable and individual's own behaviour. Thus, more appropriate ways to detect unethical behaviours would improve the robustness of this study.

Also, while having a third party conduct random audits on activities significantly reduces bias due to self-reporting by the firm, the size of the sample (about 25% of all activities) versus the limited number of findings, as well as possible bias by different auditors, reduces the reliability of the results.

The analyses of the data in this research are not yet complete. Two other lines of analysis remain to be subsequently reviewed. Firstly, while the ubiquitous moral cue was the subject of this study, there were also other direct and indirect relationships between the situational factors and dependent variables. For example, the linear regression analysis indicated that moral disengagement, ethical climate–law, and mindfulness had a stronger effect on team self-reported unethical behaviour than ethical leadership. Studying these relationships further may yield important insights into how the compliance infrastructure works, and suggest topics for further research.

Secondly, I have limited the analyses reported here to individual level results, that is, the effect of a ubiquitous moral cue on individuals and its relationships with individual traits and perceived team and firm factors by the individual. Further analyses of the data at the level of the sales team may yield other insights, including results related to supervisor-subordinate dyads, as well as comparisons across longitudinal time points. The latter may yield, for example, valuable outcomes such as when is the onset of a ubiquitous mobile cue's effectiveness, or if there are any desensitization effects over time.

This study demonstrated that a ubiquitous cue was most effective in strengthening the positive effect of strong ethical leadership, and negating the negative impact of high goal difficulty. It is possible that other salient situational factors like monitoring would demonstrate significant interactions with a ubiquitous cue under more favorable experimental conditions. Alternative designs such a field experiment with a larger and more stable population or laboratory experiments designed specifically to test these factors may be helpful in studying these relationships.

Implications for Practice

Unethical acts are morally repulsive and harmful to the victims of the acts. The subsequent erosion of trust by a firm's customers and stakeholders, and ensuing financial damage through loss of business and lawsuits, make it an imperative for any firm to avoid unethical behaviour by its employees. Good ethical infrastructure is increasingly seen as prerequisites for good business performance. As exhorted by Rousseau (2006, p256), "Evidence-based management… derives principles from research evidence and translates them into practices that solve organizational problems." My study has shown that the use of a ubiquitous moral cue in the field is effective in influencing behaviour, providing empirical data that practitioners can use as evidence to continue implementing such measures.

Past research has contributed to a rich treasure trove of knowledge and understanding in how ethical decisions are made. This experiment provided direct evidence that a ubiquitous moral cue enhanced the positive influence of ethical leadership on behaviours, and negated the negative influence of goal difficulty, thus validating the importance and usefulness of such an intervention. However, the positive

relationship between moral disengagement and unethical behaviours was also strengthened. This highlights the needs for implementation of such an intervention to go hand-in-hand with other measures to avoid a backlash as a result of its effect on moral disengagement. To practitioners of ethics and compliance, the results of this study provide validation for the usefulness of deploying such an intervention, while flagging a potential downside.

Furthermore, the results highlighted the importance of such situational factors as ethical leadership itself; without developing leaders who model ethical behaviour and lead their teams effectively to do the same, a ubiquitous cue by itself would not be very effective and a waste of invested resources. Also, despite having been demonstrated to have an impact on ethical behaviour in other studies, this study did not demonstrate any effect of the ubiquitous moral cue on the effects of demographic personal factors such as age, gender, mindfulness or ethical predisposition, on unethical behaviour. This could be due to study limitations, but may also reflect workplace realities where other factors in themselves have significantly larger effect sizes on unethical behaviour as compared to the ubiquitous moral cue. This challenges the need to customize such an intervention for different employees based on demographics and personality, something which is not realistic to do in practice in many cases.

Finally, practitioners can draw on this study to design and implement new ethical infrastructure in the field in future. As they continue to experiment with other interventions, such as changing the sales incentive plan structures, or introducing more interactive applications, practitioners can consider testing those interventions using a

similar experimental design during the pilot phase to determine the effectiveness before rolling out fully.

Chapter 7: Conclusion

The ethical and compliance infrastructure of firms serve to influence employees to recognize ethical issues and to make the right decisions when they do. Cues and reminders are important elements of this infrastructure. This study has demonstrated the utility of a ubiquitous moral cue in reducing unethical behaviour by influencing ethical leadership at work and goal difficulty. Furthermore, when the ubiquitous cue is based on mobile application technology, the perceived ubiquity of the mobile application was correlated with better outcomes. A possible negative outcome – strengthening the influence of moral disengagement on unethical behaviour – points to the possible downside of additional interventions in the absence of a holistic approach. The study also demonstrates that it is possible to conduct a field experiment to study the effect of a single intervention, lending support to the call for evidence-based management to be employed in practice. Future studies determining the effect of other innovations in the ethical and compliance infrastructure of firms would add more insights into this growing empirical literature.

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Appendix A

Detailed items of scales used in this dissertation

Ethical Predisposition (Measure of Ethical Viewpoints, from Brady 1996). The following are individual traits that you may find in yourself or others. For each question please answer on a scale of 1-7, from 1 (Very Unimportant to me) to 7 (Very Important to me) the extent to which these traits are important to you.

Very unimportant to me	Not important to me	Of little importance to me	Neither important or unimportant to me	Moderately important to me	Important to me	Very Important to me
1	2	3	4	5	6	7

1. Innovative[u]
2. Principled[f]
3. Resourceful[u]
4. dependable[f]
5. Effective[u]
6. trustworthy[f]
7. Influential[u]
8. honest[f]
9. results-oriented[u]
10. productive[u]
11. noted for integrity[f]
12. a winner[u]
13. law-abiding[f]

Superscripts indicate measured trait: [u]= Utilitarian, [f]=formal

以下是您可以在自己或他人身上发现的个人特质。请根据您觉得每个特质对于您重要性的程度，从 1（对我很不重要）到 7（对我非常重要）进行打分。

对我很不重要 1	对我不重要 2	对我的重要性不大 3	重要性对我而言无所谓 4	对我的重要性适中 5	对我而言重要 6	对我非常重要 7

1. 创新
2. 原则性
3. 足智多谋
4. 可靠
5. 高效
6. 值得信赖
7. 有影响力
8. 诚实
9. 以结果为导向
10. 富有成效
11. 以诚信而著称
12. 成功者
13. 遵纪守法

Goal Orientation (Goal Orientation Scale, from Button 1996). This section reviews your attitude towards learning and achievement at work. For each question please answer on a scale of 1-7, from 1 (Strongly Disagree) to 7 (Strongly Agree)

Strongly disagree 1	Disagree 2	Disagree Somewhat 3	Undecided 4	Agree Somewhat 5	Agree 6	Strongly Agree 7

1. When I fail to complete a difficult task, I plan to try harder the next time I work on it.
2. The opportunity to extend the range of my abilities is important to me.
3. I feel smart when I can do something better than most other people.
4. I try hard to improve on my past performance.
5. I prefer to do things that I can do well rather than things that I do poorly.
6. The things I enjoy the most are the things I do the best.
7. When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work.

8. The opinions others have about how well I can do certain things are important to me.
9. I prefer to work on tasks that force me to learn new things.
10. The opportunity to do challenging work is important to me.
11. I do my best when I'm working on a fairly difficult task.
12. I feel smart when I do something without making any mistakes.
13. I'm happiest at work when I perform tasks on which I know that I won't make any errors.
14. I like to be fairly confident that I can successfully perform a task before I attempt it
15. I like to work on tasks that I have done well on in the past.
16. The opportunity to learn new things is important to me

下列调查问题将回顾您对工作中所学和所获的态度。对于下列每个问题，请用 1-7 进行评分，1 表示强烈反对，7 表示非常赞同。

强烈反对	不同意	基本不同意	不确定	基本同意	同意	非常赞同
1	2	3	4	5	6	7

1. 我在未能完成一项艰难的任务之后，计划下次更加努力地完成它。
2. 能够扩大自己能力范围的机会对于我非常重要。
3. 当我做得比大部分人更好时，我感觉自己很厉害。
4. 我在做自己认为不会犯任何错误的工作时，感到最幸福。
5. 我努力改善自己的既往表现。
6. 我更喜欢做自己擅长的事情，而不是自己做不好的事情。
7. 越是我喜欢做的事情，我越能把它做好。
8. 当我遇到难以解决的问题时，我喜欢尝试不同的方法，搞清楚哪种方法管用。
9. 其他人对我能够完成某件事情的评价对我很重要。
10. 我更喜欢做能学到新知识的工作。
11. 从事具有挑战性工作的机会对我很重要。
12. 我会尽力完成有相当难度的任务。
13. 我完成了某件事情而没有犯任何错误，我感觉自己很厉害。
14. 当我有信心自己能够成功地完成某任务，我才会开始做此项任务。
15. 我喜欢做自己之前做地很好的工作。
16. 学习新事物的机会对我很重要

Mindfulness (Mindfulness Attention Awareness Scale, from Brown & Ryan 2003)**.** The following questions provide further information about yourself. For each question please answer on a scale of 1-6, from 1 (Almost never) to 6 (Almost always). Please be as candid as possible, remembering that all data provided is anonymous.

Almost Never	Very rarely	Seldom	Occasionally	Frequently	Almost Always
1	2	3	4	5	6

1. I could be experiencing some emotion and not be conscious of it until some time later.
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.
3. I find it difficult to stay focused on what's happening in the present.
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
6. I forget a person's name almost as soon as I've been told it for the first time.
7. It seems I am "running on automatic" without much awareness of what I'm doing.
8. I rush through activities without being really attentive to them.
9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
10. I do jobs or tasks automatically, without being aware of what I'm doing.
11. I find myself listening to someone with one ear, doing something else at the same time.
12. I go to places on "automatic pilot" and then wonder why I went there.
13. I find myself preoccupied with the future or the past.
14. I find myself doing things without paying attention.
15. I snack without being aware that I'm eating.

下列问题是关于您其他方面的信息。对于每个问题，请用 1-6 进行评分，1 表示几乎从不，6 表示几乎总是。请记住，所有数据都是匿名的，所以请您尽量坦率回答。

几乎从不	很少	不常	偶尔	经常	几乎总是
1	2	3	4	5	6

1. 我可能带有一定的情绪，直到过了一段时间之后才意识到。
2. 由于粗心、未集中注意力或者在想别的事情，打碎或者洒落东西。
3. 我发现自己难以对正在发生的事情持续专注。
4. 我常常快速走到目的地，不注意途中体验。
5. 我经常忽视身体紧张或不适的感觉，直到它们真正引起我的注意。
6. 别人告知我一个人的名字之后，我几乎立即就会忘记。
7. 我似乎是在“自动运行”，没有过多地意识到自己在做的事情。
8. 我匆匆忙忙完成事情，却没有真正关注它们。
9. 我过于关注自己想要达到的目标，而疏忽了为达到目标而目前需做的事情。
10. 我机械地完成工作或者任务，没有意识到自己在做什么。
11. 我发现自己一只耳朵在听别人说话，同时又在做其它事情。
12. 我像被“自动导航”似的不自觉地去了某地，而后奇怪自己为什么要去。
13. 我发现自己沉浸在将来或过去的事情中。
14. 我发现自己做事情的时候没有集中注意力。
15. 我吃零食的时候没有意识到自己在吃东西。

Moral disengagement (Moral disengagement scale, from Detert 2008). The following questions ask about how often your thoughts about different type of issues. Remember there is no “right” or “wrong” answer. Please be as candid as possible and remember that all responses are anonymous. For each question please answer on a scale of 1-5, from 1 (Strongly Disagree) to 5 (Strongly Agree)

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

1. It is alright to fight to protect your friends
2. It's ok to steal to take care of your family's needs
3. It's ok to attack someone who threatens your family's honor
4. Sharing test questions is just a way of helping your friends
5. Talking about people behind their backs is just part of the game
6. Looking at a friend's homework without permission is just "borrowing it.
7. If someone is pressured into doing something, they shouldn't be blamed for it
8. Damaging some property is no big deal when you consider that others are beating up people
9. Stealing some money is not too serious compared to those who steal a lot of money
10. A member of a group or team should not be blamed for the trouble the team caused
11. Compared to other illegal things people do, taking some things from a store without paying for them is not very serious
12. If people are living under bad conditions, they cannot be blamed for behaving aggressively.
13. People cannot be blamed for misbehaving if their friends pressured them to do it.
14. If a group decides together to do something harmful,it is unfair to blame any one member of the group for it.
15. It is ok to treat badly someone who behaved like a "worm."
16. People don't mind being teased because it shows interest in them.
17. Teasing someone does not really hurt them
18. Insults don't really hurt anyone.
19. If someone leaves something lying around, it's their own fault if it gets stolen
20. People who are mistreated have usually done things to deserve it
21. You can't blame a person who plays only a small part in the harm caused by a group
22. People are not at fault for misbehaving at work if their managers mistreat them.
23. Some people deserve to be treated like animals.
24. Someone who is obnoxious does not deserve to be treated like a human being

下面的提问是关于您思考不同类型问题的频率有多高。请您记住，这里没有“正确”或“错误”的答案。所有答案都是匿名的，请您尽量坦率回答。对于下列每个问题，请用 1-5 进行评分，1 表示强烈反对，5 表示非常赞同。

强烈反对 1	不同意 2	不确定 3	同意 4	非常赞同 5

1. 可以为了保护朋友而力争。。
2. 可以为了家庭的需要而去偷窃。。
3. 可以对威胁您家庭荣誉的人进行攻击。
4. 共享测验试题只是您帮助朋友的一种方式。
5. 在背后议论别人不算什么事儿。
6. 在未得到许可的情况下看朋友的作业仅仅属于“借用”。
7. 如果某人被迫做了某件事情，不应该因此责怪他。
8. 考虑到别人还打人呢，破坏财物有什么大不了？
9. 与偷窃许多钱相比，偷窃一些钱不太严重。
10. 小组或团队的成员不应该为团队引起的麻烦受到责难。
11. 与人们所做的其他违法事情相比，从商店中拿东西不付账不算非常严重的事情。
12. 人们不应因其在在恶劣的条件下生活所作的攻击性行为而受到指责。
13. 如果某人由于受到其朋友的强迫而作出了不端行为则不应受到责难。
14. 如果一个团队集体决定做一件有害的事情，为此怪罪团队中的某一成员是不公平的。
15. 对待举止像“蠕虫”那样的人坏一点也没什么关系。。
16. 人们不会介意被取笑，因为这表示对他们感兴趣。
17. 取笑某人不会真正伤害到他们。
18. 侮辱不会真正伤害任何人。
19. 如果某人将东西遗落在地上，那被偷走也是他自己的过错。
20. 受到薄待的人通常都做了罪有应得的事。
21. 不能责怪在造成的伤害的团体中仅发挥了很小作用的人。
22. 因为受到主管薄待，而在工作中的行为不端的人并没有错。
23. 某些人就应该像对待动物一样对待他们。
24. 某些可憎的人不值得当人对待。

Workplace Monitoring, Ethical leadership, Goals difficulty, Injustice. In the next section, we would like to know about your supervisor and working

environment. Please be as candid as possible and remember that all responses are anonymous. Results will be aggregated for research purposes and no individual, supervisor or sales representative, will ever be identified. For each question please answer on a scale of 1-5, from 1 (Strongly Disagree) to 5 (Strongly Agree)

Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5

Workplace Monitoring (Close Monitoring Scale, from George & Zhou 2001)

1. It sometimes feels like my company is always looking over my shoulder.
2. I am careful not to do things that my company might disapprove of.
3. My company keeps pretty close tabs on me.
4. It is clear to me that to get ahead in my company, I need to do exactly what I am told.
5. My organization likes to see things done in a certain way.
6. My work is constantly being evaluated

1. 有时感觉我公司总是在监视我。
2. 我会小心谨慎，不做我公司可能不赞同的事情
3. 我公司总是在监督我。
4. 我很清楚，在我公司要获得成功，我必须按照领导的交代做事情。
5. 我的公司喜欢大家以指定的方式做事情。
6. 我的工作总是不断地被评估

Ethical Leadership (Ethical Leadership at Work Scale, from Kalshoven 2011)

My supervisor:

1. Clearly explains the firm's ethical and compliance requirements
2. Ensures that all employees in the team follow the firm's ethical and compliance requirements
3. Clarifies the likely consequences of possible unethical behavior by myself and my colleagues.
4. Stimulates the discussion of compliance issues among the team

5. Compliments employees who behave according to compliance guidelines
6. Listens to what employees have to say
7. Conducts his/her personal life in an ethical manner
8. Makes fair and balanced decisions
9. Can be trusted
10. Sets an example of how to do things the right way in terms of ethics

我的主管：

1. 详细解释了公司的道德和合规要求
2. 确保团队中的所有员工都遵守公司的道德和合规要求
3. 阐明了我自己和我同事的不道德行为的可能后果
4. 鼓励在团队中讨论合规问题。
5. 表扬行为符合合规原则的员工。
6. 听取员工们表达的意见
7. 以道德的方式展开他/她的个人生活
8. 制定公正和公平的决定
9. 值得信赖
10. 在道德方面以正确的方式以身作则，展示做事的方式

Perceived Injustice (Custom scale)

1. Employees may get away with ethical misconduct because the firm is afraid to let them go for legal reasons (labor law protection)

1. 因为出于法律原因（劳动保护法），公司不敢开除员工：所以员工可能会逃脱道德不端行为的惩罚，。

Ethical Climate (Ethical Climate Questionnaire**,** from Victor & Cullen 1988**).**

The following questions ask about your opinion about the ethical environment at work. Please be as candid as possible and remember that all responses are anonymous. For each question please answer on a scale of 1-5, from 1 (Strongly Disagree) to 5 (Strongly Agree)

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree

1	2	3	4	5

1. What is best for everyone in the company is the major consideration here.
2. Everyone is expected to stick by company rules and procedures.
3. In this company, people are expected to strictly follow legal or professional standards
4. In this company, people look out for each other's good.
5. In this company, people are guided by their own personal ethics.
6. The most important concern in this company is each person's own sense of right and wrong.
7. The most efficient way is always the right way in this company.
8. In this company, people protect their own interests above all else.
9. In this company, each person is expected above all to work efficiently.
10. People here are concerned with the company's interests — to the exclusion of all else.
11. People in this company strictly obey the company policies.
12. In this company, the law or ethical code of their profession is the major consideration.
13. It is very important to follow the company's rules and procedures here.
14. The major responsibility of people in this company is to control costs.
15. People are expected to comply with the law and professional standards over and above other considerations.
16. In this company, it is expected that you will always do what is right for the customers and public.
17. In this company, the first consideration is whether a decision violates any law.
18. Successful people in this company go by the book.
19. Each person in this company decides for themselves what is right and wrong.
20. Our major concern is always what is best for the other person.
21. The most important concern is the good of all the people in the company as a whole.
22. In this company, people are mostly out for themselves.
23. There is no room for one's own personal morals or ethics in this company.
24. Work is considered substandard only when it hurts the company's interests.
25. In this company, people are expected to follow their own personal and moral beliefs.
26. People are expected to do anything to further the company's interests, regardless of the consequences

下列调查问题询问您关于工作中道德标准的观点。请记住，所有答案都是匿名的，请您尽量坦率回答。对于下列每个问题，请用 1-5 进行评分，1 表示强烈反对，5 表示非常赞同。

强烈反对 1	不同意 2	不确定 3	同意 4	非常赞同 5

1. 此公司考虑最多的是，什么对于公司每一位员工而言是最好的。
2. 公司期望每个人都遵守公司的规则和程序。
3. 此公司期望人们都严格遵守法律或行业准则。
4. 此公司中，人们都会留心彼此的善行。
5. 此公司中，人们的主要职责是控制成本
6. 此公司中，人们都由自己个人道德标准引导。
7. 此公司中最重要的是每个人自身的是非观。
8. 此公司中使用的最高效的方法总是正确的方法。
9. 此公司中，人们对自身利益的保护高于一切。
10. 公司尤其期望每一位员工都高效地工作。
11. 公司员工对公司利益的关心高于一切。
12. 公司员工都严格遵守公司的政策。
13. 此公司中，行业相关法律规定或道德准则是考虑的重点。
14. 此公司中，遵守公司的规章和程序非常重要。
15. 公司期望人们在考量时应把遵守法律规定和行业准则置于首位。
16. 此公司期望您始终做对客户和公众正确的事情。
17. 此公司中的成功人士均照章办事。
18. 此公司中，每个人都自己判断是非。
19. 我们关注的重点始终是怎样做对其他人最有利。
20. 此公司中，首先考虑的是一项决定是否违反任何法律。
21. 最关心的事情是公司中所有员工的总体利益。
22. 此公司中，没有为人们自己的个人道德品质或道德标准留下空间。
23. 只有在当公司利益因工作而受损害时，该工作会被视为不合格。
24. 此公司期望人们预计会遵从他们自己的个人和道德信仰。
25. 公司期望人们会不计后果地做任何有助于公司利益的事情。
26. 此公司中，大部分的人都是为了自己

Goals difficulty (Competitive Psychological Climate Scale from Brown 1998, and customized questions).

1. My work objectives are clearly defined
2. My manager frequently compares my results with those of other salespeople.
3. I consistently meet my supervisor's expectations
4. I am given adequate resources to achieve my objectives
5. The amount of recognition you get in our firm depends on how your sales rank compared to other salespeople
6. Our biggest competitor's compliance infrastructure is as effective as ours
7. Thinking about the vendors I have worked with (e.g. distributors, logistics, event organizers), their compliance infrastructure is as effective as ours

在下面的部分中，我们希望了解您的主管和工作环境。所有答案都是匿名的，请您尽量坦率回答。出于研究目的会将这些结果综合在一起，绝不会识别任何个人、主管或者销售代表。对于下列每个问题，请用 1-5 进行评分，1 表示强烈反对，5 表示非常赞同。

强烈反对 1	不同意 2	不确定 3	同意 4	非常赞同 5

1. 我的工作目标明确
2. 我的经理会经常比较我与其他销售人员的业绩。
3. 我一直符合主管的期望。
4. 我获得了实现目标所需的充分资源。
5. 在我公司中被认可的程度取决于您与其他销售人员销售排名的比较
6. 我们最大竞争对手的合规基础结构与我们的一样有效。
7. 我所合作过的供应商（如分销商、物流公司、活动主办公司）的合规基础结构与我们的一样有效。

Team Self-reported unethical behaviour (Self-reported unethical behaviour scale, from Peterson 2002)**.** Please consider the following activities. To what extent have you witnessed each activity *in your sales team** during the last 4 weeks in the context of work? Please be as candid as possible and remember that all responses are anonymous. For each question please answer on a scale of 1-5, from 1 (never) to 5 (always)

Never	Rarely	Sometimes	Very Often	Always
1	2	3	4	5

**reporting to the same supervisor as you are*

1. Taking longer than necessary to do a job
2. Claiming credit for someone else's work
3. Doing personal business on company time
4. Using company resources for personal use
5. Padding an expense account
6. Giving gifts/favors in exchange for preferential treatment
7. Divulging confidential information about a fellow employee
8. Lying to conceal an error
9. Passing blame for errors to an innocent co-worker
10. Falsifying customer call reports

请您考虑下列活动。在最近 4 周的工作中，据您观察，您所在的销售团队* 当中， 在多大程度上发生了以下每项活动？请记得所有的回答都是匿名的，所以请您尽量坦率回答。对于每个问题，请用 1-5 进行评分，1 表示从不，5 表示总是。

从不	很少	有时	经常	总是
1	2	3	4	5

** 与您向同一位主管汇报的同事们*

1. 完成一件工作花费的时间超出所需的时间
2. 用其他人的工作来邀功
3. 工作时间内处理私人事情
4. 将公司的资源归个人使用
5. 虚报费用
6. 通过送礼/帮忙换取优惠待遇
7. 泄露同事的机密信息
8. 撒谎以隐瞒过
9. 将过失归咎于无辜的合作者
10. 篡改客户拜访

Measure of Perceived Interactivity, Technology acceptance and Perceived ubiquity. You have been chosen to work with the Compliance Smartphone App ("CSA"). We would like to get your feedback on the usage of this technology and how it influences your daily work. For each question please answer on a scale of 1-7, from 1 (Strongly Disagree) to 7 (Strongly Agree)

Strongly disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

您已经在工作中使用合规指导手册 App（"CSA"）。我们希望获得您对此项技术使用方面的反馈意见，并且了解它对您日常工作有怎样的影响。对于下列每个问题，请用 1-7 进行评分，1 表示强烈反对，7 表示非常赞同。

强烈反对	不同意	基本不同意	不确定	基本同意	同意	非常赞同
1	2	3	4	5	6	7

Measure of Perceived Interactivity (from McMillan 2002)

1. The App enables 2-way communication
2. The App provides immediate answers to questions
3. The App operates at high speed
4. The App enables use at any time, any place
5. The App does not keep my attention
6. It is easy to find my way around the App
7. The App is interactive
8. The App enables conversation

1. 此移动应用实现了双向沟通
2. 此移动应用可即刻提供问题的答案
3. 此移动应用可以高速运行
4. 此移动应用能够随时随地使用
5. 此移动应用没有引起我的关注
6. 利用此移动应用时不容易迷失
7. 此移动应用是交互式的
8. 此移动应用实现了对话

Technology Acceptance (Attitude towards App Usage, from Kim 2014)

1. I am favorable towards using the App
2. I like to use the App
3. I am positive towards using the App

1. 我支持使用此移动应用
2. 我喜欢使用此移动应用
3. 我支持使用此移动应用

Perceived Ubiquity (Customized)

1. Everyone who has it is using the App now
2. I use the App all the time
3. The App is indispensable for my daily work

1. 装了此移动应用的人都正在使用它
2. 我一直在使用此移动应用
3. 此移动应用对于我的日常工作必不可少

Appendix B

Third Party Audit Report Template

On-site Monitoring Checklist
现场检查清单

Part I: Basic information verification: **基本信息核对**			
ARC code 编码		Date of Monitor 检查日期	
Activity City 活动地点		Monitor Name 检查人	
Activity Type 活动类型		ARC Amount ARC 金额	
Event Organizer/Owner 活动组织者/负责人		Applicant Name 活动申请人	
UCB MICE vendor name (or n/a) 供应商		Line manager (of Owner) 直线经理（负责人的）	
Start date(Per ARC) ARC 开始日期		Actual start date 实际开始日期	
End date(Per ARC) ARC 结束日期		Actual end date 实际结束日期	
Start time(Per ARC) ARC 开始时间		Actual start time 实际起始时间	
End time(Per ARC) ARC 结束时间		Actual end time 实际结束时间	
ARC meeting location (Per ARC) ARC 会议地点		Actual meeting location 实际会议地点	
ARC meal location (Per ARC) ARC 用餐地点		Actual meal location/Take away food supplier 实际用餐地点/外卖提供的餐厅名称	

Take away food (Yes/No) 外卖 (是/否)		Actual meal location (detailed information, e.g. address, branch, private room) 实际用餐地点 (详细信息，如地址，分店，包厢)	
Reasonable Difference(Yes/No) ARC 与实际不一致是否有可接受理由（是/否）	Event date 活动日期	Event Time 活动时间	Event Location 活动地点
Other comments: Explanation from meeting organizer for the difference: 其他意见： 会议组织者对差异的解释：			
Part II: Result 第二部分：结果			
Monitor attend the event (Without limitation or with limitation) 检查员是否参加活动（有限制或无限制）			
Meeting postponed or cancelled 会议推迟或取消			
Uncooperative 会议组织者不合作			
i. Speaker - Unapproved speaker and Chairman used (Yes/No)? **i. 讲者- 有未经审核的讲者和主席演讲（是/否）？**			
Name of speaker in ARC ARC 中讲者姓名		Actual name of speaker 实际讲者姓名	
Name of chairman in ARC ARC 中主席姓名		Actual name of chairman 实际主席姓名	
Speaker - Actual No. of speakers (including chairman) is less than in ARC (Yes/No)? **讲者 - 实际讲者（含主席）人数比 ARC 中人数少？（是/否）？**			

No of case sharing speakers (Per ARC) ARC 中案例分享讲者数量		Actual No. of case sharing speaker 实际案例分享讲者数量	
No of other speakers (Per ARC) ARC 中其他讲者数量		Actual No. of other speaker 实际其他讲者数量	
No of chairman (Per ARC) ARC 中主席数量		Actual No. of chairman 实际主席数量	
Explanation from meeting organizer for the difference/other comment: 组织者对差异的解释/其他意见			
ii. Participants - Differences between ARC plan **ii. 参与者-ARC 人数与实际不一致**			
Meeting/ event-ARC No. of participants(Non UCB staff) ARC 会议/活动人数(HCP)		Meeting / event Actual No. of participants(Non UCB staff) 实际参加会议/活动人数(HCP)	
Meeting/ event-ARC No. of UCB staff ARC 会议/活动 UCB 人数		Meeting/ event-Actual No. of UCB staff 实际参加会议/活动人数	
Meeting/ event-No. on sign-in sheet(Non UCB staff) 签到表会议/活动人数（HCP）		Meal-Actual No. of participants(Non UCB staff) 实际参加用餐人数（HCP）	
Meeting organizer attended the meeting/event (Yes/No) 会议组织者出席了会议/活动		Meal-Actual No. of participants(UCB staff) 实际参加用餐 UCB 人数	
Explanation from meeting organizer for the difference/other comment: 会议组织者对差异的解释/其他意见			
iii. Materials - Unapproved material used ? (Yes/No)iii. 实际使用的材料未经审核（是/否）			
LPSRC Code in ARC ARC 中 LPSRC 编码		Actual LPSRC Code 实际 LPSRC 编码	

MS-Code in ARC ARC 中 MS-Code		Actual topic of Mini-salon 迷你沙龙话题	
		Actual materials without code (Yes/No) 实际材料无编码（是/否）	
Materials -Actual No. of materials more than ARC in ARC? (Yes/No) **材料-实际材料数量比 ARC 申请的多?（是/否)**			
ARC No. of materials ARC 使用材料的数量		Actual No. of materials 实际使用材料的数量	
Explanation from meeting organizer for the difference: 会议组织者对差异的解释			
iv. Duration - Actual meeting duration is 50% shorter than ARC duration **iv. 会议时间-实际会议时间比 ARC 少 50%**			
Speaker 1 speech duration in ARC (minutes) 第一位讲者 ARC 中演讲时间（分钟）		Actual speaker 1 speech duration (Minutes) 第一位讲者实际演讲时间（分钟）	
		Name of Speaker 1 第一位讲者姓名	
Speaker 2 speech duration in ARC (minutes) 第二位讲者 ARC 中演讲时间（分钟）		Actual speaker 2 speech duration (Minutes) 第二位讲者实际演讲时间（分钟）	
		Name of Speaker 2 第二位讲者姓名	
Speaker 3 speech duration in ARC (minutes) 第三位讲者 ARC 中演讲时间（分钟）		Actual speaker 3 speech duration (Minutes) 第三位讲者实际演讲时间（分钟）	
		Name of Speaker 3 第三位讲者姓名	
Chairman speech duration in ARC (minutes) 主席 ARC 中演讲时间（分钟）		Actual chairman speech duration (Minutes) 主席实际演讲时间（分钟）	

		Name of chairman 主席姓名	
UCB employee speech duration in ARC (minutes) ARC 中 UCB 员工演讲（时间）		Actual UCB employee speech and discussion duration (minutes) 实际的 UCB 员工演讲（分钟）	
Discussion duration in ARC (minutes)ARC 中会议讨论时间（分钟）		Actual discussion duration (minutes)会议讨论时间（分钟)	
ARC event duration (minutes) ARC 会议时间（分钟）		Actual event duration (Minutes) 实际会议时间（分钟）	
Explanation from meeting organizer for the difference: 会议组织者对差异的解释			
v. Cost - Total meal cost over ARC amount **v. 费用-餐费总额超 ARC 餐费金额**			
ARC Total Meal Cost (RMB) ARC 餐费合计（人民币）		Actual - Total Meal Cost(RMB) 实际餐费合计（人民币）	
ARC Total Meeting Venue Rental (RMB) ARC 会议场地租赁费合计（人民币）		Actual - Total Meeting Venue Rental (RMB) 实际会议场地租赁费合计（人民币）	
Use company credit card pay the expenses (Yes/No) 使用公司信用卡付款（是/否）			
Comments: 意见：			
vi. Compliance issue **vi. 合规问题**			
Gifts given to client? (Yes/No) 是否有赠送客户礼物？		Is sightseeing arranged? (Yes/No) 是否有安排观光游览？	
Others or explanation : 其他情况或组织者解释：			

vii. Meal Observed **vii. 是否观察用餐**			
Yes/No 是/否		If No, Reason why does not monitored 如否，说明理由	
viii. Additional information (Yes/No)其他信息（是/否)			
Meeting happened with minor issue 会议发生有微小合规问题	The actual meeting is inconsistent with ARC with minor issue, e.g., inconsistent meeting location. 实际执行与 ARC 申请数据不一致（但不算严重合规问题）。例如：用餐地点变更，但未更新 ARC 数据		
Meeting postponed or cancelled 会议推迟或取消	The meeting organizer informed GT that the meeting is postponed or cancelled but did not update in ARC. 会议组织者告知飞检人员活动延迟或正式取消，但未更新 ARC 数据		
Uncooperative 会议组织者不合作	Couldn't access owner in ARC 会议组织人不回复飞行检查的要求		
	Couldn't access line manager of the owner, line manager failed to assist during Per ARC/unable to access to the owner either 直线经理不回复飞行检查的要求，也不协助飞行检查人员/未能联络到会议组织人		
	Event organizer stated the event is already completed, but did not updated in ARC 被挑中飞行检查后，告诉飞检人员活动已经提前举办了，但未更新 ARC 数据		
	Event organizer provided the wrong information (time, location) which resulted in GT unable to attend the meeting. 会议组织人提供错误的信息给飞检人员以致于活动无法成功检查；		
	After receiving the monitoring call/sms, the meeting organizer did not follow up any further meeting changes with GT 在接到飞检人员的电话或短信后，会议有所变化（如时间，地点变化），但未		

	向飞检人员跟进，导致飞检人员无法成功检查；	
	Other situation that active or passive noncooperation 其他主动或被动不合作情况：	Comments: 意见：
Limitations 有限制的情况	No allow to enter the meeting room/place 不允许飞检人员进入会场执行他/好的检查工作	
其他情况： Other situations:	No photos (attendees, sign-in list,cost breakdown), or photo were provided by meeting organizers. 不允许拍照（参与者、签到表、消费明细单等）	
III. Other comments **III. 其他意见**		

Formula driven cells **包含公式的单元格**	Fill in according to ARC data 按照 ARC 中信息填写	Fill in the actual data 按照实际观察的情况填写

Appendix C

List of Figures

Appendix D

List of Tables