The art of effective interpersonal trust repair : fixing a broken trust between strangers

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**THE ART OF EFFECTIVE INTERPERSONAL TRUST REPAIR:
FIXING A BROKEN TRUST BETWEEN STRANGERS**

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School of Social Sciences

A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirement for the degree of
Doctor of Philosophy

2019

Statement of Originality

I hereby certify that the work embodied in this thesis is the result of original research, is free of plagiarised materials, and has not been submitted for a higher degree to any other University or Institution.

18 January 2019

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Lim Yu Sin

Supervisor Declaration Statement

I have reviewed the content and presentation style of this thesis and declare it is free of plagiarism and of sufficient grammatical clarity to be examined. To the best of my knowledge, the research and writing are those of the candidate except as acknowledged in the Author Attribution Statement. I confirm that the investigations were conducted in accord with the ethics policies and integrity standards of Nanyang Technological University and that the research data are presented honestly and without prejudice.

18 January 2019

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Date

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Dr. Ho Moon-Ho Ringo

Supervisor Declaration Statement

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18 January 2019

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Dr. Yohanes Eko Riyanto

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Abstract

Interpersonal trust can be easily broken due to various trust-violating incidents. Trust reparative effort is vital since interpersonal trust predicts many positive outcomes. This thesis seeks to understand the effectiveness of interpersonal trust repair between two strangers of zero acquaintance. Using meta-analytic approach, this thesis examined the effectiveness of existing trust repair strategies as well as the moderators of methodological concerns and theoretical interests that may account for differences in their trust reparative effectiveness. In addition, this thesis investigated the effectiveness of apology, promise, and financial compensation on explicit trust violation and implicit trust violation through repeated trust games. Furthermore, this thesis explored the influence of different individual difference variables, such as social value orientation and implicit beliefs of moral character, on interpersonal trust reparative effectiveness. The thesis concluded with discussion on the implications of the findings and directions for future research.

Key words: interpersonal trust repair, strangers, zero acquaintance, trust repair strategies, apology, promise, financial compensation, explicit trust violation, implicit trust violation, individual difference.

CHAPTER ONE: INTRODUCTION

The Art of Effective Interpersonal Trust Repair: Fixing a Broken Trust between Strangers

Being a fundamental component of social capital (Paxton, 1999), trust serves to stabilise interpersonal relationships (Dirks & Ferrin, 2002) and reduce likelihood of taking advantages of one another in our daily interactions with people around us (Belot, Bhaskar, & van de Ven, 2012). Trust facilitates open communication and promotes information sharing (Creed & Miles, 1996). Trust also improves cooperation (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997; Messick et al., 1983) and increases joint outcomes (De Cremer, Snyder, & Dewitte, 2001; Parks, Henager, & Scamahorn, 1996), promoting effectiveness, efficiency, and productivity (Morgan & Hunt, 1994). Trust has a role to play in social integration and societal stability as well (Putnam, 1995). With more diverse workgroups in modern times, trust has become a necessity for team members from different cultural backgrounds to interact and work together amicably (Mayer, Davis, & Schoorman, 1995). Inevitably, interpersonal trust has often been taken for granted and it is easily broken between interaction partners. If broken trust is not mended, interpersonal relationships will be at stake due to unsettling emotional pain and perceived vulnerability in social interactions. Hence, this thesis focuses on providing insights to effective interpersonal trust repair between two individuals of zero acquaintance, specifically strangers, after an incident of broken trust.

Trust and Its Necessary Conditions

Given the essential roles of trust, there has been an explosive amount of research on trust development over the past two decades (Flores & Solomon, 1998; Gausdal, 2012; Lewicki &

Bunker, 1995; Macy & Skvoretz, 1998; Yousafzai, Pallister, & Foxall, 2005). As a result, trust has become a concept that is being studied across many disciplines, such as economics (North, 1990; Williamson, 1993), psychology (Kelley, 1967; Tyler, 1990), sociology (Blau, 1964; Granovetter, 1985; Luhmann, 1979; Zucker, 1986), and business management (Eisenhardt, 1989; Mayer et al., 1995), as well as the latest sub-disciplines of behavioural economics (Bohnet & Huck, 2004; Frey & Stutzer, 2007) and neuroscience (Dimoka, 2010; Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005; Rule & Ambady, 2008). From a cross-disciplinary perspective, trust can be defined as “a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behavior of another” (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395).

Trust can only exist when there is interdependence between interaction partners, in which the interests of one partner cannot be achieved without relying on another partner, and there must be risk involved in this relationship, such that there is some probability of loss if one party defaults unexpectedly (Rousseau et al., 1998). This means that if there is no interdependent relationship with another party in the presence of risk, no interpersonal trust can occur since one is making decisions solely based on one's own risk preferences. If there is no inherent risk or when perfect information is publicly available to both parties in an interdependent relationship, there is no need to trust since one party has the same amount of information as the other party to make an informed judgment independently.

Trust Building and Its Competing Perspectives

There are competing perspectives of trust development in the literature. Transformational perspectives of trust suggest that trust starts low or even from zero and develops over time through repeated interpersonal interactions (Lewicki & Bunker, 1995; McAllister, 1995;

Rousseau et al., 1998; Shapiro, Sheppard, & Cheraskin, 1992) while the concept of swift trust suggests that individuals can in fact exhibit high levels of trust even without prior interaction (McKnight, Cummings, & Chervany, 1998; Meyerson, Weick, & Kramer, 1996; Weber, Malhotra, & Murnighan, 2005).

Transformational perspectives of trust. Both Lewicki and Bunker (1995) and Shapiro et al.'s (1992) taxonomy of trust propose three distinct types of trust, namely calculus-based trust (also known as deterrence-based trust), knowledge-based trust, and identification-based trust, that transform over time from one of calculative and cognitive nature to one of relational and affective nature. Calculus-based trust refers to the type of trust in which interaction partners weigh benefits resulting from developing and maintaining a relationship relative to the costs of sustaining or discontinuing it (Lewicki & Bunker, 1995), or that such trust is being sustained only through the consequences of not maintaining the trust as the long-term potential costs of severing the relationship as well as the probability of retributive action outweigh the short-term benefits of acting in an opportunistic manner (Shapiro et al., 1992). Knowledge-based trust refers to the type of trust that is rooted in the ability to understand the other partner's needs and preferences sufficiently well, hence making the other partner's behaviours predictable (Lewicki & Bunker, 1995; Shapiro et al., 1992). Identification-based trust refers to the type of trust that is grounded in identifying with mutual values and interests, and acting for each other's best interests (Lewicki & Bunker, 1995; Shapiro et al., 1992).

Similarly, Rousseau et al. (1998) suggest two types of trust, calculus-based trust, one that is based on rational choice and credible information, such as reputation regarding the intentions or competence of the other partner, and relational trust, one that derives reliability and dependability from repeated interactions over time, resulting in formation of attachments based

on reciprocated interpersonal care and concern. Rousseau et al.'s (1998) calculus-based trust and relational trust are equivalent to McAllister's (1995) cognition-based trust and affect-based trust.

Generally, proponents of transformational perspective of trust development support the view that trust starts low and develops over time through repeated interpersonal interactions.

Concept of swift trust. The concept of swift trust is real as many studies have observed moderate levels of trust between strangers of zero acquaintance even when there is only one opportunity for interaction (Berg, Dickhaut, & McCabe, 1995; Buchan, Croson, & Solnick, 2008; Ciriolo, 2007; Desmet, De Cremer, & van Dijk, 2011b; Fehr & List, 2004; Houser, Schunk, & Winter, 2010; Nakayachi & Watabe, 2005; Song, Cadsby, & Bi, 2012; Takahashi et al., 2008). This observation may be attributed to individual's disposition to trust, feelings of dependence on others, a belief that impersonal structures, such as laws and regulations, can support one's likelihood of success in a given situation, as well as rapid, cognitive cues arising from group membership and stereotypes (McKnight et al., 1998; Meyerson et al., 1996; Weber et al., 2005). Hence, this perspective of trust development suggests that initial trust does not start from zero and there is moderate level of trust to begin with in our interpersonal interactions by drawing on environmental cues and past experiences.

Trust Violation and Its Specific Types

Trust is fragile and it can be easily broken (McKnight et al., 1998; Meyerson et al., 1996; Weber et al., 2005). Trust violation is something very inevitable in our day-to-day interpersonal interactions, be it of intentional or alleged nature (Kim, Ferrin, Cooper, & Dirks, 2004).

Ozturk and Ozmen (2013) have identified common causes of trust violations among co-workers and they can be broadly classified into three main types, namely competence-based trust violation, integrity-based trust violation, and benevolence-based trust violation. Firstly,

competence-based trust violation refers to the (i) lack of qualification, such as having no ability, giving wrong information, or having unjustified expectations, (ii) lack of performance, such as displaying negligent work style, submitting sloppy job, sharing little or no information, expressing impatience, or showing weak employee focus of attention, and (iii) lack of self-enhancement. Secondly, integrity-based trust violation refers to the (i) broken promises, (ii) disclosure of work information, such as disclosing personal information or gossiping behind others' back, (iii) inconsistent behaviors, (iv) lack of civic virtue, such as sabotaging, lying, practising espionage, disobeying rules, or making unauthorised actions, (v) blameworthiness, such as making wrongful accusations, and (iv) negative intentions. Lastly, benevolence-based trust violation refers to the (i) lack of altruism, such as being unwilling to help, and (ii) transgressors' self-serving ambitions, such as having competition motive, prioritising self-interest, or driving for prominence.

Researchers have explored the negative incidents of interpersonal trust breaches and classified them accordingly to the three types of trust violation using a qualitative approach (Fraser, 2010; Ozturk & Ozmen, 2013). However, empirical research on trust repair is still in its nascent stage and it is currently focusing on competence-based trust violation and integrity-based trust violation (Kim, Cooper, Dirks, & Ferrin, 2013; Kim, Dirks, Cooper, & Ferrin, 2006; Kim et al., 2004).

Although it is important to ensure that the three types of trust violation are conceptually distinct from one another, a review of the relevant literature has found attempts in distinguishing them to be inconclusive, especially between integrity-based trust violation and benevolence-based trust violation. Also, benevolence and integrity can be considered as basic features of character (Colquitt, Scott, & LePine, 2007). Relatedly, benevolence-based trust violation is likely

to be similar in nature as integrity-based trust violation and they can be collectively known as character-based trust violation. This may possibly be why empirical research on benevolence-based trust violation seems to be neglected (Kim, Dirks, & Cooper, 2009).

This thesis has made the first attempt to provide working definitions to ensure conceptual clarity of competence-based trust violation, integrity-based trust violation, and benevolence-based trust violation in order to assure robustness of future empirical research in the literature. Competence-based trust violation refers to unfulfilled expectations as one lacks the technical and interpersonal skills required for the specific job; integrity-based trust violation refers to unfulfilled expectations as one is being inconsistent between words, principles, and actions, or not having a strong sense of justice, that harms someone else directly as a result; benevolence-based trust violation refers to unfulfilled expectations as one is not doing good for others or unwilling to do it as anticipated, but acting for one's own self-serving interests without causing direct harm to someone else.

Most people may inaccurately classify causes of integrity-based trust violation as benevolence-based trust violation or vice versa. Hence, this thesis distinguishes integrity-based trust violation from benevolence-based trust violation by indicating whether such a perceived violation causes direct harm to another party as a result of the specific action taken. For instance, an experienced sales executive may be expected to provide guidance and support to his less experienced colleagues in his team to nurture and help them grow in his field. However, this executive may decline to assist, either not wanting to help or being unwilling to help, resulting in benevolence-based trust violation. But if this executive attempts to discredit his colleagues' contribution and claim credit for himself instead, this issue will likely become an integrity-based trust violation in the eyes of his victims. In layman terms, benevolence-based trust violation may

refer to not doing good things for others but not to the extent of doing bad things to harm others while integrity-based trust violation involves doing bad things to harm others directly.

Both integrity-based trust violation and benevolence-based trust violation can also be distinguished using Reeder and Brewer's (1979) schematic model of dispositional attribution in interpersonal perception. Integrity refers to a hierarchically restrictive trait dimension that is asymmetrical with regard to how easily trait expectancies are disconfirmed by behaviours. For instance, although it is not unusual for a dishonest person to perform an infrequent honest behaviour, an honest person is not anticipated to perform any dishonest behaviour. One dishonest behaviour disaffirms the trait expectancy that the target person is honest. On the other hand, benevolence refers to a partially restrictive trait dimension that is symmetrical with regard to how easily trait expectancies are disconfirmed by behaviours. For instance, if someone believes another person to be friendly, infrequent unfriendly behaviours are still tolerated. Similarly, an unfriendly individual may be expected to act friendly at times.

Victims of trust violation are likely to experience distributive injustice due to perceived unfairness from the resulting outcome, as well as interactional injustice due to communicated disrespect from the act of trust violation (Lount, Zhong, Sivanathan, & Murnighan, 2008). A sense of betrayal may arise (Luhmann, 1979), deepening the experience of emotional displeasure. Emotions with negative valence, such as anger, will further reduce trust perception (Dunn & Schweitzer, 2005). With damaged trustworthy perception of their interaction partners resulting from a broken trust (Kim et al., 2009), mutual cooperation is undermined (Schweitzer, Hershey, & Bradlow, 2006).

Given the detrimental effects of trust violation, immediate attention is necessary to repair interpersonal trust once it is broken. More research effort should be dedicated to look into trust repair since research in this area is relatively undernourished.

Trust Repair and Its Causal Attribution Model

According to Tomlinson and Mayer's (2009) casual attribution model of trust repair, emotional displeasure will be experienced when victims encounter a negative outcome but trust in their respective interaction partners may not necessarily decrease right at the start (see Figure 1). This emotional reaction will prompt victims to identify the cause of this negative outcome. They will first determine whether to attribute this negative outcome internally to their respective partners or to external factors. If they attribute the cause to external factors, the trustworthiness perception of their partners may not be affected. However, if they attribute it to their respective partners, these victims will probe further as to whether the cause of negative outcome is within their partners' control and whether similar negative outcome is going to happen over and over again. The greater control that their respective partners are perceived to have over this negative outcome, the more severe will be the negative impact on trust. Similarly, the more stable is the cause of the negative incident due to the impaired trustworthiness dimensions of their partners, the greater will be the reduction in trust since there is a high probability of recurrence of such negative outcome.

According to this causal attribution model of trust repair, a victim's perception of his partner's controllability in the negative outcome creates anger towards his partner while the victim's perception of stability of the cause of negative outcome due to his partner's flawed trustworthiness creates fear in continuing a future relationship with his partner (Tomlinson & Mayer, 2009).

For instance, an investment banker recommends an investment portfolio for one of his clients and great financial loss is experienced by this client few months later. This client is likely to feel disappointed over this financial loss and seek to identify the cause of this negative outcome. If the investment market is generally experiencing an economic downturn, the client may simply attribute to external factors, such as a global financial crisis. However, the client may attribute his financial loss to lack of sound advice from the investment banker. If the client deems the investment banker to have high level of control over the financial loss he suffers, he is highly likely to feel angry with this banker for not forewarning him of the downside risks, especially when the investment market is probably at its peak level. If the client deems the investment banker to have flawed trustworthiness which is likely to be stable, it is unlikely for the client to trust his money with this banker moving forward since the stability of the cause of negative outcome is high and it is highly probable for the banker to neglect client's interests in order to meet own performance targets. The client will be fearful in extending a future relationship with this investment banker.

Weiner's (1985) controllability attribution is likely to be relevant in interpersonal trust repair. Trust repair strategies should be adopted to reduce anger in the victim by mitigating transgressors' perceived controllability in the trust-violating incident so that trust restoration can be possible.

Weiner's (1985) stability attribution is especially important in interpersonal trust repair since it is the key driver of future expectations in subsequent interactions with the transgressors. The stability of the cause of a negative incident speaks to whether the same issue will happen in the future under similar circumstances, which can affect the victims' willingness to trust the transgressors in their future interactions. For victims to trust again, they must be able to foresee

low likelihood of future trust violations (Tomlinson, Dineen, & Lewicki, 2004) and perceive the cause of the negative incident to be temporary, not permanent or stable. Trust repair strategies are necessary to address this future concern adequately so as to minimise fear in the victims about the prospect of future violation by the transgressors.

In sum, trust repair strategies can be administered by the transgressors to reduce perceived culpability in the past violation or express commitment in future interactions, or reduce specific emotions, such as anger and fear.

Trust Repair and Its Effective Strategies

Trust repair is a dynamic process of mending the damaged positive expectations in the interaction partner (Kramer & Lewicki, 2010) by improving trust beliefs and trust intentions towards this partner after trust is broken (Kim et al., 2009; Lewicki & Bunker, 1995; Robinson, 1996). Trust repair strategies are techniques that help to improve trust beliefs and trust intentions after violation of trust is perceived (Kim et al., 2004).

There are many trust repair strategies being identified in the literature, such as apology (Kim et al., 2004), denial (Sigal, Hsu, Foodim, & Betman, 1988), explanation (Shapiro, 1991), financial compensation (Bottom, Gibson, Daniels, & Murnighan, 2002; Desmet, De Cremer, & van Dijk, 2011a; Desmet et al., 2011b), and promise (Schniter, Sheremeta, & Sznycer, 2013; Schweitzer et al., 2006).

Reeder and Brewer's (1979) dispositional attribution in interpersonal perception can be extended to study interpersonal trust repair. According to Reeder and Brewer (1979), individuals tend to weigh positive information about competence more heavily than negative information about competence, but they weigh negative information about integrity more heavily than positive information about competence. Indeed, Kim et al. (2004) made related predictions about

competence-based and integrity-based trust violations based on these fundamental differences how individuals make judgments. According to Kim et al. (2004), a trust repair strategy may signal a sense of guilt, which provides negative information, as well as a sense of redemption, which provides positive information about the trust repair attempt. The effectiveness of a trust repair strategy as a response to an incident of broken trust depends on the nature of trust violation itself, which affects whether the positive benefits of its sense of redemption outweigh its negative costs through its sense of guilt or vice versa (Kim et al., 2004).

When competence-based trust violation occurs, the positive information relayed through the signals of redemption weigh more than the negative information implied from the signals of guilt (Kim et al., 2004). Signals of redemption are more diagnostic than signals of guilt when it comes to repairing competence-based trust violation (Ferrin, Kim, Cooper, & Dirks, 2007). Hence, apologies are found to work better than denials in repairing interpersonal trust after an incident of competence-based trust violation has occurred (Ferrin et al., 2007; Kim et al., 2004).

When integrity-based trust violation occurs, the negative information implied from the signals of guilt weigh more than the positive information relayed through the signals of redemption (Kim et al., 2004). Signals of guilt are more diagnostic than signals of redemption when it comes to repairing integrity-based trust violation (Ferrin et al., 2007). Hence, denials are found to work better than apologies in repairing interpersonal trust after an incident of integrity-based trust violation has taken place (Ferrin et al., 2007; Kim et al., 2004).

A review of the current literature reveals conflicting empirical results showing apology being effective in repairing trust in some studies (Kim et al., 2004; Schniter et al., 2013; Tomlinson et al., 2004) but ineffective in other studies (Schweitzer et al., 2006; Tomlinson, 2012). For example, the apology used in Kim et al. (2004) studies included admission of

responsibility, expression of regret, as well as a statement regarding future intention, and it is found to be effective in trust repair. However, Schweitzer et al. (2006) attempted to separate this future-oriented component from their apology manipulation in order to distinguish apology from promise and they found that only promise, but not apology, is effective in trust repair. This illustrates the inadequacy in evaluating trust repair effectiveness simply by assessing the effectiveness of commonly known trust repair strategies due to inconsistencies in manipulating these strategies across different studies. In fact, it may be more useful to examine the underlying trust repair components that are being used in manipulating various trust repair strategies in experimental studies. Hence, it motivates research effort to identify the underlying trust repair components that make trust repair strategies effective as clarifying on these components is important for accurate manipulation of trust repair strategies in experimental studies.

Trust Repair and Its Core Components

An organised attempt has been made to review related papers that look specifically at the components of trust repair strategies. In fact, most of these related papers are mainly studying the components of apologies from different disciplines, which includes business management (Dirks, Kim, Ferrin, & Cooper, 2011; Fehr & Gelfand, 2010; Kim et al., 2004; Lewicki & Polin, 2012), linguistics (Blum-Kulka & Olshtain, 1984; Scher & Darley, 1997), and sociology (Schlenker & Darby, 1981). This review has illustrated conflicting information as to what are the underlying trust repair components that make trust repair strategies, such as apologies, effective in restoring interpersonal trust (see Figure 2).

In this narrative review, a trust repair component refers to the most basic unit of trust repair that cannot be further broken down into simpler units. Based on this criterion, all trust repair components mentioned in the literature are reviewed for inclusion or exclusion as unique

components of trust repair. As a result, six core components of trust repair are identified and included in this review while the others that do not justify as the most basic unit of trust repair are excluded.

Inclusion. This novel review unveils six core components of trust repair as follows (see Figure 1):

1. **Acknowledgement of responsibility.** When trust violation occurs, acknowledgement of responsibility is important as it conveys to victims that the transgressor is aware that some social norm or rule is being violated (Chapman & Thomas, 2006; Fehr & Gelfand, 2010; Lewicki & Polin, 2012; Scher & Darley, 1997). This is likely to affect attributions towards the transgressor as someone who is fundamentally good and enhance a victim's perception of the transgressor (Hill, 2013).
2. **Expression of regret.** An expression of regret may signal to the victim that the transgressor is feeling distressed and embarrassed, which induces empathy from the victim (Hill, 2013; McCullough et al., 1998), hence enhancing the overall effectiveness of a reparative attempt (Chapman & Thomas, 2006; Lewicki & Polin, 2012; Scher & Darley, 1997; Schlenker & Darby, 1981; Schweitzer et al., 2006).
3. **Explanation of transgression.** Victims like to receive an explanation of the transgression as to how it happens and why it occurs (Lewicki & Polin, 2012; Schweitzer et al., 2006) to make accurate judgment of the transgressor in that particular context (Tomlinson & Mayer, 2009). This may affect victim's attribution and perception of the transgressor (Hill, 2013).
4. **Promise of forbearance.** To repair trust successfully, a promise of forbearance is essential to communicate with the victim that the transgressor is willing to refrain

from future violations (Scher & Darley, 1997; Schweitzer et al., 2006). Promising to act respectfully towards the victim in the future helps to restore relationship inequality (Hill, 2013; Ohbuchi, Kameda, & Agarie, 1989).

5. **Offer of restitution.** An offer of restitution may also signal to the victim that the transgressor is willing to make things right and costs may be incurred on the transgressor to enhance his credibility (Chapman & Thomas, 2006; Fehr & Gelfand, 2010; Lewicki & Polin, 2012; Scher & Darley, 1997; Schlenker & Darby, 1981; Schweitzer et al., 2006). This may be achieved by using words of affirmation, acts of service, gift-giving, provision of quality time, physical touch, or monetary compensation. This attempt will help in restoring inequality experienced by the victim (Hill, 2013).
6. **Request of forgiveness.** A request of forgiveness may signal to the victim that repairing trust is a bilateral process and both parties have to work towards trust repair (Chapman & Thomas, 2006; Lewicki & Polin, 2012; Schlenker & Darby, 1981; Schweitzer et al., 2006). Such request of forgiveness will induce empathy from the victim (Hill, 2013), which in turn results in the victim exhibiting prosocial behaviours towards the transgressor (Eisenberg & Miller, 1987).

Each of the six core components of trust repair being identified in this review has been shown to be effective in fixing interpersonal trust individually. In Scher and Darley's (1997) paper, the authors have found that each of the four components of apologies, namely expression of regret, expression of responsibility, promise of forbearance, and offer of repair, has clear, independent, and additive effects on the transgressor's judgments. Independently, explanation of transgression has worked to mitigate blameworthiness by justifying at least partly to external

factors (Kim et al., 2009) to reduce perceived responsibility of the transgressor (Riordan, Marlin, & Kellogg, 1983). In a separate study by Schlenker and Darby (1981), the authors have found that a request of forgiveness is deemed to be the most complete component of apologies and it reflects high admission of self-blame that makes an apology most effective, as compared to other components.

Exclusion. The following “components” mentioned in existing literature are being excluded in this review:

1. Declaration of repentance
2. Self-castigation
3. Expression of empathy
4. Indication of voluntariness

Firstly, declaration of repentance is excluded since the understanding of repentance differs in the literature (Chapman & Thomas, 2006; Lewicki & Polin, 2012). Repentance is regarded as the sense of being truly regretful (Chapman & Thomas, 2006) or a promise of forbearance (Lewicki & Polin, 2012). The conceptualisation of repentance has been clarified as regretting one’s own actions (regret), being intrinsically committed to reform one’s personal shortcomings (reform), and having resolve to acting differently in the future (resolve; Dirks et al., 2011). Hence, declaration of repentance is excluded as it is not a unique trust repair component but it actually involves a combination of several components, namely acknowledgement of responsibility, expression of regret, and promise of forbearance.

Secondly, self-castigation involves elements of repentance and self-punishment, which can be verbal, such as criticism, or physical, such as penance (Schlenker & Darby, 1981; Schweitzer et al., 2006). Self-castigation may likely consist of four components, namely

acknowledgement of responsibility, expression of regret, promise of forbearance, and offer of restitution. Since self-castigation is not a unique trust repair component, it is excluded.

Thirdly, an expression of empathy involves displaying an understanding of the victim's point of view or consequences of an offence on victim's well-being in Fehr and Gelfand's (2010) paper. Based on how an expression of empathy is being described in Fehr and Gelfand's (2010) paper, this probable trust repair component may actually include two of the components raised by Schlenker and Darby (1981), namely acknowledgement of responsibility and expression of regret. Since an expression of empathy cannot be deemed as a unique trust repair component, it is being excluded as well.

Lastly, an indication of voluntariness signals a sense of sincerity in trust reparative attempts, such as providing monetary compensation (Desmet et al., 2011b). However, this sense of sincerity may be confounded by the costs transgressors may incur when providing monetary compensation. This is because these costs are known to signal sincerity in restoring trust with the victims as well (Ohtsubo & Watanabe, 2009). Hence, an indication of voluntariness is excluded after much consideration as it cannot be considered a unique component of trust repair.

Trust Repair and Its Temporal Orientations

These individual core components of trust repair that are included may also be classified accordingly to their respective temporal orientation as to whether they are past-oriented or future-oriented in nature. This means whether each of these trust repair components attempt to direct victims' attention backwards on past incident of trust violation or forward on future relationship after a trust-violating incident has occurred. In this thesis, trust repair components that focus reparative effort on the past violation are deemed to provide the retrospective

orientation in trust repair while those that focus reparative effort on future relationship are perceived to provide the prospective orientation in trust repair (see Figure 1).

Acknowledgement of responsibility and expression of regret are necessary components of apologies (Lewicki & Polin, 2012; Tomlinson, 2012) and apologies are found to mitigate victims' aggression (Ohbuchi et al., 1989), hence providing the "backward-looking" content in trust repair (Tomlinson, 2012). Also, explanation of transgression has been found to reduce transgressors' culpability for the past trust-violating incident, which is deemed to be "retroactively prophylactic" in nature (Kim et al., 2009), and external attributions are found to reduce anger in the victims as well (Weiner, Amirkhan, Folkes, & Verette, 1987). Hence, these three trust repair components are likely to provide the retrospective orientation in trust repair that seeks to reduce victims' anger by mitigating transgressors' perceived controllability in the trust-violating incident (Tomlinson & Mayer, 2009).

Promise of forbearance provides "forward-looking" content, in the form of commitment in future interactions, through trustworthy intent and demonstration of courtesy and concern (Tomlinson, 2012). This can be a powerful signal to express a positive intent to repair trust with the victims, giving them the confidence to trust again (Schniter et al., 2013). Offer of restitution conveys to the victims that the transgressors are willing to make things right and costs may be incurred on the transgressors (Scher & Darley, 1997), in which these costs signal sincerity in restoring relationship with the victims (Ohtsubo & Watanabe, 2009). Future-oriented individuals are found to be positively associated with unconditional request of forgiveness while past-oriented individuals are positively associated with inability in seeking forgiveness (Chiaramello, Muñoz Sastre, & Mullet, 2008). Thus, when one is seeking for forgiveness from the other party whom s/he has hurt, it is highly likely that s/he is prepared to rectify issues and move things

forward. These trust repair components can address the interactional justice concerns of trust repair (Tomlinson, 2012) by treating the victims with respect and dignity (Bies, 1987). Hence, these three components are likely to provide the prospective orientation in trust repair that seeks to minimise fear in the victims by controlling the perceived stability of the cause of negative incident due to transgressors' violated trustworthiness dimensions to be temporary, not fixed in future interactions (Tomlinson & Mayer, 2009).

Trust Repair and Its Dispositional Factors

A literature review of trust repair research has revealed that empirical effort has largely focused on its contextual factors, such as nature of trust violation and type of trust repair strategies being adopted, but neglects the role that individual differences may play in influencing interpersonal trust repair. Individual differences, such as trust propensity, trait forgiveness, and implicit beliefs of moral character, are likely to influence the effectiveness of interpersonal trust repair as well.

One such attempt is made by Haselhuhn, Schweitzer, and Wood (2010), who examine the effect of implicit belief of moral character on extent of interpersonal trust repair. They find that individuals who believe that moral character can change are more likely to regain trust of their interaction partners following an apology and trustworthy behaviour, as compared to those who believe that moral character cannot change (Haselhuhn et al., 2010).

This thesis endeavours to contribute to this interesting aspect of trust repair research that is understudied, besides clarifying on the inconsistencies and inaccuracies highlighted in earlier sections in existing trust repair literature. Most importantly, this research perspective will add value to existing trust repair theories or related models that focus on contextual factors by

providing a more comprehensive understanding of how interpersonal trust can potentially be repaired after it is broken.

CHAPTER TWO: BROAD OVERVIEW OF THESIS

Focus of Thesis and Its Research Questions

This thesis focuses on understanding the effectiveness of interpersonal trust repair between two individuals of zero acquaintance, specifically strangers, after a broken trust incident. This thesis seeks to understand if interpersonal trust repair is indeed possible. If yes, what can individuals do to repair trust in those whom they have hurt? This research question looks specifically into the effectiveness of commonly used trust repair strategies in our day-to-day interactions with people around us. If trust repair strategies are indeed effective, what are the conditions that will enhance or hinder their trust reparative effectiveness? This research question opens up possibilities to look not just into contextual conditions, but also into individual differences that may affect trust reparative effectiveness of these strategies.

Main Aims of Thesis

This section seeks to highlight the limitations and research gaps in existing trust repair literature as discussed earlier in prior chapter that are interesting to explore in this thesis as well as to state the specific aims that this thesis hopes to achieve.

Aim 1: To clarify effectiveness of trust repair strategies

The conflicting empirical results regarding effectiveness of apology found in existing studies motivates research effort in this thesis to review the general effectiveness of apology as well as other commonly known strategies on interpersonal trust repair. This inspires the first aim of this thesis. This thesis also examines the relative effectiveness of trust repair strategies in interpersonal context.

Aim 2: To examine variables that moderate trust reparative effectiveness

Methodological variations. This thesis seeks to understand what methodological variations in existing empirical studies affect effectiveness of interpersonal trust repair that may have accounted for such conflicting findings. This is an exploratory and novel attempt to review on the procedural differences among researchers in their conduct of empirical studies related to interpersonal trust repair.

Variables of theoretical interests. In addition, this thesis kindles excitement to explore various variables of theoretical interests. For instance, the current perspective of focusing on the general labels of commonly known trust repair strategies in trust repair literature may be inadequate to explain trust reparative effectiveness. As a result, this thesis attempts to move beyond these general labels and delve into the core components of trust repair, where each trust repair strategy may consist of one or more of these core components to be effective in restoring trust. Furthermore, a wide variety of trust-related dependent variables are being used in existing empirical studies, such as perceived integrity, willingness to risk, and amount of money passed in various behavioural economic games. Each of these variables may be categorised as trust beliefs, trust intentions, or trust behaviours, which may potentially affect the extent of trust reparative effectiveness since high perceived trust level does not necessary translate to actual behaviour that manifest trust in action.

Specifically, a variable of theoretical interest to highlight will be the nature of trust violation. Existing empirical studies manipulate competence-based trust violation as lacking technical expertise for the specific job and integrity-based trust violation as intentional (Kim et al., 2013; Kim et al., 2006; Kim et al., 2004). Firstly, it may be flawed to manipulate integrity-based trust violation as intentional if one focuses on the underlying characteristics of integrity,

which fundamentally has to do with honesty. Secondly, both types of trust violation may be intentional or unintentional in nature, depending on one's motives for trust violation. For instance, a tax adviser may have the relevant knowledge and expertise to resolve a corporate tax issue, but s/he may violate a nasty client's trust intentionally by appearing to be incompetent, hoping that this client can move this particular tax service to some other tax advisors. With this potential flaw in existing studies that manipulate integrity-based trust violation, it will be advisable to interpret existing study findings carefully.

Generally, there is no issue with manipulation of competence-based trust violation in the literature. However, it seems to be fundamentally flawed to manipulate integrity-based trust violation as being an intentional attempt to break trust. Hence, this thesis manipulates integrity-based trust violation based on its fundamental feature of dishonesty between one's words and actions. Also, this thesis examines explicit and implicit forms of integrity-based trust violation, in which trust is broken due to dishonesty in not fulfilling what one has said openly and translating into expected action or simply breaching some perceived norms respectively.

Indeed, a quick scan of existing trust repair studies using trust game paradigm reveals both explicit and implicit types of trust violation. An explicit trust violation usually involves a stated promise from the trustee or receiver in an interpersonal socio-economic relationship to return the trustor or sender a fixed sum of money in return for full transfer of money from the trustor or sender, but it turns out that this stated promise or expectation is not being fulfilled (Dirks et al., 2011, Study 1; Schniter et al., 2013). On the other hand, an implicit trust violation refers to this inferred equality norm that ought to be observed within an interpersonal socio-economic relationship and trust is assumed to be broken if this equality norm is not met (Dirks et al., 2011, Study 3; Tomlinson, 2012; Vasalou, Hopfensitz, & Pitt, 2008).

It may be interesting to investigate if comparable results will still be observed when integrity-based trust violation is manipulated as being dishonest by not fulfilling a promise. Also, this thesis attempts to investigate if explicit and implicit forms of trust violation adopted in existing literature actually differs in terms of interpersonal trust levels after a trust-violating incident as well as after a trust-repairing attempt.

In this thesis, integrity-based trust violation with this dishonest element will be known as explicit trust violation, manipulated as an openly stated promise of financial benefits not being fulfilled. On the other hand, an implicit trust violation refers to an implied equality norm within an interpersonal socio-economic relationship that is not being met. This sets forth the second aim of this thesis.

Aim 3: To understand the role of individual differences on trust reparative effectiveness

Current trust repair research has mainly focused on contextual factors, such as nature of trust violation, extent of harm severity, and type of trust repair strategies being adopted. However, the literature has neglected the role that individual differences, such as trait forgiveness and temporal focus, may play in affecting the interpersonal trust repair process. Thus, the third aim of this thesis seeks to provide a more holistic understanding of the individual difference variables influencing effective interpersonal trust repair, beyond merely contextual factors.

Overview of Methodology

To evaluate the effectiveness of interpersonal trust repair between two individuals of zero acquaintance after a broken trust incident, two studies are designed using a multi-method approach to achieve the main aims of this thesis and address the relevant research questions. The foci of these two studies are discussed below.

Study 1 is designed to meet the first aim of this thesis. It seeks to examine the effectiveness of commonly mentioned trust repair strategies between individuals after a negative incident of broken trust across different empirical studies using a meta-analytical approach. Chapter 3 provides further details regarding this study and its findings.

Study 2 is dedicated to satisfy the first and second aims of this thesis. It seeks to investigate the effectiveness of trust repair strategies, namely apology, promise, and financial compensation, after an incident of implicit trust violation or explicit trust violation between two individuals with zero acquaintance using an experimental study. The details are set out in Chapter 4.

Study 2 is also designed to satisfy the third aim of this thesis. Besides contextual factors affecting trust repair, this experimental study examines the effect of various individual difference variables on trust repair process. Chapter 5 reveals the relevant findings and interesting insights.

The final Chapter 6 discusses theoretical and practical contributions based on the findings from Study 1 and Study 2, as well as suggests interesting future research directions to better understand interpersonal trust repair.

Scope of thesis. The scope of this thesis has been carefully considered in order to achieve its main aims.

Firstly, this thesis focuses only on trust repair between two strangers so as to observe trust-building, trust violation, and trust repair phases in the experimental study using participants of zero perceived acquaintance. It is empirically necessary to first identify that trust level is actually building up before it can be violated, and subsequently being repaired. It will be less likely to observe the substantial growth in trust level during trust building phase if individuals with prior history are recruited into the study. Moreover, there are many moderator variables to

consider in this study even when focusing on interpersonal trust repair between strangers. In addition, it is unethical to run an experiment and break trust between two related individuals. In fact, all existing experimental studies either involve individuals of zero acquaintance or researchers will make use of scenarios to gauge how individuals may respond to trust-violating incidents. Hence, the scope of this study is narrowed down to interaction between strangers by keeping relationship closeness constant at zero.

Secondly, this thesis directs research effort to investigate interpersonal trust repair after only one incident of broken trust. The number of broken trust incidents may potentially be another contextual variable affecting interpersonal trust repair, hence restricting to just one incident of broken trust can serve as a control so as to focus on other variables of concern in this thesis. Also, it may be difficult to repair interpersonal trust when there are two or more incidents that break interpersonal trust and this will likely take many more rounds in the repeated trust games to eventually repair broken trust, making the research attempt experimentally unfeasible and possibly rendering research effort to look into other aspects of interpersonal trust repair fruitless.

CHAPTER THREE: STUDY 1 META-ANALYSIS

A Meta-Analytical Approach to Examining the Effectiveness of Interpersonal Trust Repair

This study aims to validate the effectiveness of trust repair strategies, as well as their relative effectiveness, across different empirical studies through a meta-analysis. Also, it seeks to determine the methodological variations across these studies as well as variables of theoretical interests that may affect the extent of trust reparative effectiveness.

Meta-analysis is a statistical technique that applies methodological rigour to a systematic literature review on a substantive question of research interest (Glass, 1976; Schulze, 2004). By combining all related quantitative studies, a meta-analysis reduces the effect of sampling error and enhances estimates of the variables of interest that researchers are concerned with (Hunter, 1997). The outcome variable is often a measure of effect size that is generally captured by a single summary statistic per data set, which can be either a standardised mean difference or a correlation coefficient (Schulze, 2004). The current meta-analytical study focuses on using standardised mean difference, d , for measuring effect sizes in the analyses.

Through meta-analysis, this study attempts to understand interpersonal trust reparative effectiveness and resolve contradictory findings on existing trust repair strategies, such as conflicting results being identified regarding the effectiveness of apology as a trust repair strategy in the existing literature. Three steps are involved. Firstly, a meta-analysis determines if the treatment effect of interest, quantified by effect size, is indeed present. Secondly, the meta-analysis estimates the overall average of effect sizes across the studies. Thirdly, it tests on the homogeneity of effect sizes across different studies. If the effect sizes are indeed heterogeneous, moderator analysis is then conducted to identify relevant variables that may account for such variability in effect sizes.

Method

Literature Search

The explanatory power of a meta-analytical study is dependent on the inclusion of all relevant quantitative papers for review. Hence, the first step was to identify relevant articles that investigate effectiveness of trust repair strategies that are commonly used between two individuals where one's trust gets violated. A literature search was performed using various databases, which included ABI/INFORM Collection, Academic Search Premier, Accounting, Tax & Banking Collection, Business Source Premier, Communication & Mass Media Complete, Education Source, Electronic Theses and Dissertations, Entrepreneurship Database, JSTOR, Library & Information Science Abstracts (LISA), ProQuest Dissertations & Theses Global, ProQuest SciTech Collection, PsycARTICLES, PsycINFO, ScienceDirect, and Web of Science, as well as academic search engine Google Scholar, using *trust repair* as the key phrase to obtain relevant published journal papers, conference papers, unpublished working papers, and dissertations starting from year 1980 to May 2017. Next, the reference sections of these obtained papers were examined for additional related papers. This initial literature search generated 224 trust repair research papers.

Inclusion Criteria

To be included in this meta-analysis, the following set of criteria was in place.

1. Only research papers written in English language were considered.
2. Only quantitative papers were chosen. This eliminated all qualitative papers, theoretical papers, narrative review papers, as well as case studies. There was no

field study on interpersonal trust repair found. Only experimental studies were included in this meta-analytical attempt.

3. The selected research papers had to assess effectiveness of trust repair strategies at interpersonal level, meaning that this meta-analysis was restricted to trust reparative efforts between two individuals, but not between two organisations or between an individual and an organisation. This criterion was set to align with the general focus of this thesis.
4. The study context should involve only one incident of broken trust. This meant that any study that involves more than one incident of trust violation in its study design would be excluded from this meta-analysis. This criterion was also set to be aligned with the general focus of this thesis.
5. The quantitative studies to be included should possess trust-related constructs, such as behavioural trust and trustworthiness perceptions, as their dependent variables.
6. The included papers should possess codable information, such as F statistics, t statistics, or mean and standard deviation, so that effect sizes can be computed for the different studies.

As a result, only 29 papers met the inclusion criteria.

Coding Procedure

The main author of this meta-analytical study, as well as another independent coder, were involved in the coding procedure. Overall agreement rate between both coders was 0.91, reflecting high inter-rater reliability in this meta-analysis. Both coders resolved disagreements through discussion and reference to original papers that were included in this study.

The quantitative papers included in this study were carefully coded on the following information; authors' first name, year of publication, name of journal, field of study, country of study, source of participants, sample size, gender composition, mean age of participants, payment of participation, incentive for participation, type of study design, type of study context, participant's perspective in study, nature of trust violation, power difference in relationship, type of relationship, type of trust repair strategies used, choice of dependent variable, as well as trust repair components being manipulated.

Some of these information are being coded for easy identification of the right papers to refer to, such as authors' first name, year of publication, and name of journal. From the field of study information provided, it gives us a sense of which research fields are active in understanding interpersonal trust repair and which fields are beginning to look into this interesting research area. The sample size of each study aids in the calculation of effect sizes. Gender composition and mean age of participants provide descriptions of each study sample in this meta-analysis. These information are coded but not being analysed as potential moderators.

The other coded information serve as potential moderators that account for observed variability in effect sizes in this study. These potential moderators may be classified as those concerning methodological variations in designing experimental studies as well as those of theoretical interests in interpersonal trust repair.

Methodological variations. Specifically, methodological variations refer to differences in how researchers carry out their respective experiments, in terms of study design and its procedure as well as data collection process. The moderators that fall under this category include payment for participation, incentive for participation, type of study design, type of study context, source of participants, and participant's perspective in study.

Payment for participation. From a researcher's point of view, it is of great value to know whether individuals who are paid for participation as compared to those who are not being paid will affect study outcomes.

Incentive for participation. It is interesting to understand if specific incentives for study participation, particularly course credits and monetary payment, do matter in affecting experimental results.

Type of study design. Individuals tend to have this forecasting error as they tend to overvalue the effect of an apology when they imagine receiving one than actually receiving it (De Cremer, Pillutla, & Folmer, 2011). Hence, it may be expected that the reparative effectiveness of trust repair strategies will be over-rated in scenario-based studies than in true experiments.

Type of study context. Similarly, the type of study context, such as tax accounting fraud scenario and repeated trust game context, can affect research findings as well, in similar fashion as the type of study design on trust reparative effectiveness.

Source of participants. The source of participants, be it university undergraduates, postgraduates, or working adults, is likely to affect trust repair process as older individuals tend to be more forgiving than younger individuals (Cheng & Yim, 2008). This moderator may potentially be a proxy to gauge the effect of age on trust reparative effectiveness too.

Participant's perspective in study. Participant's perspective refers to whether participants are taking part in the study from first party's point of view, in which they are actually experiencing trust violation and trust reparative effectiveness, or from a third party's point of view, in which they are imagining how they will feel from another party's perspective. It is likely

to be harder to repair trust when one experiences actual transgression than being asked from a third party's perspective.

Theoretical interests. Moderators of theoretical interests include nature of trust violation, choice of dependent variable, power difference in relationship, type of relationship, trust repair components, and country of study. The moderators in this category are those that can either be supported by existing theoretical frameworks or they can be contributing to refinement of conceptual models or theories.

Nature of trust violation. Existing literature describes how nature of trust violation, such as competence-based trust violation and integrity-based trust violation, can interact with the type of trust repair strategies, such as apology and denial, in repairing interpersonal trust. For instance, apologies are more successful than denials in repairing trust due to violations concerning matters of competence (Kim et al., 2013; Kim et al., 2004). Through this meta-analytical effort, equality norm violation is identified where trust is assumed to be broken if monetary resources are not allocated equally in exchange relations (Desmet et al., 2011a; Desmet et al., 2011b; Dirks et al., 2011, Study 3; Tomlinson, 2012; Vasalou et al., 2008).

Choice of dependent variable. Across the empirical studies selected into this meta-analysis, the dependent variables adopted include behavioural trust, trust, trustworthiness, perceived competence, perceived integrity, trusting intentions, intention to preserve relationships, behavioural forgiveness, self-reported forgiveness, as well as procedural forgiveness. These dependent variables can be classified broadly into trust beliefs, trust intentions, and trust behaviours.

Power difference in relationship. Power is the ability to influence others in interpersonal relationships. French and Raven (1959) identified five types of power, namely legitimate,

reward, coercive, expert, and referent. Interpersonal relationships may differ in terms of types of power present as well as magnitude of power effect on relationships. In this study, power difference in relationship refers to either horizontal relationship without any perceived power difference or vertical relationship with perceived power difference. Fragale, Rosen, Xu, and Merideth, (2009) suggested that victims are likely to perceive transgressions by their high-power interaction partners to be due to a lack of integrity rather than a lack of competence. Hence, this makes trust repair harder between individuals of vertical relationships than those of horizontal relationships (Kim et al., 2009).

Type of relationship. The type of relationship refers to more specific relationships, such as between two strangers with zero acquaintance or between a leader and team member. As suggested by Kim et al. (2009), it is likely for a team member to perceive any incident of trust violation by a leader to be of integrity issue since it may be assumed that a leader should be competent to do deal with any matters. Therefore, similar findings are expected as power difference in relationship influences the extent of interpersonal trust repair.

Trust repair components. The narrative review has picked up six trust repair components, namely acknowledgement of responsibility, expression of regret, explanation of transgression, promise of forbearance, offer of restitution, and request of forgiveness. Through this meta-analytical study, research effort is made to identify the exact trust repair components that make up the effective trust repair strategies commonly used in our day-to-day interactions with individuals.

Country of study. The country in which different studies are conducted in can be a contributory moderator since cultural differences across countries are likely to play a role in perception of trust violation and its subsequent trust repair attempts. Culture also influences

one's forgivingness (Suwartono, Yeti Prawasti, & Mullet, 2007). Although understanding the influence of culture on interpersonal trust repair is not one of the main aims in this thesis, the effect of this moderator will be briefly discussed.

Trust repair strategies. The trust repair strategies being investigated in all quantitative studies are coded as apology, financial compensation, denial, promise, reticence, explanation, or justification.

If any of the trust repair strategies is found to be effective in trust repair or the relative effectiveness of each pair of trust repair strategies is deemed to be substantially different, these coded moderators concerning methodological variations and theoretical interests may be added into statistical analyses to determine their respective contributions to interpersonal trust reparative effectiveness.

Statistical Analyses

To test the effectiveness of each trust repair strategy, both fixed and random effects models were computed in this study. A fixed effects model presumes that there is one true effect size, which determines all observed effects and that the differences among these observed effects are attributed to sampling error (Lipsey & Wilson, 2001). A fixed effects analysis can be generalised to new samples that run through similar methodological procedure. Fixed effects models are often adopted in research fields with little methodological variance. In a random effects model, the true effect is posited to vary across studies due to both subject-level sampling error and study-level sampling error (Lipsey & Wilson, 2001). In a random-effects meta-analysis, true effects are assumed to be normally distributed. Random effects analyses can be generalised to subsequent samples in similar research conditions. The fixed effects model

provides smaller confidence intervals and more significant results, while the random effects model tends to be more conservative (Lipsey & Wilson, 2001).

If any of these trust repair strategies was found to have a significant effect size, fail-safe N analysis would be conducted (Rosenthal, 1979). It had been suggested to assess the potential of publication bias on meta-analytical results by calculating the 'fail-safe N', which is the number of additional studies with zero effect size that would be required to make the overall effect size of the meta-analysis to become statistically insignificant (Rosenthal, 1979).

Subsequently, the heterogeneity statistic Q was calculated to determine if each effect size was indeed an estimate of the common population (Cochran, 1954). This heterogeneity statistic Q determines whether the variability among the effect sizes is larger than the variability due to the sampling error. Observing the effect sizes to be heterogeneous supports the testing of moderators to investigate if any of them accounts for the variability in the effect sizes.

The various moderators that had been coded by the researcher on trust reparation were categorical in nature, hence each of them was subjected to sub-group analysis, which is an analog to the analysis of variance (ANOVA) that helped to assess the relationship between sub-group membership and effect size. If any group of each categorical moderator had less than five effect sizes, the respective group would be removed and the sub-group analysis would be re-run accordingly. If any of these categorical moderators did not have at least two groups with at least five effect sizes each, sub-group analysis could not be run. Hence, no result would be reported for such moderators. Subsequent reporting of meta-analytical results in this paper reflected only the final statistics after eliminating groups with less than five effect sizes.

Results

Effectiveness of Trust Repair Strategies

The meta-analytical review on effectiveness of trust repair strategies was conducted separately for apology ($n = 21$, where n is number of studies) and financial compensation ($n = 11$) only as there were insufficient effect sizes to warrant conducting individual meta-analyses for denial ($n = 0$), promise ($n = 2$), reticence ($n = 0$), explanation ($n = 0$), and justification ($n = 0$; see Table 1).

Only experimental studies that included control group for comparative analyses of effectiveness to the trust repair strategy of interest were included. Simply put, studies that did not have control group were excluded in this segment of the meta-analytical review because the main concern is to determine unique effectiveness of each trust repair strategy relative to a control condition. However, these excluded studies were reviewed in next section of this meta-analytical review on relative effectiveness of trust repair strategies.

A summary of meta-analytical results that reports respective effectiveness of apology and financial compensation in interpersonal trust repair can be found in Table 2.

Apology. Combining the 21 unique effect sizes that investigate the effectiveness of apology in trust repair (see Table 3), the effect size under fixed effects model is $d = 0.41$ ($Z = 7.44$, $p < .001$) while the effect size under random effects model is $d = 1.29$ ($Z = 15.34$, $p < .001$). This statistical significance demonstrates that apology is effective in repairing trust in general. Fail-safe N analysis indicates that it will take 570 additional effect sizes of $d = 0.00$ to be added to this meta-analysis to yield an overall effect that is statistically insignificant. The effect sizes ranges from $d = -0.01$ to $d = 1.92$ and they are significantly heterogeneous, $Q(20) = 59.01$, $p < .001$.

Moderator analysis. Since there is significant variability in effect sizes across the different studies, moderator analysis was conducted to identify relevant variables that may have accounted for such variability in effect sizes.

Methodological variations. To examine methodological variations of the included studies, several potential categorical moderators were identified, namely payment for participation, incentive for participation, and type of study design.

According to Table 4, it illustrates that availability of payment for participation in the selected studies as a grouping variable accounts for an insignificant variability in the effect sizes, $Q_B(1) = 2.04, p = .15$. This means that there is no difference in trust reparative effectiveness of apology whether the participants are paid ($d = 0.51, Z = 4.90, p < .001$) or unpaid ($d = 0.34, Z = 4.72, p < .001$) for their time and effort.

However, Table 4 demonstrates that the type of incentives provided for participation in selected studies as a grouping variable accounts for significant variability in the effect sizes, $Q_B(1) = 4.34, p = .037$. This means that apology appears to have greater trust reparative effectiveness among participants who are paid for their time and effort ($d = 0.67, Z = 5.17, p < .001$) than those who are offered course credits in exchange for their participation ($d = 0.33, Z = 3.88, p = .0001$).

Furthermore, Table 4 illustrates that the type of study design as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(1) = 15.07, p = .0001$. This suggests an apology seems to be more effective in repairing interpersonal trust in scenario-based experiments ($d = 0.63, Z = 7.24, p < .001$) than actual experiments ($d = 0.18, Z = 2.29, p = .022$).

Theoretical interests. To examine variables of theoretical concerns in these included studies, various categorical moderators were singled out, namely nature of trust violation, power

difference in relationship, type of relationship, trust repair components involved in the manipulation of apology in each study, as well as the country in which participants were recruited for the various studies.

From Table 4, it reveals that the nature of trust violation as a grouping variable accounts for significant variability in effect sizes, $Q_B(1) = 15.06, p < .001$. Hence, it can be shown that apology is more effective in repairing trust after competence-based trust violation has occurred ($d = 0.65, Z = 7.57, p < .001$) than after equality norm violation has taken place ($d = 0.19, Z = 2.32, p = .020$).

Table 4 unveils power difference in relationship as a grouping variable, accounting for a significant variability in the effect sizes, $Q_B(1) = 18.02, p < .001$. The findings show that an apology is more effective in repairing trust between individuals of vertical relationships ($d = 0.64, Z = 8.26, p < .001$) than those of horizontal relationships ($d = 0.18, Z = 2.29, p = .022$).

As illustrated on Table 4, the type of relationship as a grouping variable explains a significant proportion of variability in the effect sizes, $Q_B(1) = 13.66, p = .0002$. It can be shown that an apology is more effective in trust repair between leaders and their team members ($d = 0.65, Z = 6.35, p < .001$) than between strangers ($d = 0.18, Z = 2.29, p = .022$).

Also, Table 4 shows that depending on how an apology is being manipulated in each study, the combination of trust repair components as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(1) = 5.71, p = .017$. It can be illustrated that having three trust repair components, namely acknowledgement of responsibility, expression of regret, promise of forbearance, ($d = 0.65, Z = 7.57, p < .001$) in apology manipulation is more effective in trust reparation than merely having two trust repair components, namely acknowledgement of responsibility and expression of regret ($d = 0.36, Z = 4.11, p < .001$). The addition of promise of

forbearance component in apology manipulation appears to enhance its overall trust reparative effectiveness.

Lastly, Table 4 presents that the country in which the respective studies are being conducted and participants being recruited as a grouping variable, account for a significant variability in the effect sizes, $Q_B(2) = 6.90, p = .032$. The findings show that an apology is perceived to be more effective in repairing trust among participants from Belgium ($d = 0.66, Z = 5.43, p < .001$) than those from United States ($d = 0.34, Z = 3.81, p = .0001$), $Q_B(1) = 4.56, p = .033$, and those from Netherlands ($d = 0.26, Z = 2.67, p = .008$), $Q_B(1) = 6.40, p = .011$. The trust reparative effectiveness of apology do not differ substantially among participants from United States and Netherlands, $Q_B(1) = 0.32, p = .57$.

Excluded moderators. The other categorical moderators, namely choice of dependent variable, type of study context, source of participants, and participant's perspective, were excluded from this moderator analysis as each of them did not have at least two groups with minimum five valid effect sizes.

Financial Compensation. Combining the 11 unique effect sizes that investigate the effectiveness of financial compensation in trust repair (see Table 3), the effect size under fixed effects model is $d = 1.29 (Z = 15.34, p < .001)$ while the effect size under random effects model is $d = 1.35 (Z = 8.25, p < .001)$. This statistical significance highlights that financial compensation is effective in repairing trust in general. Fail-safe N analysis indicates that it will take 950 additional effect sizes of $d = 0.00$ to be added to this meta-analysis to yield an overall effect that is statistically insignificant. The effect sizes ranges from $d = 0.70$ to $d = 2.55$ and they are significantly heterogeneous, $Q(10) = 35.08, p = .0001$.

Moderator analysis. Having significant variability in effect sizes across the different studies, moderator analysis was conducted to identify relevant variables that may account for such variability.

Methodological variations. To examine the methodological differences of the included studies, several potential categorical moderators were evaluated, namely type of study design and type of study context.

Accordingly to Table 5, it illustrates that the type of study design as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(1) = 3.93, p = .047$. This means that financial compensation works better in repairing trust in actual experiments ($d = 1.51, Z = 10.63, p < .001$) than in scenario-based experiments ($d = 1.16, Z = 11.23, p < .001$).

In addition, Table 5 shows the type of study context as a grouping variable, accounting for a significant variability in the effect sizes, $Q_B(1) = 3.93, p = .047$. In particular, it shows that financial compensation repairs interpersonal trust better in dictator game context ($d = 1.51, Z = 10.63, p < .001$) than in unfulfilled CEO pay cut context ($d = 1.16, Z = 11.23, p < .001$).

Theoretical interests. To explore variables of theoretical significance among these included studies, various categorical moderators were selected, namely power difference in relationship and type of relationship.

Specifically, Table 5 shows that power difference in relationship or type of relationship as a grouping variable contributing significant variability in the effect sizes, $Q_B(1) = 3.93, p = .047$. It suggests that financial compensation is more effective in repairing trust between individuals of horizontal relationships, specifically between strangers, ($d = 1.51, Z = 10.63, p < .001$) than between those of vertical relationships, in this case between CEO and employees, ($d = 1.16, Z = 11.23, p < .001$).

Excluded moderators. The other categorical moderators, namely nature of trust violation, choice of dependent variable, payment for participation, incentive for participation, country of participants, source of participants, and participant's perspective, were excluded from this moderator analysis as each of them did not have at least two groups with minimum five valid effect sizes.

Relative Effectiveness of Trust Repair Strategies

Those experimental studies that were excluded in previous section due to lack of control group were being reviewed systematically in this segment of the meta-analytical review to evaluate the relative effectiveness of trust repair strategies.

Due to insufficient effect sizes to support conducting individual meta-analyses, meta-analytical review could not be conducted on the relative effectiveness between apology and financial compensation, or apology and justification (see Table 6).

The meta-analytical review on relative effectiveness of trust repair strategies was only conducted separately between apology and denial, apology and reticence, as well as denial and reticence (see Table 6).

Apology. According to Kim et al. (2004), an apology is defined as “a statement that acknowledges responsibility and regret for a trust violation” (p.105). An apology was manipulated as “the candidate admitted responsibility for the trust violation, apologised for the infraction, and stated that such an incident would not happen again” (Kim et al., 2004, p. 108).

Denial. Denial is defined as “a statement in which an allegation is explicitly declared to be untrue” (Kim et al., 2004, p. 105). A denial was manipulated as “the candidate denied responsibility for the trust violation, attributed the allegation to bad office politics at the previous

firm, and stated that the firm would not have to worry about her committing such an infraction if she were hired” (Kim et al., 2004, p. 108).

Reticence. Reticence can be defined as “as a statement in which the accused party explains that he or she cannot or will not confirm or disconfirm the veracity of an allegation, as a means of responding to a trust violation” (Ferrin et al., 2007, p. 893). It is being manipulated as “the candidate said she would not go on the record as saying the accusations were either true or false. She explained that the situation was very complex and that she believed the details of the situation should remain confidential between her and her former firm but that the present firm would not have any concerns about her integrity/competence if she were hired.” (Ferrin et al., 2007, p. 898).

Table 7 reports the summary of meta-analytical results on the relative effectiveness of these three pairs of trust repair strategies.

Apology vs. Denial. Combining the 51 unique effect sizes that investigate the relative effectiveness of apology and denial in interpersonal trust repair (see Table 8), the effect size under fixed effects model is $d = 0.17$ ($Z = 5.84, p < .001$) while the effect size under random effects model is $d = 0.38$ ($Z = 2.82, p = .005$). This statistical significance demonstrates that apology is more effective than denial in repairing trust in general. Fail-safe N analysis indicates that it will take 983 additional effect sizes of $d = 0.00$ to be added to this meta-analysis to yield an overall effect that is statistically insignificant. The effect sizes ranges from $d = -2.03$ to $d = 8.33$ and they are significantly heterogeneous, $Q(50) = 984.34, p < .001$.

Moderator analysis. Since there was significant variability in effect sizes across the different studies, moderator analysis was conducted to identify relevant variables that may have accounted for such variability in effect sizes.

Methodological variations. Examining the methodological variations of the included studies, several potential categorical moderators were identified, namely payment for participation, incentive for participation, type of study context, source of participants, as well as participant's perspective in study.

According to Table 9, it illustrates that availability of payment for participation in the selected studies as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(1) = 54.41, p < .001$. This means that there is greater difference in relative trust reparative effectiveness between apology and denial when the participants are unsure whether they will be paid for their participation ($d = 0.48, Z = 9.34, p < .001$) as compared to them knowing they will not be paid at the start of study participation ($d = 0.02, Z = 0.56, p = .57$).

Similarly, Table 9 demonstrates that the type of incentives provided for participation in selected studies as a grouping variable accounts for significant variability in the effect sizes, $Q_B(2) = 54.46, p < .001$. This means that there is greater difference in relative trust reparative effectiveness between apology and denial when the participants are unsure whether they would be paid for their participation ($d = 0.48, Z = 9.34, p < .001$) as compared to them knowing they will receive course credits for their participation ($d = 0.03, Z = 0.79, p = .43$) or participating as a class exercise ($d = -0.13, Z = -0.86, p = .39$). There is no significant difference in trust reparative effectiveness between apology and denial when participants are aware they will be awarded course credits or participating as class exercise, $Q_B(1)_{(\text{credits vs. exercise})} = 1.04, p = .31$. However, apology seems to repair trust more effectively than denial when participants are unsure whether they will be paid for their participation as compared to receiving course credits, $Q_B(1)_{(\text{credits vs. unknown})} = 50.24, p < .001$, or participating as part of a class exercise, $Q_B(1)_{(\text{exercise vs. unknown})} = 14.78, p = .0001$.

Furthermore, Table 9 illustrates that the type of study context as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(2) = 55.26, p < .001$. This means that there is greater difference in relative trust reparative effectiveness between apology and denial when the study context adopted involves selection of team members ($d = 0.72, Z = 7.94, p < .001$) as compared to tax accounting fraud scenario ($d = 0.02, Z = 0.52, p = .60$) or unfulfilled CEO pay cut scenario ($d = -0.09, Z = -1.03, p = .30$). The relative differences in trust reparative effectiveness between apology and denial across the different study contexts are found to be significantly different from one another ($Q_B(1)_{(\text{tax accounting fraud vs. selection of team members})} = 49.92, p < .001$; $Q_B(1)_{(\text{CEO unfulfilled pay cut vs. selection of team members})} = 39.99, p < .001$), except between these two contexts ($Q_B(1)_{(\text{tax accounting fraud vs. CEO unfulfilled pay cut})} = 1.32, p = .25$).

Moreover, Table 9 reveals that the source of participants as a grouping variable accounts for insignificant variability in effect sizes, $Q_B(2) = 2.78, p = .25$. Although Table 9 illustrates that apology is relatively more effective than denial in repairing trust when the study participants consisted of both undergraduates and postgraduates ($d = 0.13, Z = 3.10, p = .002$), as compared to only undergraduates, ($d = 0.10, Z = 1.90, p = .058$), followed by only postgraduates ($d = -0.13, Z = -0.86, p = .39$), the observed differences between apology and denial in trust repair effectiveness across different sources of participants are not significantly different from one another ($Q_B(1)_{(\text{undergraduates vs. postgraduates})} = 2.09, p = .15$; $Q_B(1)_{(\text{undergraduates vs. undergraduates+postgraduates})} = 0.17, p = .68$; $Q_B(1)_{(\text{postgraduates vs. undergraduates+postgraduates})} = 2.76, p = .10$).

Lastly, Table 9 reveals that participant's perspective in study as a grouping variable accounts for significant variability in effect sizes, $Q_B(2) = 29.03, p < .001$. Hence, it can be shown that apology is more effective than denial in repairing trust when participants are asked to adopt third party perspective ($d = 0.52, Z = 6.67, p < .001$), as compared to those holding first

party perspective ($d = 0.14$, $Z = 4.19$, $p < .001$), followed by those with unclear perspective ($d = -0.09$, $Z = -1.03$, $p = .30$). The relative differences between apology and denial in trust repair effectiveness across different participant's perspectives are found to be substantially different from one another ($Q_B(1)_{(\text{first party vs. third party})} = 19.72$, $p < .001$; $Q_B(1)_{(\text{first party vs. unknown})} = 5.81$, $p = .016$; $Q_B(1)_{(\text{third party vs. unknown})} = 25.87$, $p < .001$).

Theoretical interests. To analyse variables of theoretical interests among these included studies, various categorical moderators were determined, namely nature of trust violation, choice of dependent variable, power difference in relationship, type of relationship, trust repair components involved in the manipulation of apology in each study, as well as country in which participants were recruited for the various studies.

From Table 9, it reveals that the nature of trust violation as a grouping variable accounts for significant variability in effect sizes, $Q_B(2) = 184.25$, $p < .001$. Hence, it can be shown that apology is more effective than denial in repairing trust when it comes to trust violation episode of unknown nature ($d = 0.60$, $Z = 10.42$, $p < .001$), as compared to competence-based trust violation ($d = 0.40$, $Z = 7.70$, $p < .001$), followed by integrity-based trust violation ($d = -0.32$, $Z = -6.84$, $p < .001$). The relative differences between apology and denial in trust repair effectiveness across the different nature of trust violation are found to be substantially different from one another ($Q_B(1)_{(\text{competence-based vs. integrity-based})} = 106.09$, $p < .001$; $Q_B(1)_{(\text{competence-based vs. unclassified})} = 6.62$, $p = .010$; $Q_B(1)_{(\text{integrity-based vs. unclassified})} = 153.55$, $p < .001$).

In addition, Table 9 reveals that the choice of dependent variable as a grouping variable accounts for insignificant variability in effect sizes, $Q_B(2) = 5.48$, $p = .065$. Table 9 also illustrates that apology is relatively more effective than denial in repairing trust when the dependent variable adopted is perceived integrity ($d = 0.13$, $Z = 2.38$, $p = .017$), as compared to

perceived competence, ($d = 0.10$, $Z = 1.72$, $p = .085$), followed by willingness to risk ($d = -0.07$, $Z = -1.00$, $p = .32$). There is no substantial difference in trust reparative effectiveness between apology and denial when using either perceived integrity or perceived competence, as well as perceived competence or willingness to risk, as dependent variables in related studies, $Q_B(1)_{(\text{competence vs. integrity})} = 0.18$, $p = .67$; $Q_B(1)_{(\text{competence vs. risk})} = 3.47$, $p = .062$. Substantial difference in trust reparative effectiveness between apology and denial is only observed when either perceived integrity or willingness to risk is being chosen as dependent variable in related studies, $Q_B(1)_{(\text{integrity vs. risk})} = 5.11$, $p = .024$.

Table 9 unveils power difference in relationship as a grouping variable, accounting for a significant variability in the effect sizes, $Q_B(1) = 59.21$, $p < .001$. The findings show that an apology is more effective than a denial in repairing trust between individuals of horizontal relationships ($d = 0.47$, $Z = 9.66$, $p < .001$) than those of vertical relationships ($d = 0.00$, $Z = 0.07$, $p = .95$).

Similarly, Table 9 illustrates that the type of relationship as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(2) = 55.26$, $p < .001$. This means that there is greater difference in relative trust reparative effectiveness between apology and denial when the study investigates relationship between sports coach and fans ($d = 0.72$, $Z = 7.94$, $p < .001$) as compared to between manager and job applicants ($d = 0.02$, $Z = 0.52$, $p = .60$) or CEO and employees ($d = -0.09$, $Z = -1.03$, $p = .30$). The relative differences in trust repair effectiveness between apology and denial across the different types of relationship are found to be significantly different from one another ($Q_B(1)_{(\text{manager-job applicant vs. coach-fan})} = 49.92$, $p < .001$; $Q_B(1)_{(\text{CEO-employee vs. coach-fan})} = 39.99$, $p < .001$), except between these two types of relationships ($Q_B(1)_{(\text{manager-job applicant vs. CEO-employee})} = 1.32$, $p = .25$).

Also, Table 9 shows that depending on how an apology is being manipulated in each study, the combination of trust repair components as a grouping variable accounts for a significant variability in the effect sizes, $Q_B(3) = 51.73, p < .001$. It illustrates that the relative difference in trust reparative effectiveness between an apology and a denial diminishes when apology is being manipulated by having three trust repair components, namely acknowledgement of responsibility, expression of regret, with promise of forbearance ($d = 0.00, Z = 0.06, p = .96$), as compared to merely having two trust repair components, acknowledgement of responsibility with request of forgiveness ($d = 0.72, Z = 7.94, p < .001$), acknowledgement of responsibility with expression of regret ($d = 0.22, Z = 4.35, p < .001$), or acknowledgement of responsibility with promise of forbearance ($d = 0.15, Z = 1.97, p = .049$). The relative differences in trust repair effectiveness between apology and denial are found to be significantly different from one another depending on how an apology is being manipulated in selected studies ($Q_B(1)_{(\text{acknowledge+regret vs. acknowledge+forgive})} = 23.12, p < .001$; $Q_B(1)_{(\text{acknowledge+regret vs. acknowledge+regret+promise})} = 39.99, p < .001$, ($Q_B(1)_{(\text{acknowledge+promise vs. acknowledge+forgive})} = 22.98, p < .001$; $Q_B(1)_{(\text{acknowledge+forgive vs. acknowledge+regret+promise})} = 50.27, p < .001$), but not in some studies ($Q_B(1)_{(\text{acknowledge+regret vs. acknowledge+promise})} = 0.57, p = .45$; $Q_B(1)_{(\text{acknowledge+promise vs. acknowledge+regret+promise})} = 2.79, p = .095$).

Furthermore, Table 9 presents that the country in which the respective studies are being conducted and participants being recruited as a grouping variable, accounts for a significant variability in the effect sizes, $Q_B(2) = 21.26, p < .001$. The findings show that an apology is perceived to be more effective than a denial in repairing trust among participants from Netherlands ($d = 0.37, Z = 6.40, p < .001$), as compared to those from United States ($d = 0.13, Z = 3.67, p = .0002$), followed by those from Singapore ($d = -0.09, Z = -1.03, p = .30$). The relative

differences between apology and denial in trust repair effectiveness across countries are found to be substantially different from one another ($Q_B(1)_{(\text{Netherlands vs. Singapore})} = 18.36, p < .001$;

$Q_B(1)_{(\text{Netherlands vs. United States})} = 11.95, p = .0005$; $Q_B(1)_{(\text{Singapore vs. United States})} = 5.34, p = .021$).

Excluded moderator. However, one categorical moderator, type of study design, was excluded from this moderator analysis as it did not have at least two groups with minimum five valid effect sizes.

Apology vs. Reticence. Combining the 12 unique effect sizes that investigate the relative effectiveness of apology and reticence in interpersonal trust repair (see Table 8), the effect size under fixed effects model is $d = 0.05$ ($Z = 0.58, p = .56$) while the effect size under random effects model is $d = 0.03$ ($Z = 0.15, p = .88$). This statistical insignificance demonstrates that there is no difference between apology and reticence in repairing trust in general. Fail-safe N analysis indicates that it will take 12 additional effect sizes of $d = 0.00$ to be added to this meta-analysis to yield an overall effect that is statistically insignificant. The effect sizes range from $d = -1.60$ to $d = 0.89$ and they are significantly heterogeneous, $Q(11) = 57.75, p < .001$.

Moderator analysis. Since there was significant variability in effect sizes across the different studies, moderator analysis was conducted to identify relevant variables that may have accounted for such variability in effect sizes.

Methodological variations. Delving into the methodological variations of the included studies, several potential categorical moderators were identified, namely incentive for participation, type of study context, source of participants, as well as participant's perspective in study.

Table 10 demonstrates that the type of incentives provided for study participation as a grouping variable accounts for insignificant variability in the effect sizes, $Q_B(1) = 0.01, p = .94$.

This means that there is no difference in relative trust reparative effectiveness between apology and reticence when the participants receive course credits for their participation ($d = 0.05$, $Z = 0.53$, $p = .59$) or participating as class exercise ($d = 0.04$, $Z = 0.25$, $p = .80$).

Moving on, Table 10 illustrates that the type of study context as a grouping variable accounts for an insignificant variability in the effect sizes, $Q_B(1) = 0.01$, $p = .94$. This suggests that there is no difference in relative trust reparative effectiveness between apology and reticence when the study context adopted involves tax accounting fraud scenario ($d = 0.04$, $Z = 0.25$, $p = .80$) or unfulfilled CEO pay cut scenario ($d = 0.05$, $Z = 0.53$, $p = .59$).

Also, Table 10 reveals that the source of participants as a grouping variable accounts for insignificant variability in effect sizes, $Q_B(1) = 0.01$, $p = .94$. The findings show that apology and reticence have similar effectiveness in repairing trust among undergraduates ($d = 0.05$, $Z = 0.53$, $p = .59$) and postgraduates ($d = 0.04$, $Z = 0.25$, $p = .80$).

Lastly, Table 10 reveals that participant's perspective in study as a grouping variable accounts for insignificant variability in effect sizes, $Q_B(1) = 0.01$, $p = .94$. Hence, it can be shown that apology and reticence have similar effectiveness in repairing trust when it is not clearly stated what perspective participants are supposed to adopt ($d = 0.05$, $Z = 0.53$, $p = .59$) or when they are requested to adopt first party perspective ($d = 0.04$, $Z = 0.25$, $p = .80$).

Theoretical interests. Narrowing down to variables of theoretical significance among these included studies, several categorical moderators were identified, namely nature of trust violation, type of relationship, trust repair components involved in the manipulation of apology in each study, as well as country in which participants were recruited for the various studies.

From Table 10, it reveals that the nature of trust violation as a grouping variable accounts for significant variability in effect sizes, $Q_B(1) = 35.71$, $p < .001$. Hence, it can be shown that

apology is more effective than reticence in repairing trust when it comes to competence-based trust violation ($d = 0.51$, $Z = 4.62$, $p < .001$), as compared to integrity-based trust violation ($d = -0.42$, $Z = -3.83$, $p = .0001$).

In addition, Table 10 illustrates that the type of relationship as a grouping variable accounts for insignificant variability in the effect sizes, $Q_B(1) = 0.01$, $p = .94$. This conveys that there is no difference in relative trust reparative effectiveness between apology and reticence when studies examine relationship between manager and job applicants ($d = 0.04$, $Z = 0.25$, $p = .80$) or CEO and employees ($d = 0.05$, $Z = 0.53$, $p = .59$).

Table 10 shows that depending on how an apology is being manipulated in each study, the combination of trust repair components as a grouping variable accounts for an insignificant variability in the effect sizes, $Q_B(1) = 0.01$, $p = .94$. It can be illustrated that there is no relative difference in trust reparative effectiveness between apology and reticence when apology is being manipulated by either acknowledgement of responsibility with expression of regret ($d = 0.05$, $Z = 0.53$, $p = .59$) or acknowledgement of responsibility with promise of forbearance ($d = 0.04$, $Z = 0.25$, $p = .80$).

Furthermore, Table 10 presents that the country in which the respective studies are being conducted and participants being recruited as a grouping variable, accounts for an insignificant variability in the effect sizes, $Q_B(1) = 0.01$, $p = .94$. The findings show that apology and reticence have similar effectiveness in repairing trust among participants from Singapore ($d = 0.05$, $Z = 0.53$, $p = .59$), as well as those from United States ($d = 0.04$, $Z = 0.25$, $p = .80$).

Excluded moderators. The other categorical moderators, namely choice of dependent variable, payment for participation, type of study design, and power difference in relationship,

were excluded from this moderator analysis as each of them did not have at least two groups with minimum five valid effect sizes.

Denial vs. Reticence. Combining the 12 unique effect sizes that investigate the relative effectiveness of denial and reticence in interpersonal trust repair (see Table 8), the effect size under fixed effects model is $d = 0.18$ ($Z = 2.38, p = .018$) while the effect size under random effects model is $d = 0.18$ ($Z = 2.38, p = .018$). This statistical significance demonstrates that denial is more effective than reticence in repairing trust in general. Fail-safe N analysis indicates that it will take 14 additional effect sizes of $d = 0.00$ to be added to this meta-analysis to yield an overall effect that is statistically insignificant. The effect sizes range from $d = -0.38$ to $d = 0.75$ and they are insignificantly heterogeneous, $Q(11) = 9.10, p = .61$. This does not justify for moderator analysis to be conducted.

Discussion

This meta-analytical study has reviewed the effectiveness of trust repair strategies, as well as their relative effectiveness, between two individuals after a broken trust incident.

Effectiveness of trust repair strategies. This series of meta-analyses confirmed both apology and financial compensation are effective trust repair strategies.

However, there were insufficient valid effect sizes to run a meta-analysis on effectiveness of promise as a trust repair strategy. Also, valid effect sizes were simply unavailable to run separate meta-analyses on denial, reticence, explanation, and justification to validate their proclaimed trust reparative effectiveness.

Relative effectiveness of trust repair strategies. Another set of meta-analyses illustrated that apology is more effective than denial, which is in turn more effective than

reticence, in repairing interpersonal trust in general. However, this study did not manage to find any substantial difference in trust reparative effectiveness between apology and reticence.

Due to insufficient valid effect sizes, this study was unable to find out the relative effectiveness in interpersonal trust repair between apology and financial compensation, as well as between apology and justification.

Methodological variations. This meta-analytical study has attempted to understand the impact of methodological variations among the included studies on trust reparative effectiveness.

Apology. This study showed that regardless of whether payment for participation is available or not does not affect trust reparative effectiveness of apology in general. Participants who were categorised as receiving payment for participation included those who were paid for their time and effort as well as those who were given opportunity to earn money during their study participation. On the other hand, participants who were classified as not receiving any payment for participation included those who were given course credits, individuals clearing as part of class exercise, and those who took part on voluntary basis. A detailed look into the type of incentives found that apology seems to work better in repairing trust when participants are being paid for their time and effort in the study as compared to those who specifically receive course credits for their participation.

In addition, this meta-analysis found that the type of study design adopted has a role to play in determining trust reparative effectiveness. Apology appeared to work better in scenario-based experiments than in actual experiments.

Financial compensation. Financial compensation seemed to work better in actual experiments, involving dictator game context, than in scenario-based experiments, portraying an unfulfilled CEO pay cut context.

Apology vs. Denial. Apology appeared to be more effective in repairing interpersonal trust than denial when the individuals were unsure if they would be paid for their participation while there was no difference between apology and denial when individuals knew from the beginning that they would not be paid for their participation. Among those who were not paid for study participation, there was no observed difference between apology and denial when individuals received course credits for their participation or when they merely participated as part of a class exercise.

In addition, apology was more effective in repairing trust than denial when it involved selection of team members between sports coach and fans but there was no observed difference when it comes to tax accounting fraud scenario between manager and job applicants or unfulfilled promise to employees on CEO pay cut matter.

Also, apology was relatively more effective than denial in repairing trust when the studies involve both undergraduates and postgraduates, but not when the studies involve only undergraduates or only postgraduates.

Moreover, apology was more effective than denial in repairing trust when participants were asked to adopt third party perspective or first party perspective, but not with unclear perspective.

Theoretical interests. This meta-analytical study has also examined the variables of theoretical interests among the included studies on trust reparative effectiveness.

Apology. This meta-analysis supported previous findings that apology has a positive effect on repairing competence-based trust violation but there is not enough empirical evidence to support the negative effect that apology has on integrity-based trust violation that prior studies

have concluded due to insufficient valid effect sizes. Also, this positive effect of apology on repairing competence-based trust violation is stronger than that of equality norm violation.

This study also illustrated that the power difference in relationship do matter in trust reparative effectiveness. For instance, an apology was found to be more effective in repairing trust between individuals of vertical relationships than those of horizontal relationships. Specifically, an apology was more effective in trust repair between leaders and team members than between strangers.

In addition, this meta-analysis delved into the fundamental components of trust repair strategies. Specifically, this study showed that both acknowledgement of responsibility and expression of regret were apology components effective in trust repair jointly. Furthermore, the addition of promise of forbearance enhanced trust repair effectiveness of an apology when being added to the first two components. While an acknowledgement of responsibility and an expression of regret repair trust through their backward-looking perspective or retrospective orientation to accept what wrong one has committed, a promise of forbearance is generally believed to be effective in repairing trust through its forward-looking perspective or prospective orientation honouring one's words moving forward.

The country in which each study was conducted, as well as where the participants were recruited, do affect trust reparative effectiveness. Meta-analytical result showed that apology seems to work best in repairing trust among Belgium participants, followed by American and Dutch participants.

Financial compensation. Financial compensation repaired trust better between individuals of horizontal relationships than those of vertical relationships. From the meta-

analytical result, financial compensation appeared to be more effective in repairing trust between strangers than between CEO and employees.

Apology vs. Denial. Moderator analysis found that apology is more effective than denial in repairing trust when it comes to trust violation episode of unknown or competence nature while denial is more effective than apology in repairing integrity-based trust violation.

Also, apology was relatively more effective than denial in repairing trust when the dependent variable adopted was perceived integrity, but no substantial difference was observed when perceived competence or willingness to risk were used as dependent variables.

An apology was also found to be more effective than a denial in repairing trust between individuals of horizontal relationships, namely between sports coach and fans, but there was no observed difference between apology and denial in repairing trust between those of vertical relationships, namely between manager and job applicants as well as between CEO and employees.

The relative difference in trust reparative effectiveness between an apology and a denial is greatest when an apology is being manipulated with an acknowledgement of responsibility and a request of forgiveness, followed by an acknowledgement of responsibility with expression of regret, and lastly, an acknowledgement of responsibility with promise of forbearance.

Surprisingly, there is no observed difference in trust reparative effectiveness between apology and denial when an apology is manipulated with three trust repair components, namely acknowledgement of responsibility, expression of regret, with promise of forbearance, in experimental studies. This surprising finding is something worth pondering over. Hence, this observation prompted a research potential in looking at interpersonal trust repair at its fundamental component level.

Apology was perceived to be more effective than a denial in repairing trust among Dutch and Americans, but not Singaporeans.

Apology vs. Reticence. Only one moderator accounted for the heterogeneity of effect sizes observed when comparing the relative trust reparative effectiveness of apology and reticence. Meta-analytical review suggested that apology is more effective than reticence in repairing trust when it comes to repairing competence-based trust violation while reticence is found to be more effective than apology in repairing integrity-based trust violation.

Theoretical Implications

Nature of trust violation. Interestingly, this novel meta-analytical attempt has discovered equality norm violation, which is a common feature of behavioural economic games. Equality norm violation has an implicit distributive fairness assumption in which anything less than exact half is deemed to imply trust violation (Desmet et al., 2011a; Desmet et al., 2011b; Dirks et al., 2011, Study 3; Tomlinson, 2012; Vasalou et al., 2008). It may be differentiated from integrity-based trust violation which carries the dishonesty element in terms of an explicit prior agreement on the exact allocation but it is subsequently being broken. Both types of trust violation are fundamentally different and conceptually distinct from each other.

Choice of dependent variables. Also, the choice of dependent variables matters in experimental study outcomes. For instance, the meta-analytical study found that apology is more effective than denial in repairing trust when the dependent variable adopted was perceived integrity, but not when perceived competence or willingness to risk were used as dependent variables.

Power difference in relationship. Although interpersonal trust repair is posited to be harder among individuals of vertical relationships than those of horizontal relationships (Kim et

al., 2009), this point has not been tested empirically in the particular paper that introduced the multi-level model of dynamic bilateral process of trust repair. This meta-analytical study serves to provide empirical evidence that financial compensation supports this model prediction, but it is intriguing to find that apology is generally found to be more effective between individuals of vertical relationships than those of horizontal relationships. One possible explanation may be that victims perceive apologies from their transgressors to be symbolically more costly to their face and identity concerns (Giner-Sorolla, Castano, Espinosa, & Brown, 2008) when they admit responsibility and express regret in vertical relationships than in horizontal relationships, with higher social cost signalling greater sincerity to repair interpersonal trust (Martinez-Vaquero, Han, Pereira, & Lenaerts, 2015). On the other hand, such identity threats may be less of a concern when applying financial compensation as it seeks to restore distributive harm.

Trust repair components. The main motivation behind this meta-analytical analysis came from the inconsistency of trust reparative effectiveness of apology across different studies in the literature. Results showed that promise of forbearance has a unique contribution to interpersonal trust repair beyond the simplest manipulation of apology with two components, namely acknowledgement of responsibility and expression of regret.

Also, the fact that financial compensation is effective in trust repair may imply that an offer of restitution is an effective trust repair component. Of course, more studies should be designed to test on other variants of offer of restitution, such as using words of affirmation, acts of service, gift-giving, provision of quality time, and physical touch.

Besides identifying these four trust repair components in this meta-analytical endeavour, this study also prompts a future research direction evaluating trust repair components in greater details, which can possibly give rise to unlimited research possibilities.

Country of study. According to this meta-analytical study, apology seems to work best in Belgium as compared to United States and Netherlands. This country variable can serve as a proxy to study cultural differences of trust repair strategies on restoring interpersonal trust. According to Hofstede Insights (n.d.), Belgians are generally higher than Americans and Dutch in several cultural traits, such as power distance and uncertainty avoidance. It may be presumed that apology works better in Belgium since certainty is more highly valued in the society as compared to United States and Netherlands. Individuals in Belgium may be more motivated to accept apologies and continue day-to-day interpersonal interactions than those in United States and Netherlands.

Moreover, apology was perceived to be more effective than denial in repairing trust within Netherlands and United States, but not within Singapore. Singapore is much lower than Netherlands and United States in terms of uncertainty avoidance and individualism but higher in terms of power distance (Hofstede Insights, n.d.). Although there are interesting observations from this study, this meta-analytical attempt cannot provide any concrete clue with regards to cultural elements on trust reparative effectiveness. This research direction with a cultural perspective may potentially provide a more complete understanding of interpersonal trust repair.

Practical Implications

The meta-analytical study has concluded that both apology and financial compensation are useful strategies in repairing a broken trust between two strangers. Generally, an apology works better than outright denying responsibility, which is in turn better than failing to confirm responsibility when interpersonal trust has broken. This finding provides laymen with a general sense of which commonly used trust repair strategies actually work.

For researchers, this meta-analytical attempt reveals how methodological variations in experimental procedure may affect study results. For researchers who want to observe greater trust repair effectiveness of apology, they can either ensure that individuals are paid cash for their participation or adopt a scenario-based study design. As for financial compensation, researchers can observe better effectiveness by conducting actual experiments, such as adopting one of the available behavioural economic games in the literature, as compared to adopting a scenario-based study design.

In addition, researchers can control for these highlighted methodological variations when conducting future experimental studies to ensure an elaborate assessment of effectiveness of individual trust repair strategies as well as relative trust reparative effectiveness among these strategies. This means using methodological procedures in studies that do not show substantial difference between trust repair strategy of concern and control group or between two trust repair strategies so that researchers can be confident that it is indeed the respective trust repair strategy of concern at work when substantial difference is observed. For instance, whether monetary payment for participation is given in research study should be made clear to participants before the actual study begins as the meta-analytical review has found that payment uncertainty may actually contribute to greater trust reparative effectiveness of apology than that of denial. This methodological variation, as elaborated, can serve as a procedural control in research design for interpersonal trust repair studies.

Limitations

Besides the positive implications arising from this meta-analytical endeavour, several limitations are noteworthy.

Similar to any other meta-analysis, this meta-analytical study subsumed the limitations of the quantitative studies on which it was built upon. For instance, most studies included in this quantitative review could possibly yield effect sizes that have been inflated by same-source bias, which in turn impacted the meta-analytical correlations.

Furthermore, this meta-analytical study was unable to review all the various factors that have been tested empirically in the trust repair literature, such as implicit beliefs, equity sensitivity, magnitude of trust violation, timing of trust violation, and timeliness of trust reparative effort. Being an emerging topic of research interest, there was insufficient number of studies being conducted on each of these factors influencing extent of trust repair, hence many of the factors were not captured in this quantitative review.

Although trust repair components are being identified through a comprehensive literature review in the first chapter, not all of the trust repair components can be analysed in this meta-analytical study. Meta-analysis is limited by available empirical studies that meet the inclusion criteria for systematic review. For instance, an apology can be coded differently in each study depending on how the respective researchers manipulate an apology in their studies. Also, for group that does not have a minimum number of effect sizes will be excluded from further analyses. We cannot have refined components to be analysed in a meta-analysis one by one, unless existing empirical studies manipulated them one by one and there must be sufficient number of available studies to be analysed.

Generally, there are not many studies reporting on the years of work experience that their participants may have since most studies use university undergraduates as participants, hence this piece of information is not useful in this meta-analysis. Also, not many studies provide information of their respective ethnic composition, age range of participants, as well as whether

there is an end-game effect, where individuals react differently knowing whether they will or will not be interacting with their assigned partners in subsequent rounds. Partner's role refers to what the interaction partner is being described to be doing in the study while partner's identity refers to whether the interaction partner is indeed a real participant, a confederate, or computer-generated responder. These pieces of information have been coded in this meta-analysis but they have not been analysed as potential moderators as there are insufficient effect sizes to run the relevant analyses.

Geographical variation of these studies may potentially act as a proxy to study cultural differences. However, the actual make-up of participants in each study conducted in each of the mentioned countries differs. One example is Kim's et al. (2013) study which was conducted in United States, where 673 participants consisted of 276 Caucasians, 223 East Asians, 47 Hispanics, 34 South Asians, 15 African Americans, 1 Native American, 75 Others, and 2 of them did not report ethnicity. Hence, relevant results in this study have to be interpreted with care. Since this thesis does not set out to look into cultural differences on interpersonal trust repair, this cultural perspective has been proposed as a future research direction in the "Thesis Discussion" chapter.

Given the variety of trust-related dependent variables used in the selected studies which actually affects trust reparative effectiveness being observed, it may be recommended to categorise these dependent variables into trust beliefs, trust intentions, and trust behaviours, and evaluate their differential effectiveness.

CHAPTER FOUR: STUDY 2 EXPERIMENTAL STUDY

An Experimental Approach to Assessing the Effectiveness of Trust Repair Strategies after an Incident of Trust Violation

From the meta-analytical review discussed in the previous chapter as well as research gaps identified in first two chapters, various limitations of existing experimental studies in the literature are discovered. As a result, this present study is designed to address these limitations in order to assess the effectiveness of trust repair strategies accurately.

Limitations of Existing Studies

As mentioned earlier, different trust measures are used in existing empirical studies in the literature. This makes it difficult to gauge the effectiveness of trust repair strategies across the various studies in previous chapter since different trust variables may not necessarily be comparable as they may not capture the same aspects or features of trust. Researchers should be careful when interpreting these empirical results as the choice of different trust measures adopted may produce different results. To address this potential issue, the present study examines two trust measures, namely psychological trust and behavioural trust, to understand if these two trust measures provide comparable or different findings. In this study, psychological trust will capture the one's trusting intention while behavioural trust assesses one's actual trusting behaviour.

Also, the meta-analytical endeavour has found equality norm violation in the context of behavioural economics games, which is distinct from competence-based and integrity-based trust violation that have been widely researched as the nature of trust violation. In bargaining games, individuals prefer allocations to be divided in an equal way (Handgraaf, Van Dijk, & De Cremer, 2003; Pillutla & Murnighan, 2003; Van Dijk, De Cremer, & Handgraaf, 2004) and a violation of

this equality rule is generally perceived as unfair (Pillutla & Murnighan, 1996; Stouten, De Cremer, & Van Dijk, 2006). Experimental studies using behavioural economic games to understand trust repair often differ in their procedures, with some studies administering implicit trust-violating experiences where trust is simply violated when the equality norm is perceived to be breached as allocation is not divided in an equal manner by the interaction partner (Desmet et al., 2011b) while some other studies provide explicit trust-violating experiences where trust is breached due to unfulfilled promise expressed by the partner (Dirks et al., 2011). This illustrates a research gap to be filled by investigating whether the effectiveness of trust repair strategies after an incident of equality norm violation or integrity-based trust violation are indeed comparable. In this study, integrity-based trust violation with this dishonest element will be known as explicit trust violation, manipulated as an openly stated promise of financial benefits not being fulfilled, while an implicit trust violation refers to an implied equality norm within an interpersonal socio-economic relationship that is not being met. Simply put, equality norm violation is referred as implicit trust violation while integrity-based trust violation of dishonest nature is referred as explicit trust violation respectively in this study.

In addition, the meta-analytical review found that there are not many studies investigating the effect of promise as a viable trust repair strategy. Hence, the meta-analysis in previous chapter is not able to conclude whether promise is indeed an effective trust repair strategy. In addition, the manipulation of apology in existing empirical studies have not been consistent and the promise of forbearance seemed to be an important component in the manipulation of apology. Therefore, this present empirical study hopes to clarify on the effectiveness of both apology and promise by considering them as two separate trust repair strategies. An apology will be manipulated as consisting only two trust repair components, namely acknowledgement of

responsibility and expression of regret, while promise will be manipulated as consisting of only one trust repair component, namely promise of forbearance. This research attempt to split promise of forbearance component out from the manipulation of an apology seeks to clarify on the basic components making up an apology and its trust reparative effectiveness. Also, this attempt allows empirical assessment of a promise as an effective interpersonal trust repair strategy. As for financial compensation, it consists only the offer of restitution component.

Among the trust repair strategies being reviewed systematically, only apology and financial compensation are found to be effective in trust repair. However, the meta-analytical approach is not able to compare relative effectiveness of these strategies, thus it motivates empirical research effort to understand the effectiveness of apology, promise, and financial compensation, relative to a control group, in this study, as well as their relative effectiveness from one another. This present study is designed to offer an opportunity to understand if apology, promise, and financial compensation were indeed effective trust repair strategies as well as to understand which strategy may be relatively more effective than others.

Surprisingly, it seems that most existing experimental studies in the literature that explore interpersonal trust repair actually lack a credible control group to compare trust repair strategies with, hence making it difficult to gauge if trust repair strategies are indeed effective in repairing interpersonal trust in those studies. A control group has been included into current study to understand the trust reparative effectiveness of each trust repair strategy commonly used within interpersonal relationships.

Study scenarios being used in the existing trust repair research mostly involve either job applicant's accounting-related fraud (Ferrin et al., 2007; Kim et al., 2013; Kim et al., 2006; Kim et al., 2004) or CEO's compensation-related violation (Ferrin et al., 2007), which may not be

easy for participants outside of finance-related fields to relate to. Hence, the design for the present study and its related experimental manipulations seeks to be relevant and easy to relate to for individuals from all walks of life.

Purpose of Present Study

This present study focuses on investigating the effectiveness of trust repair strategies, namely apology, promise, and financial compensation, relative to a control group, in interpersonal trust repair between two individuals of zero acquaintance after an incident of trust being broken either implicitly or explicitly. Also, this study aims to find out the relative effectiveness of each trust repair strategy in interpersonal trust repair within a socio-economic context. In this study, participants play a series of allocation games with their interaction partners that is easy to relate to and simple to engage in. Hence, this can possibly highlight to us the more effective strategy to use when trust is broken either implicitly or explicitly. If certain trust repair strategies are found to be equally effective, this research attempt may actually provide insights as to which alternate strategy one can use when the other strategy is not available or not appropriate in certain contexts.

In addition, this study aims to examine if the different trust measures, namely psychological trust and behavioural trust, are indeed comparable measures in trust repair research endeavour. If both trust measures are comparable, it may mean that it does not really matter the choice of dependent variable used in experimental studies and existing empirical findings on interpersonal trust repair can be interpreted with confidence. However, if both trust measures are not comparable, this study can potentially provide insights into adopting trust intentions and trust behaviours to measure trust levels in experimental studies.

Hypotheses Relevant to Various Trust Phases

This present study adopts a repeated trust game context to understand the various trust phases in a typical socio-economic context involving allocation of resources between two individuals of zero acquaintance.

Trust building phase. With the competing perspectives of trust development discussed in chapter one, the present study seeks to find out the truth of the trust building process. If transformational perspective of trust reigns, then it is expected for the initial trust level to be low and not significantly different from zero. However, if the concept of swift trust stands, the initial trust level to be moderately high and significantly different from zero.

Hypothesis 1a: In an interpersonal interaction between two individuals of zero acquaintance, initial trust will be low (according to transformational perspective of trust).

Hypothesis 1b: In an interpersonal interaction between two individuals of zero acquaintance, initial trust will be moderately high (according to swift trust perspective).

Regardless of whether transformational perspective or swift trust perspective prevails, trust level is likely to increase over time with repeated interactions that meet expectations. Each successive positive interaction with an interaction partner is expected to increase one's trust in his/her partner.

Hypothesis 2: Trust increases over time with repeated interactions between two individuals of zero acquaintance.

Trust violation phase. According to Tomlinson and Mayer's (2009) casual attribution model of trust repair, emotional displeasure will be experienced when victims experience a negative outcome but trust in their respective interaction partners may not necessarily decrease

right at the start. Victims will first determine whether to attribute this negative outcome to either their partners or to external factors. If they attribute to their partners' fault, trust in their partners is expected to drop drastically. If they are unable to make any confident attribution to their partners or they attribute the perceived violation to external factors, trust in their partners may not be badly affected.

When explicit trust violation occurs, victims will likely see their partners' transgression as dishonest since they do not follow through with what they have said but make an opportunistic attempt instead, hence attributing the blame on their dishonest partners. On the other hand, victims may not be able to make any accurate attribution regarding the unfortunate incident that they experience when implicit trust violation occurs. Hence, it may be predicted that an incident of explicit trust violation hurts interpersonal trust more than an incident of implicit trust violation.

Hypothesis 3: Interpersonal trust decreases more after an incident of explicit trust violation than an incident of implicit trust violation.

Trust repair phase. Similarly, Tomlinson and Mayer's (2009) casual attribution model of trust repair can provide clues regarding the trust repair phase.

Nature of trust violation. In similar vein, it is highly likely for victims to attribute explicit trust violation to their partners' untrustworthy character, which is a stable and enduring characteristic, rendering subsequent trust repair to be difficult. As for implicit trust violation, victims may attribute the cause of a trust-violating incident to their interaction partners, but they do not have sufficient information to assess the extent to which their partners have control over the negative outcome. It may be harder for victims to determine their respective partners' character as trustworthy or untrustworthy when interpersonal trust is broken implicitly.

Therefore, it may be hypothesised that it will be harder to repair interpersonal trust after an incident of explicit trust violation than an incident of implicit trust violation since such dishonest act will be deemed as a character problem that is difficult to change.

Hypothesis 4: It is more difficult to repair interpersonal trust after an incident of explicit trust violation than an incident of implicit trust violation.

Type of trust repair strategies. Based on the meta-analytical findings in previous chapter, apology, promise, and financial compensation are likely to be effective in repairing trust in this experimental study. Given the socio-economic context adopted in this study using repeated trust games, it is highly likely for substantive strategy, such as financial compensation, to work better in repairing interpersonal trust than verbal strategies, such as apology and promise, where resolving distributive injustice concerns is highly valued. Between the verbal strategies, providing a promise is found to be effective in repairing interpersonal trust, even after controlling for the effects of apologising. Hence, it is probable that a promise is more effective than an apology when it comes to repairing interpersonal trust in general.

Hypothesis 5: Financial compensation is more effective than promise in repairing interpersonal trust, which is in turn more effective than apology.

Differential effectiveness of trust repair strategies. Financial compensation is likely to be useful in addressing distributive injustice concerns (Desmet et al., 2011a), be it whether interpersonal trust is being violated explicitly or implicitly. When implicit trust violation occurs, it is probable that both apology and promise can work to regain trust by mitigating anger by expressing repentance and reducing fear by signalling commitment in trustworthy behaviours in subsequent interactions respectively. However, it is unlikely for these two verbal strategies to work in explicit trust violation since victims will probably treat these trust restorative attempts as

cheap talk of no value and deem their partners to be hypocritical. Hence, it may be hypothesised that apology, promise, and financial compensation are effective in repairing interpersonal trust after an episode of implicit trust violation but only financial compensation is effective in repairing interpersonal trust after an episode of explicit trust violation.

Hypothesis 6: After an incident of implicit trust violation, financial compensation is more effective than promise in repairing interpersonal trust, which is in turn more effective than apology. However, only financial compensation is effective in repairing interpersonal trust after an incident of explicit trust violation.

Method

This study adopted a modified repeated trust games context to test out the relevant hypotheses of interest.

Experimental Design

Repeated trust games. Inspired by the experimental approach adopted by Schweitzer et al. (2006) and subsequently modified by Tomlinson (2012), this study made use of repeated trust games with some modifications. Firstly, there were nine rounds in the entire decision-making game, instead of seven rounds in Tomlinson's (2012) study. Secondly, there were four rounds to build initial trust, one round for trust violation, and four rounds of trust recovery in this study instead of two rounds each to build trust then break trust in Tomlinson's (2012) study with subsequent three rounds to observe trust recovery. Thirdly, participants playing the role of Player A as trustor/sender were provided a continuous range of how much money they were willing to pass to their respective Player B as trustee/receiver in this study while trustors in Tomlinson's

(2012) study had only three discrete choices, namely keep all money to self, split money equally between self and trustee, or pass all money to trustee, to choose from.

Each participant in this study played the role of Player A as a trustor/sender over nine consecutive rounds of standard trust game with Player B, whose role as a trustee/receiver was played by a pre-programmed computer.

Experimental factors. This study adopted an experimental design with nature of trust violation (two levels: implicit or explicit) and type of trust repair strategy (four levels: control, apology, promise, or financial compensation) as between-subjects experimental factors.

Nature of trust violation. Trust violation occurred at the end of fifth round where Player B chose to keep the entire tripled amount of money and pass nothing back to Player A. All participants were randomly assigned to each of the two trust violation conditions, either explicit trust violation or implicit trust violation (depending on whether a clear promise is made or not by Player B right before the start of fifth round).

Type of trust repair strategy. Following an incident of trust violation, Player B sent a message to Player A in an attempt to repair the trust that was broken. A total of four different messages (including a control message), each corresponding to a different trust repair strategy, were randomly assigned to each of these participants.

Hence, there were a total of eight experimental conditions in this study.

Outcome variables. The amount of money to be passed from Player A to Player B as well as current trust level as indicated by the slider in each round would serve as the continuous dependent variables in this study.

Psychological trust. A 11-point slider, ranging from 0 to 10, was provided at the start of each round for participants to indicate their current state of trust levels towards their respective

interaction partners before they decided the exact amount of money to pass on to their partners in each round of trust game.

Behavioural trust. The trust game adopted in each round provided a behavioural indication of trust throughout the entire study (Berg et al., 1995). Participants could choose to pass any amount of the given money, ranging from S\$0 to S\$10, to their respective interaction partners. Specifically, passing some or all of the money to their interaction partners from the sixth round onwards after trust violation occurred at the end of fifth round was a behavioural measure of post-violation trust.

Participants

349 Nanyang Technological University (NTU) students who were recruited into this study. Convenience sampling approach was adopted. Specifically, 129 students were recruited from the available research participant (RP) pool within the Division of Psychology and 220 students were recruited through various other channels, such as email invitation (see Appendix A), recruitment poster with QR code (see Appendix B), word-of-mouth, as well as face-to-face random approach. Each experimental session took between 45 minutes to an hour, with a maximum capacity of 14 participants per session. A total of 21 experimental sessions were held over a period of two months from December 2015 to January 2016 through various recruitment channels and S\$5 was paid to each participant for successful completion of this study. Another 14 sessions were conducted over a period of two months from February 2016 to March 2016 where students were recruited from the research participant pool and each participant was awarded two course credits for successful completion of this study. Also, all participants could expect additional virtual earnings from the decisions made in this study that were converted to

virtual credits at the end of the study to take part in a lucky draw with attractive prizes to be won (see Appendix C) after the data collection period had concluded.

The study participants were generally young with average age of 21.2 years old ($SD = 1.83$), mostly Singaporean (74.2%) of Chinese ethnicity (91.1%) in their first year of undergraduate studies (51%) in NTU. There was a relatively good spread of participants from various schools and courses within NTU.

Procedure

Study instruction. Each participant was requested to pick one of the unique participant identification code cards (six-digit codes for paid study participants, see Appendix D for study protocol targeting paid study participants; or five-digit codes for RP pool participants, see Appendix E for study protocol targeting RP pool participants) placed on the study registration table and key this number into a smartphone which then randomly assigned each of them to either room A or room B (see Figure 3). The experimenter in each room instructed each participant to read the study instructions provided (see Appendix F for general study instructions to paid study participants; see Appendix G for general study instructions to RP pool participants) and reminded them not to begin the study until everyone was around. After a quick briefing, participants were instructed to begin the study by entering their respective unique participant codes into their respective computers to give consent in study participation and to begin with the first questionnaire (see Appendix H).

Next, participants read about the allocation game that they would be playing with another randomly selected participant in the other room. They were informed that one of them in each pair would be randomly chosen to play the role of either Player A or Player B and their respective partner would play the other role. They were not be told the total number of rounds

that they would play in this study but they were informed that there would be at least nine rounds in this task. The last round would be announced immediately beforehand to avoid any end game effect. In fact, all participants played exactly nine rounds in all.

It was being highlighted to the participants that they have the opportunity to earn extra credits that give them potential chances to win one of the attractive lucky draw prizes, on top of their basic S\$5 participation fee for paid study participants or two course credits for those RP pool participants, to motivate them to maximise their virtual earnings in each round. The virtual earnings from one of these nine eligible rounds would be chosen randomly to be converted to lucky draw credits for each participant. They were also advised that any decision they make in this study, as well as decisions made by their randomly assigned interaction partners, would affect their final virtual earnings at the end of this study. They were told explicitly that “maximising mutual payoffs depends on both parties” to create a feeling of interdependence, hence promoting initial trust (McKnight et al., 1998; Meyerson et al., 1996; Weber et al., 2005). They were assured that they would remain anonymous throughout the entire game and they would only be identified by their unique participant numbers. Participants stayed in their respective rooms throughout the study and they did not meet their assigned partners at all during the study.

Participants were shown on their respective computer screens that they were assigned the role of Player A and they would be playing several rounds with a randomly assigned Player B in the other room. The participant identification number of this randomly assigned Player B was shown as well to reinforce the notion that there was indeed an actual individual playing the game with each participant. In reality, all participants in both rooms played the role of Player A while Player B was preprogrammed to respond accordingly.

Comprehension check. The allocation game would first be illustrated to the participants using several numerical examples to aid in their understanding of the actual game that they would be involved in (see Appendix I). Also, the roles and responsibilities of Player A (as a trustor/sender decides how much of the money to be distributed to the trustee/receiver in each round to indicate behavioural trust) and Player B (as a trustee/receiver decides how much of the tripled amount to be allocated back to the trustor/sender in each round to indicate trustworthiness) in this game would be explained accordingly. Participants were then asked to complete a comprehension check quiz containing a hypothetical example to test their understanding of this decision-making game before proceeding on to the actual game. Their answers in this comprehension check segment would then be reviewed and explanations were provided to help in their understanding if they had made a mistake or they were not sure how to derive the correct answer that they had selected. In addition, administering this comprehension check could possibly give the participants an impression that their respective interaction partners in the next room also understand this entire decision-making game. The word ‘trust’ was not mentioned at all during the entire study to avoid possible framing effects on the participants.

Allocation game. Before the start of each round in the actual allocation game, participants would be prompted to indicate their current trust level in Player B. Then, Player A would always receive S\$10 credit at the start of each round and s/he would have to decide how much money (any amount ranging from S\$0 to S\$10) to send over to Player B. The amount of money being sent over would always be tripled before arriving in the hands of Player B. Player B could only choose to keep half of the tripled amount and send back the other half to Player A (a trustworthy behaviour) or keep all of the tripled amount and send back nothing to Player A (a trust-violating behaviour). In a nutshell, the decision by Player A as to how much of the S\$10

credit to pass to Player B constituted the level of trust while the decisions by Player B as to how much of the tripled amount to return to Player A constituted the level of trustworthiness.

In the first four rounds of the decision-making game, Player B would always return half of the tripled amount of money to signal trustworthy behaviour and facilitate the *trust building* process with Player A.

Midway into the game, the computer screen would display a message informing all participants that both Player A and Player B were now given an opportunity to send a typed message to their respective partners. Players could choose to forfeit this opportunity to type a short message of their choice to be sent over to their respective interaction partners. In actual fact, whatever message Player A sent or not send to Player B did not matter in this study, but what was really important was the message Player A received from Player B.

In the *implicit trust violation* condition, Player A received the following message from Player B:

“Hey, let’s continue with the game! :)”

In the *explicit trust violation* condition, Player A received the following message from Player B:

“Hey, send me all of your S\$10! I’ll return you S\$15! Let’s make \$\$\$... :)”

The allocation game continued in the fifth round as usual. Immediately after Player A decided on the amount of money to pass to Player B in this round, trust violation occurred in this fifth round where Player B chose to keep the entire tripled amount and sent back nothing to Player A. This signalled an incident of trust violation.

Immediately before the start of sixth round, both Player A and Player B were again given an opportunity to send a typed message to their respective partners, which they could choose to

forfeit. Similarly, whatever message Player A sent or not send to Player B did not matter too, but what was vital was the message Player A received from Player B. Player A would receive a message from Player B seeking to repair broken trust. One of the following messages that represented different *trust repair strategies* were randomly chosen to be presented to each of the participants who experienced their trust being violated as Player A:

Apology: *“I know I’m wrong. I’m really sorry abt it.. let’s move on to the next round, okie???”*

Promise: *“I give U my word this will nv happen again.. let’s move on to the next round, okie???”*

Financial Compensation: *“I’ll compensate U with half of the tripled amt I’ve received. I’ll return U S\$X (where X is half of Player B’s kept amount during trust violation that will be returned back to Player A).. let’s move on to the next round, okie???”*

Control: *“let’s move on to the next round, okie???”*

To enhance realism, these messages were presented with some spelling errors and punctuation mistakes as well as some abbreviated informal text-style words. This is a procedure that has been used in prior research that utilises a computer-based platform in order to provide participants with the impression that the messages have actually been typed out by their respective interaction partners (Conlon & Ross, 1997).

After receiving one of these randomly assigned messages, participants would then continue with the remaining rounds, where Player B would always keep half of the tripled amount and send back the other half to Player A.

Questionnaires. Participants were then told that they have come to the end of the allocation game after completing the ninth round. Following which, they were requested to

answer a battery of tests (see Appendices J to O). Lastly, their demographic information was requested (see Appendix P).

Debriefing. Earnings from one of the eligible rounds would be randomly chosen and given in the form of credits to take part in a lucky draw. In fact, only the earnings from eighth round was chosen. Participants were then asked if they will want to enter this lucky draw with the credits they earned. If they wished to enter this lucky draw, they would be requested to provide their personal contact details to keep them informed should they be one of the three lucky winners. For participants who were paid S\$5 for their participation in this study, they would be given the option to convert their S\$5 cash into five additional credits in the lucky draw to increase their chances of winning (see Appendix Q). However, this option was not available to RP pool participants as they received two course credits instead. Participants were carefully debriefed about the study.

Results

Statistical Analyses

Multi-level modelling. In this study, multi-level modelling technique was adopted to test the hypotheses since this statistical procedure accounted for dependency of within-subjects responses by examining the intra-individual change in trust levels (psychological trust and behavioural trust) in different phases of the trust process, namely trust building, trust violation, and trust repair (Level 1 model). Level 1 model consists of an intercept parameter, representing the mean trust level at the start of each phase, and a slope parameter, representing the rate of change in trust levels within a single trust phase (with steeper slopes indicating greater rates of change). Also, this statistical procedure provided variance information of the two change parameters, namely

intercepts and slopes, to account for the individual differences on the change in trust levels in each phase beyond sampling error. These variance information of intercept and slope parameters helped in determining whether additional research effort was justified to investigate the influence of individual differences on the extent of interpersonal trust repair in subsequent chapter. When the slopes and intercepts are negatively and significantly covaried, it means that the smaller the intercepts are, the steeper are the slopes. In other words, those with lower initial trust level tends to increase their trust towards player B faster.

In addition, multi-level analysis helped in understanding how trust levels (psychological trust and behavioural trust) and their rates of change could be affected by inter-individual factors, such as nature of trust violation and type of trust repair strategy (Level 2 model) during trust repair phase.

Pairwise comparison. LSD pairwise comparisons helped in finding out the relative effectiveness of trust repair strategies after an incident of broken trust was experienced.

T-tests. Supplementary analyses adopting paired-samples t-test and one-sample t-test were conducted to find out if broken trust can be restored back to its pre-violation level, explore whether it was indeed harder to repair trust than to build it, as well as investigate if individuals are able to dissociate psychological trust from behavioural trust.

All statistical analyses were performed at .05 significance level unless otherwise stated.

Main Analyses

A linear trend multi-level model was fitted to data from round 1 to round 4 for trust building phase, round 5 to round 6 for trust violation phase, and round 6 to round 9 for trust repair phase, with random intercepts and random slopes included.

Several models with different covariance structures were tested. Firstly, various random effects covariance structures, namely unstructured, diagonal, heterogeneous first-order autoregressive, and compound symmetry, were checked and unstructured random effects covariance structure was adopted. Secondly, various repeated effects covariance structures, specifically diagonal, first-order autoregressive, heterogeneous first-order autoregressive, compound symmetry, and identity, were compared and diagonal repeated effects covariance structure was selected. The final baseline model for each trust phase was settled upon with its covariance structure consisting of both unstructured random effects and diagonal repeated effects.

In addition, quadratic functions were added into the respective models of trust building and trust repair phases to test for non-linear trend in changes of trust levels. Also, various interaction terms were considered for both trust violation and trust repair phases too. Only the statistically significant predictors were retained in the statistical model while the rest were removed. The final model for each trust phase was based on the principle of parsimony (see Table 12).

For instance, an interaction term “nature of trust violation * trust violation” was added to the statistical model for trust violation phase to find out if the drop in trust levels (with ‘trust violation’ being the within-subjects time factor in trust violation phase) was affected by whether trust was being broken implicitly or explicitly (with ‘nature of trust violation’ being the between-subjects factor; see Table 12).

Trust building phase¹². The relationship between trust building phase and psychological trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 5.81, p < .001$. In addition, the slopes of this trust building phase varied significantly across participants, $\text{var}(u_{1i}) = 0.42, p < .001$, and the slopes and intercepts negatively and significantly covaried, $\text{cov}(u_{0i}, u_{1i}) = -0.83, p < .001$. Similarly, the relationship between trust building phase and behavioural trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 6.13, p < .001$. Also, the slopes varied across participants, $\text{var}(u_{1i}) = 0.35, p < .001$, and the slopes and intercepts negatively and significantly covaried, $\text{cov}(u_{0i}, u_{1i}) = -0.90, p < .001$.

Results from the multi-level model of the trust building phase implied that individuals generally have high initial psychological trust to begin with when interacting with others as they indicated self-reported trust level that is significantly different from zero in the first round, $F(1, 349) = 1719.65, \pi_{0i} = 5.57, p < .001$ (see Model 1 in Table 12), and they passed significant non-zero amount of money to their interaction partners in the first round, $F(1, 349) = 2422.26, \pi_{0i} = 7.02, p < .001$, indicating high initial behavioural trust (see Model 2 in Table 12). These findings supported hypothesis 1b, but not hypothesis 1a.

Psychological trust was observed to increase significantly across the rounds during trust building phase, $F(1, 349) = 431.50, \pi_{1i} = 0.83, p < .001$, and individuals were found to be passing significantly more money to their partners across the first four rounds, $F(1, 349) = 207.92, \pi_{1i} = 0.61, p < .001$, indicating increasing behavioural trust. These findings supported hypothesis 2.

¹ A linear trend multi-level model was fitted to data from round 1 to round 4, with random intercept and random slope included. Several models were tested before deciding on this final model for the trust building phase based on the principle of parsimony.

² The demographic variables, age and gender, had been added into this final model for trust building phase as covariates to serve as statistical controls, but there was no change in statistical significance of all key effects of interest. Hence, statistical results, after controlling for age and gender, were not included for brevity purpose.

It was noted that psychological trust level increased significantly across the first four rounds, from round 1 ($M = 5.40$, $SD = 2.59$) to round 2 ($M = 6.65$, $SD = 2.30$), $p < .001$, round 2 to round 3 ($M = 7.42$, $SD = 2.21$), $p < .001$, round 3 to round 4 ($M = 7.94$, $SD = 2.12$), $p < .001$. Also, it was recognised that behavioural trust level increased significantly across the first four rounds, from round 1 ($M = 6.88$, $SD = 2.70$) to round 2 ($M = 7.89$, $SD = 2.35$), $p < .001$, round 2 to round 3 ($M = 8.45$, $SD = 2.27$), $p < .001$, round 3 to round 4 ($M = 8.75$, $SD = 2.06$), $p < .001$. These findings provided further support for hypothesis 2.

In addition, an explicit statement to cooperate was expected to increase interpersonal trust more than an implicit statement between round 4 and round 5. Comparing the difference in trust levels between round 4 and round 5, it could be observed that there was no significant difference between an explicit statement ($M = 0.26$, $SD = 1.73$) and an implicit statement ($M = 0.29$, $SD = 0.95$) in increasing psychological trust, $F(1, 337) = 0.54$, $p = .82$. However, an explicit statement ($M = 0.72$, $SD = 1.81$) did increase behavioural trust to a greater extent than an implicit statement ($M = 0.11$, $SD = 1.42$), $F(1, 337) = 11.70$, $p < .001$, $\eta_p^2 = .034$.

Trust violation phase³⁴. The relationship between trust violation phase and psychological trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 2.99$, $p < .001$. Moreover, the slopes of this trust violation phase varied significantly across participants, $\text{var}(u_{1i}) = 5.09$, $p < .001$. Likewise, the relationship between trust violation phase and behavioural trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 6.13$, $p < .001$. Also, the slopes varied across participants, $\text{var}(u_{1i}) = 0.35$, $p < .001$.

³ A linear trend multi-level model was fitted to data from round 5 to round 6, with random intercept and random slope included. Several models were tested before deciding on this final model for the trust violation phase based on the principle of parsimony.

⁴ The demographic variables, age and gender, had been added into this final model for trust violation phase as covariates to serve as statistical controls, but there was no change in statistical significance of all key effects of interest. Hence, statistical results, after controlling for age and gender, were not included for brevity purpose.

Results from the multi-level model for the trust violation phase illustrated that psychological trust dropped significantly after the trust-violating incident occurred, $F(1, 349) = 356.92$, $\pi_{1i} = -3.59$, $p < .001$ (see Model 3 in Table 12), and individuals passed significantly lower amounts of money to their respective interaction partners, $F(1, 349) = 202.69$, $\pi_{1i} = -3.27$, $p < .001$, exhibiting significant drop in behavioural trust (see Model 4 in Table 12).

Furthermore, it was hypothesised that interpersonal trust would suffer greater drop after an incident of explicit trust violation than an incident of implicit trust violation. As indicated in Model 3 (see Table 12), the nature of trust violation had no significant effect on the psychological trust levels, $F(1, 349) = 0.89$, $\gamma_{11} = 0.24$, $p = .35$, but there was significant interaction between nature of trust violation and trust violation phase on psychological trust levels, $F(1, 349) = 4.15$, $\gamma_{12} = 0.70$, $p = .042$. On the contrary, Model 4 (see Table 12) revealed that the nature of trust violation had a significant effect on behavioural trust levels, $F(1, 349) = 8.23$, $\gamma_{11} = -0.63$, $p = .004$, and there was significant interaction between nature of trust violation and trust violation phase on behavioural trust levels, $F(1, 349) = 5.27$, $\gamma_{12} = 0.91$, $p = .022$.

It was observed that an explicit trust violation reduced behavioural trust to a greater extent than an implicit trust violation, but not psychological trust. Comparing the difference in trust levels between round 5 and round 6, it could be observed that there was no significant difference between an explicit trust violation ($M = -3.61$, $SD = 3.33$) and an implicit trust violation ($M = -2.93$, $SD = 3.09$) in reducing psychological trust, $F(1, 337) = 3.72$, $p = .055$, $\eta_p^2 = .011$. Similarly, this finding could also be confirmed from pairwise comparisons from a one-way between-subjects ANOVA where there was no significant difference between the drop in psychological trust experienced by participants assigned to explicit trust violation condition with no trust reparative effort given ($M = -4.33$, $SD = 3.33$) as compared to those in implicit trust

violation condition without any trust reparative effort provided ($M = -3.19$, $SD = 2.82$), $p = .099$. However, an explicit trust violation ($M = -3.30$, $SD = 3.81$) reduced behavioural trust to a greater extent than an implicit trust violation ($M = -2.41$, $SD = 3.61$), $F(1, 337) = 4.97$, $p = .026$, $\eta_p^2 = .015$. This finding was also confirmed from pairwise comparisons from a one-way between-subjects ANOVA where participants assigned to explicit trust violation condition with no trust reparative effort given ($M = -4.76$, $SD = 4.05$) experienced greater significant drop in behavioural trust as compared to those in implicit trust violation condition without any trust reparative effort provided ($M = -2.98$, $SD = 3.95$), $p = .022$. These findings supported hypothesis 3 partially in that an explicit trust violation reduced behavioural trust to a greater extent than an implicit trust violation, but not psychological trust.

Trust repair phase⁵⁶. The relationship between trust repair phase and psychological trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 9.70$, $p < .001$. In addition, the slopes of this trust repair phase varied significantly across participants, $\text{var}(u_{1i}) = 0.34$, $p < .001$, and the slopes and intercepts negatively and significantly covaried, $\text{cov}(u_{0i}, u_{1i}) = -0.53$, $p < .001$. Similarly, the relationship between trust repair phase and behavioural trust showed significant variance in intercepts across participants, $\text{var}(u_{0i}) = 11.04$, $p < .001$. Also, the slopes varied across participants, $\text{var}(u_{1i}) = 0.70$, $p < .001$, and the slopes and intercepts negatively and significantly covaried, $\text{cov}(u_{0i}, u_{1i}) = -1.39$, $p < .001$.

⁵ A linear trend multi-level model was fitted to data from round 6 to round 9, with random intercept and random slope included. Many models were tested before deciding on this final model for the trust repair phase based on the principle of parsimony. For instance, the interaction term between nature of trust violation and type of trust repair strategy was insignificant when repairing psychological trust, $F(3, 345) = 0.61$, $p = .61$, as well as when repairing behavioural trust, $F(3, 345) = 0.78$, $p = .50$. Hence, these interaction terms were being removed from the final models. Since the interaction terms were insignificant and removed from final models, the simple effects were not examined and reported in this section.

⁶ The demographic variables, age and gender, had been added into this final model for trust repair phase as covariates to serve as statistical controls, but there was no change in statistical significance of all key effects of interest. Hence, statistical results, after controlling for age and gender, were not included for brevity purpose.

Results from the multi-level model of the trust repair phase conveyed that there was significant restoration of psychological trust, $F(1, 345) = 108.15$, $\pi_{1i} = 0.41$, $p < .001$ (see Model 5 in Table 12), and behavioural trust, $F(1, 345) = 31.86$, $\pi_{1i} = 0.35$, $p < .001$ (see Model 6 in Table 12).

Furthermore, it was hypothesised that it would more difficult to repair interpersonal trust after an incident of explicit trust violation than an incident of implicit trust violation. Multi-level analyses indicated that the nature of trust violation had a significant effect on psychological trust levels, $F(1, 345) = 5.91$, $\gamma_{11} = 0.79$, $p = .016$ (see Model 5 in Table 12), but not on the behavioural trust levels, $F(1, 345) = 0.22$, $\gamma_{11} = 0.15$, $p = .64$ (see Model 6 in Table 12). Indeed, it was more difficult to repair psychological trust between two individuals after an incident of explicit trust violation had occurred than after an incident of implicit trust violation, but no difference was found in repairing behavioural trust. Hence, these findings supported hypothesis 4 partially in that an explicit trust violation made it harder to repair psychological trust than implicit trust violation, but not behavioural trust.

In addition, Table 12 showed that the type of trust repair strategy had a significant effect on behavioural trust levels, $F(3, 345) = 3.61$, $p = .014$, but not on psychological trust levels, $F(3, 345) = 1.95$, $p = .12$, in general.

Subsequent LSD pairwise comparisons showed that only the use of financial compensation exhibited significantly higher psychological trust as compared to the control group ($p = .029$), but not apology ($p = .068$) or promise ($p = .076$). Also, LSD pairwise comparisons showed that both promise ($p = .012$) and financial compensation ($p = .002$) exhibited significantly higher behavioural trust as compared to the control group, but not apology ($p = .87$). However, none of the trust repair strategies was found to be substantially more effective from

one another in repairing either psychological trust or behavioural trust. These findings supported hypothesis 5 partially in that both financial compensation and promise are effective trust repair strategies in restoring behavioural trust while only financial compensation appears to be effective in repairing psychological trust. Surprisingly, apology is deemed to be ineffective in repairing both psychological trust and behavioural trust in this study.

The interaction effect between nature of trust violation and type of trust repair strategy was found to be insignificant when repairing psychological trust, $F(3, 345) = 0.61, p = .61$, as well as when repairing behavioural trust, $F(3, 345) = 0.78, p = .50$. As a result, hypothesis 6 could not be supported. Hence, there is no differential effect of trust repair strategy when restoring interpersonal trust that has been broken implicitly or explicitly.

Supplementary Analyses

One interesting question in mind may be whether trust can be restored back to its original pre-violation level. Paired-samples t-tests was conducted on round 5 and round 9 psychological trust and behavioural trust scores to understand whether broken trust can be restored back to its pre-violation level. It was found that for psychological trust, round 5 scores ($M = 8.17, SD = 2.37$) were significantly higher than round 9 scores ($M = 6.15, SD = 3.23$), $t(348) = 12.14, p < .001, d = 0.30$. Similarly, round 5 scores ($M = 9.07, SD = 2.07$) were significantly higher than round 9 scores ($M = 7.28, SD = 3.61$) for behavioural trust, $t(348) = 8.83, p < .001, d = 0.18$. Therefore, it may be concluded that broken trust cannot be restored back to its pre-violation level in this experimental set-up. Perhaps, more rounds may be required in the trust repair phase for restoration of broken trust back to its pre-violation level observed in round 5.

Another interesting question worth exploring will be to find out if both trust-building and trust repair processes are comparable. Hence, paired-samples t-test was conducted to compare

the slope coefficients between trust building process (rounds 1 to 4) and trust repair process (rounds 6 to 9). It was found that the slope coefficients were significantly larger for trust-building process ($M_{psychological} = 0.83$, $SD_{psychological} = 0.75$; $M_{behavioural} = 0.61$, $SD_{behavioural} = 0.79$) than those of trust repair process ($M_{psychological} = 0.41$, $SD_{psychological} = 0.73$; $M_{behavioural} = 0.36$, $SD_{behavioural} = 1.16$) for both psychological trust, $t(348) = 8.47$, $p < .001$, $d = 0.17$, and behavioural trust, $t(348) = 3.33$, $p < .001$, $d = 0.031$. Thus, it can be understood that it is indeed more difficult to repair trust than to build it.

One more question of interest may be to find out whether individuals are able to dissociate psychological trust from behavioural trust. To explore this question, correlation, r , values were computed across all rounds of psychological trust and behavioural trust scores. Following which, one-sample t-test was conducted on various r values that are available ($N = 283$, based on 66 missing r values). It was found that the correlation between psychological trust and behavioural trust across all participants was $r = 0.59$ and it was significant, $t(282) = 26.96$, $p < .001$, $d = 1.60$. Hence, it may be concluded that individuals are able to dissociate psychological trust from behavioural trust.

Discussion

This experimental study attempts to understand the dynamics of trust building, trust violation, and trust repair phases by observing changes in psychological trust and behavioural trust levels. In particular, this study examines the effectiveness of trust repair strategies, namely apology, promise, and financial compensation, relative to a control group, in interpersonal trust repair between two individuals of zero acquaintance within a socio-economic context after an incident of trust being broken either implicitly or explicitly.

Trust building phase. Individuals generally have high initial perceived trust to begin with when interacting with others and they tend to pass substantial amount of money to their interaction partners even in the very first round. Also, it can be observed that interpersonal trust, be it psychological trust or behavioural trust, grows substantially across the initial rounds when individuals' positive expectations of their respective interaction partners are met. In addition, an explicit attempt to cooperate does motivate individuals to pass more money to their interaction partners as compared to an implicit attempt to cooperate. However, participants who receive an explicit message to cooperate do not think that they have higher perceived trust of their interaction partners as compared to those who receive an implicit message.

Trust violation phase. Generally, interpersonal trust drops drastically whenever a trust-violating incident occurs. Participants express low perceived trust of their partners and pass less money to them in their immediate response following trust violation. Further analyses find that explicit trust violation reduces the amount of money sent over to interaction partners as compared to implicit trust violation, but it does not affect trust perception of their partners.

Trust repair phase. Interpersonal trust does recover when participants do not face subsequent violation attempts. This finding can be supported by the higher perceived trust reported by the participants as well as increasing amount of money being passed to their partners in subsequent rounds. Also, it seems that the nature of trust violation does affect the extent of trust repair when individuals are asked to evaluate their trust perception of their interaction partners, but it does not affect the amount of money they send to their respective partners. Specifically, an incident of explicit trust violation makes it harder to repair trust perception of their partners than an incident of implicit trust violation, but no such difference is observed when it comes to monetary allocation in subsequent rounds.

From this study, it seems that only financial compensation, not apology or promise, is effective in repairing psychological trust. This study also finds both promise and financial compensation to be effective in repairing behavioural trust, except apology.

Supplementary analyses. Further statistical analyses of interest found that broken interpersonal trust, be it psychological trust or behavioural trust, cannot be restored back to its pre-violation level. Indeed, this study confirmed that it is indeed more difficult to repair interpersonal trust than to build it. Interestingly, individuals are able to dissociate psychological trust from behavioural trust in this study, suggesting that these two trust measures may not be equivalent in capturing the trust construct and researchers have to be careful when reviewing empirical papers related to trust repair.

Theoretical Implications

Psychological trust vs. behavioural trust. The supplementary analyses showed that psychological trust and behavioural trust have similar characteristics in that both types of trust could not return back to their original levels before trust violation occurs and it was harder to repair both types of trust than to build them. These similarities were only relevant when both types of trust were allowed to grow over time without the influence of any contributory factor.

However, participants were able to dissociate psychological trust from behavioural trust, indicating that both types of trust may have different interpretations for them. Indeed, both types of trust are fundamentally different each other in which psychological trust captures the essence of trust intentions while behavioural trust measures trust behaviours. Having the intention to trust someone does not necessary translate into behavioural manifestations to confirm one's trusting intentions. Exhibiting trusting behaviours may not necessarily imply one's authentic trust from within oneself. This is especially so when this experimental study finds that nature of trust

violation, whether trust is violated explicitly or implicitly, affects psychological trust and behavioural trust differently. For example, explicit trust violation reduces behavioural trust to greater extent than implicit trust violation, but the nature of trust violation has no substantial effect on psychological trust. Also, the type of trust repair strategy affects both types of trust differently too. For instance, a promise can repair behavioural trust, but not psychological trust.

Future research effort in interpersonal trust repair can be made to explore the underlying conceptual distinctions among trust beliefs, trust intentions, and trust behaviours.

Trust repair components. In this experimental study, apology is manipulated with only two components, acknowledgement of responsibility and expression of regret, while promise is simply manipulated as one single component, promise of forbearance. Also, financial compensation is manipulated as consisting of just one single component, offer of restitution.

Results in this study supported Schweitzer et al. (2006) and Tomlinson's (2012) results which demonstrated apology to be an ineffective trust repair strategy when it consisted of only two trust repair components, acknowledgement of responsibility and expression of regret. Similarly, promise was found to be effective in repairing behavioural trust in this study, supporting Schweitzer et al. (2006) and Tomlinson's (2012) findings too. Moreover, financial compensation was illustrated to be an effective trust repair strategy in this study too.

Therefore, these study findings seem to suggest that when it comes to interpersonal trust repair, individuals may actually favour trust reparative attempts of forward-looking perspective or prospective orientation over those of backward-looking perspective or retrospective orientation. Specifically, a promise of forbearance appears to be effective in repairing trust through honouring one's words moving forward (Tomlinson, 2012) and signalling a positive intent to repair interpersonal trust, providing victims with the confidence to trust again (Schniter

et al., 2013). Also, an offer of restitution conveys to the victims that the transgressors are willing to incur costs to make things right again (Scher & Darley, 1997), signalling sincerity in restoring trusting relationships (Ohtsubo & Watanabe, 2009). Although an acknowledgement of responsibility and an expression of regret are necessary components of apologies (Lewicki & Polin, 2012; Tomlinson, 2012), their “backward-looking” content in trust repair does not seem to be effective in this study.

Practical Implications

This experimental study found that financial compensation and promise were effective in repairing behavioural trust but only financial compensation was useful in restoring psychological trust. Hence, there is reason to believe that the choice of dependent variables adopted in studies matters and careful interpretation of study results using different dependent variables in trust repair literature should be advised.

Furthermore, since promise and financial compensation are equally effective in repairing behavioural trust, it may make more economical sense for individuals to provide a promise verbally than to compensate financially since financial compensation is definitely a most costly strategy than verbal promises. Subsequent studies may be conducted to validate this finding.

As there may be little or no distinct difference in interpersonal trust repair within work and non-work contexts since personal-professional diffusion is deemed appropriate in collectivistic societies (Wasti, Tan, & Erdil, 2011), empirical results from non-work context in this experimental study may be applicable to work contexts in Singapore. However, this may possibly be a useful practical implication that requires further empirical examination.

Limitations

Generalisation of study findings. The study samples in the experimental study are limited to Singapore context, which is of a collectivistic culture (Hofstede, 2001) that emphasises on familial goals over individual needs. Hence, the research findings from this thesis cannot be generalised to individualistic societies, which emphasises on personal achievements over group goals.

Also, the socio-economic context in the experimental study involved only university undergraduates of zero acquaintance relationships. Thus, empirical results of this study cannot be generalised to close relationships or even relationships with some extent of psychological closeness.

Moreover, the participants in the experimental study were mainly undergraduates who were relatively young. Therefore, it reminds us not to infer results from this experimental study based on tertiary undergraduate sample to individuals of other age groups.

Suitability of study design. It is rather surprisingly that apology does not seem to work in repairing interpersonal trust in this study. Earlier meta-analytical findings may provide some clues as to why this is so. Firstly, an apology works better in scenario-based experiments than in actual experiments. Secondly, an apology repairs trust between individuals of vertical relationships more effectively than between those of horizontal relationships. Hence, the design of this experimental study using a repeated trust game context that involves actual allocation decisions in each round between strangers may favour financial compensation over apology in repairing interpersonal trust inherently since prior meta-analytical analyses suggest that financial compensation repair trust better in actual experiments than in scenario-based experiments and it works better between individuals of horizontal relationships than those of vertical relationships.

Differential effectiveness of trust repair strategies. This study was unable to separately examine the effect of trust repair strategies after trust was broken implicitly or explicitly since there was no significant interaction effect between nature of trust violation and type of trust repair strategy.

Also, it is not possible to investigate if comparable results will be observed when integrity-based trust violation is being manipulated as being dishonest by not fulfilling a promise in this experimental study as explicit trust violation, rather than as being intentional in many existing studies.

Manipulation checks. Another salient limitation is the lack of explicit manipulation checks for the nature of trust violation and type of repair strategy in this study.

However, for nature of trust violation, there are two levels, namely implicit trust violation and explicit trust violation. In the *implicit trust violation* condition, Player A received the message “Hey, let’s continue with the game! :)” from Player B. In the *explicit trust violation* condition, Player A received the following message “Hey, send me all of your S\$10! I’ll return you S\$15! Let’s make \$\$\$... :)” from Player B. There is a definite promise from Player B to Player A in explicit trust violation, which is clearly missing from implicit trust violation. Also, implicit trust violation can probably serve as a control group in this study design, given the way it is being manipulated in this study. Since explicit trust violation is clearly distinctive from implicit trust violation, participants should not have problem differentiating both types of trust repair.

As for trust repair strategies, there should be no problem differentiating financial compensation from control. In the initial phase, there was concern that individuals may have difficulties differentiating an apology from a promise. A small pilot study was conducted on 57

participants before the data collection of the experimental study started. These participants were asked to match each of the eight statements provided and classify as “Apology”, “Promise”, or “Not Sure” (see Appendix R for online version, $n = 45$; see Appendix S for hardcopy version, $n = 12$). Of the 57 participants, 52 of them (91.2%) had correctly identified “I know I’m wrong. I’m really sorry about it.” as an apology statement. On the other hand, 47 of them (82.5%) had correctly identified “I give you my word that such unfortunate incident will never happen again.” as a promise statement. Hence, these results provided basis that majority of participants should have no problem identifying each trust repair strategy. Future study can certainly add in direct manipulation checks in the study.

CHAPTER FIVE: FURTHER ANALYSES ON STUDY 2 EXPERIMENTAL STUDY

Role of Individual Differences on Interpersonal Trust Repair

From the previous chapter, statistically significant variances are found in random intercepts and random slopes across individuals in each of the trust building, trust violation, and trust repair phases. These statistical findings provide insights into the untapped potential of explaining the extent of interpersonal trust reparative effectiveness by studying individual differences. Also, it is important to study individual differences in this aspect to meet the research gaps in the interpersonal trust repair literature. From the theoretical perspective, this research pursuit can possibly complement existing trust repair theories or enhance related models since the extent of trust reparative effectiveness may differ across individuals, allowing more accurate prediction of whether a trust reparative attempt is likely to work.

Hence, this chapter is dedicated to examine and understand the role of individual differences on the various trust phases, particularly on interpersonal trust repair.

Inclusion of Individual Difference Variables

During the initial literature review phase, some individual difference variables, such as trait forgiveness (Aquino, Grover, Goldman, & Folger, 2003; Desmet et al., 2011b; Schoorman, Mayer, & Davis, 2007) and implicit beliefs of moral character (Haselhuhn et al., 2010), were found to influence the extent of trust reparative effectiveness, hence they were included in this experimental study to verify and control their effects.

Some individual difference variables, such as regulatory focus theory and allocentrism-idiocentrism personality dimension, were discussed but excluded from this research endeavour. For instance, allocentrism and idiocentrism are individual difference constructs that correspond

to collectivism and individualism at the cultural level. Since cultural consideration is not one of the main aims in this thesis, this personality dimension of cultural flavour was excluded in this study. Both prevention-focused versus promotion-focused dimension as well as allocentrism versus idiocentrism dimension can be explored in future research.

A final decision was made as to which individual difference variables would be included into this study based on research interests, conceptual relevance, potential theoretical contributions and practical implications. Individual differences, namely social value orientation (SVO), trust propensity, trait forgiveness, implicit beliefs of moral character, temporal focus, Big Five personality traits, and risk preference, were studied to understand their influence on the effectiveness of interpersonal trust repair.

Social value orientation. Social value orientation is an individual difference variable that assesses one's stable preferences for certain patterns of outcomes for oneself and others or the weights that people assign to outcomes for the own self and others in allocation tasks (Messick & McClintock, 1968). There are four main social value orientations, namely altruists who prioritise maximising other's gains as their main motivation, prosocials who exhibit clear tendencies toward mutual cooperation and seek to maximise joint outcomes, individualists who prioritise maximising own gains as their main motivation, as well as competitors who seek to maximise their relative gains from others (Sattler & Kerr, 1991). Social value orientation moderates many relationships between intentions and behaviours (Garling, Fujii, Garling, & Jakobsson, 2003). The more one thinks about others, the more likely one will forgive and forget broken trust experience if transgressors are truly repentant of the mistakes they have committed.

Predisposition to trust. Contrary to rationality-based models stating that interpersonal trust starts low and increase gradually over time (Jones & George, 1998; Lewicki & Bunker,

1995; Lewicki & Wiethoff, 2000), many studies have shown that initial trust between strangers can actually start high even without a history of mutual interaction (McKnight et al., 1998; Meyerson, et al., 1996; Weber, et al., 2005). This may be possible due to individual's trust propensity, which refers to one's general willingness to trust others that may be shaped by past experiences and culture (Mayer et al., 1995). Similarly, individuals with high trust propensity, as compared to those with low trust propensity, are more likely to regain trust in their interaction partners who have just broken their trust as long as their trust-violating behaviours are unintentional and not consistent.

Trait forgiveness. Trait forgiveness refers to a prosocial change in motivation where a victim has become less motivated to harm the transgressor and more motivated to behave in ways that benefit the transgressor or his relationship with the transgressor (McCullough, 2001). Since stable individual differences exist in our tendency to forgive (Brown, 2003; Brown & Philips, 2005), this dispositional factor is likely to affect the effectiveness of interpersonal trust repair in a positive manner.

Implicit beliefs of moral character. Individuals may differ in their implicit beliefs that personal attributes are fixed and they cannot be changed (entity beliefs) or that personal attributes are malleable and they can be changed and developed (incremental beliefs; Dweck, Chiu, & Hong, 1995). Haselhuhn et al. (2010) have found that individuals who believe that moral character can adjust over time (incremental beliefs) are more likely to trust their interaction partners again following trust reparative attempts than those who believe that moral

character cannot be adjusted (entity beliefs). This finding suggests that implicit belief of moral character has a positive role⁷ to play in influencing effective trust repair.

Temporal focus. Temporal focus is a construct that describes the extent individuals devote their attention to thinking about the past, present, and future (Shipp, Edwards, & Lambert, 2009). This concept is relevant to interpersonal trust repair because it affects how victims synthesise perceptions about past experiences, current situations, and future expectations into their attitudes, behaviours, and cognitions (Shipp et al., 2009). Current-focused and future-focused individuals are found to be positively correlated to internal locus of control while past-focused individuals are positively related to external locus of control, such as powerful others (Shipp et al., 2009). This suggests that current-focused and future-focused victims see themselves as having an active role to play in the bilateral trust repair process since they believe that they can influence their life circumstances, but not those who are past-focused as they believe whatever they do will be futile in controlling their own fate. Also, current-focused and future-focused individuals are generally optimistic while past-focused individuals are generally pessimistic (Shipp et al., 2009). This suggests the tendency for past-focused victims to dwell on past disappointments with the general belief that broken trust is difficult to be repaired while there is a general tendency for current-focused and future-focused victims to look beyond past violations to believe that trust can be repaired. Furthermore, current-focused and future-focused individuals are willing to take risks in committing to decisions with uncertain outcomes (Shipp et al., 2009), suggesting that they are more inclined to give their transgressors the benefit of the doubt and trust them once again than past-focused individuals.

⁷ Although it is stated that implicit belief of moral character has a positive effect on repairing interpersonal trust, the actual statistical result is expected to be negatively related to trust levels since individuals with mean score of 4.0 and above are classified as entity theorists while those with a mean score of 3.0 and below are classified as incremental theorists.

Big Five traits. It is interesting to consider the effects of Big Five personality traits on interpersonal trust repair. Trust can be explained by high extraversion, high agreeableness, and low conscientiousness (Ben-Ner & Halldorsson, 2010). For extraverted individuals, it may be easy to repair trust in them as they tend to value relationships and continual interactions. Also, it may be easy to repair trust among individuals with high agreeableness since they have a tendency to be compassionate towards others and to cooperate with others. On the other hand, it may be difficult to repair trust in high conscientious individuals because they tend to be careful and stubborn in the decisions they make. As for neurotic individuals, they may think much over a trust-violating incident and feel fearful and insecure of its consequences, hence it is likely to be difficult to repair trust of those individuals with high neuroticism. Openness may not influence the extent of trust repair since this personality trait has to do with own self and nothing to do with others.

Risk preference. It may be easier to repair trust of individuals who are risk-seeking than those who are risk-averse. Risk-averse individuals may be more conservative in nature and it may be hard to repair their broken trust since they may try to avoid being vulnerable again to someone who has broken their trust previously. On the other hand, risk-seeking individuals may be willing to give others a chance to prove themselves.

Method

The data collected for discussion on the effects of individual difference variables on the extent of interpersonal trust repair comes from the same group of participants in the experimental study as described in the previous chapter.

Most of these individual difference measures were administered to the participants after the experimental session, except for social value orientation (SVO) which was presented before the start of the experimental session (see Figure 3).

Measures

Social value orientation. To determine if an individual was altruistic, prosocial, individualistic, or competitive, Murphy, Ackermann, and Handgraaf's (2011) 6-item 9-point primary social value orientation (SVO) scale was administered to all participants at the start of this study. This individual difference construct served as a control variable in the statistical analyses. Although there is no relevant paper that looks at the effect of SVO on trust repair, it can be expected that this construct is likely to influence trust reparative process. Each participant's inputs across all six primary SVO items (see Appendix H) will be computed accordingly to the given formula to yield an SVO angle (a continuous variable) or further classify into a specific SVO type (altruistic, prosocial, individualistic, or competitive; a discrete variable).

Predisposition to trust. To measure individual's dispositional trust, Ashleigh, Higgs, and Dulewicz's (2012) 20-item 6-point (1 = strongly disagree, 6 = strongly agree) predisposition to trust scale was administered to all participants at the end of this study. This construct served as a control variable in the statistical analyses since one's trust propensity can affect one's interpersonal trust level during interaction with others (Mayer et al., 1995). Confirmatory factor analysis showed that this three-factor scale has an unacceptable model fit (RMSEA = .13, CFI = 0.85, TLI = 0.82, $\chi^2(87) = 560.43$, $p < .001$, $\chi^2/df = 6.44$). This may be due to poor internal consistency of the "risk aversion" dimension in this scale. Hence, a decision was made to drop this specific dimension from further analyses in this study. This scale consists of nine reverse-

coded statements to capture its “trusting others” dimension ($\alpha = .83$), such as “I have little faith in other people’s promises.”, seven normally-coded statements to capture its “others’ reliability and integrity” dimension ($\alpha = .79$), such as “Other people can be relied upon to do what they say they will do.”, and four normally-coded statements to capture its “risk aversion” dimension ($\alpha = .57$), such as “I prefer a modest but safe return on my savings rather than a higher return that is uncertain.” (see Appendix J).

Trait forgiveness. To measure individual’s dispositional forgiveness, Brown’s (2003) 4-item 6-point (1 = strongly disagree, 6 = strongly agree) tendency to forgive scale was provided to all participants at the end of this study. This construct served as a control variable in the statistical analyses since it has been found that one’s tendency to forgive can affect one’s decision to trust his/her interaction partner again (Desmet et al., 2011b). Confirmatory factor analysis showed that this three-factor scale has a reasonably acceptable model fit (RMSEA = .17, CFI = 0.95, TLI = 0.85, $\chi^2(2) = 21.97$, $p < .001$, $\chi^2/df = 10.99$). This scale consists of two normally-coded statements, such as “I tend to get over it quickly when someone hurts my feelings.”, and two reverse-coded statements, such as “If someone wrongs me, I often think about it a lot afterward.” ($\alpha = .66$; see Appendix K).

Implicit beliefs of moral character. To determine individual’s implicit beliefs, Chiu, Hong, and Dweck’s (1997) 3-item 6-point (1 = strongly disagree, 6 = strongly agree) measure of implicit person theories was provided to all participants at the end of this study. This construct served as a control variable in the statistical analyses since this construct has been found to affect trust recovery (Haselhuhn et al., 2010). This scale consists of three statements ($\alpha = .89$), such as “Everyone is a certain kind of person and there is not much that can be done to really change that.”, to measure the extent of entity belief while disagreement to these statements are taken to

represent the extent of incremental belief (Dweck et al., 1995; see Appendix L). It is not possible to assess model fit of this scale as the model is saturated, but its Cronbach's alpha suggested good internal consistency among the three items in this scale.

Temporal focus. To examine the extent that individuals devote their attention to thinking about the past, present, and future, Shipp et al.'s (2009) 12-item 7-point (1 = never, 7 = constantly) temporal focus scale was applied to all participants at the end of this study to measure their frequency of thinking about the past, present, and future. This individual difference construct served as a control variable in the statistical analyses. Although there is no known paper that looks at the effect of temporal focus on trust repair, it can be predicted that this construct is likely to affect the effectiveness of different trust repair strategies. Confirmatory factor analysis showed that this three-factor scale has an acceptable model fit (RMSEA = .16, CFI = 0.94, TLI = 0.92, $\chi^2(51) = 485.11$, $p < .001$, $\chi^2/df = 9.51$). This scale consists of four normally-coded statements to capture its "past focus" dimension ($\alpha = .89$), such as "I replay memories of the past in my mind.", four normally-coded statements to capture its "current focus" dimension ($\alpha = .83$), such as "I focus on what is currently happening in my life.", as well as four normally-coded statements to capture its "future focus" dimension ($\alpha = .81$), such as "I imagine what tomorrow will bring for me." (see Appendix M).

Big Five traits. To measure each of individual's Big Five personality traits, John and Srivastava's (1999) 44-item 6-point (1 = disagree strongly, 6 = agree strongly) Big Five inventory was given to all participants at the end of this study. This construct served as a control variable in the statistical analyses. Although there is no known paper that looks at the effect of Big Five traits on trust repair, it can be predicted that these traits are likely to affect the perceived effectiveness of different trust repair strategies. Confirmatory factor analysis showed that this

five-factor scale has a reasonably acceptable model fit (RMSEA = .065, CFI = 0.87, TLI = 0.83, $\chi^2(736) = 1820.66$, $p < .001$, $\chi^2/df = 2.47$). The “extraversion” sub-scale ($\alpha = .86$) consists of five normally-coded statements, such as “I see myself as someone who is talkative.”, and three reverse-coded statements, such as “I see myself as someone who is reserved.”, while the “agreeableness” sub-scale ($\alpha = .72$) consists of five normally-coded statements, such as “I see myself as someone who is helpful and unselfish with others.”, and four reverse-coded statements, such as “I see myself as someone who tends to find fault with others.”. As for the “conscientiousness” sub-scale ($\alpha = .79$), it consists of five normally-coded statements, such as “I see myself as someone who does a thorough job.”, and four reverse-coded statements, such as “I see myself as someone who can be somewhat careless.”. The “neuroticism” sub-scale ($\alpha = .83$) consists of five normally-coded statements, such as “I see myself as someone who is depressed, blue.”, and three reverse-coded statements, such as “I see myself as someone who is relaxed, handles stress well.”, while the “openness” sub-scale ($\alpha = .74$) consists of eight normally-coded statements, such as “I see myself as someone who likes to reflect, play with ideas.”, and two reverse-coded statements, such as “I see myself as someone who prefers work that is routine.” (see Appendix N).

Risk preference. To determine one’s risk preference, participants were being administered 11 scenarios in which they had to choose between a sure gain option and a lottery option of varying probabilities of getting nothing and high payout. By observing one’s choices across all 11 scenarios, this scale sought to find out the switching point from sure gain option to lottery option as so to classify one as being risk-seeking, risk-neutral, or risk-averse (see Appendix O). This risk preference scale was administered to all participants at the end of the study. This construct served as a control variable in the statistical analyses.

Results

Statistical Analyses

Multi-level modelling. Analyses were carried out to understand how the various individual difference variables that were being tested in this study, namely social value orientation, predisposition to trust (two out of three dimensions: trust propensity in others and trust propensity in others' reliability & integrity), trait forgiveness, implicit beliefs of moral character, temporal focus (three dimensions: past focus, current focus, and future focus), Big Five factors (five dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness), and risk preference, could potentially affect interpersonal trust levels (psychological trust and behavioural trust) in each of the three trust phases, namely trust building, trust violation, and trust repair.

Multi-level analyses were performed on all these continuous individual difference variables by adding them as covariates into the final models of trust building, trust violation, and trust repair phases established in previous chapter (see Table 12). The emphasis focused on how these individual difference variables could possibly influence the effectiveness of interpersonal trust repair. Specifically, these additional analyses sought to understand the respective influence of each individual difference variable on repairing psychological trust and behavioural trust from round 6 to round 9 (Level 2 model; see Tables 13 to 26).

All statistical analyses were performed at .05 significance level unless otherwise stated.

Main Analyses

The effect of each individual difference variable on each of the trust phases would be reported in this section, with an emphasis on the trust repair phase.

Social value orientation. Multi-level analyses found social value orientation to be a significant positive predictor of both psychological trust, $F(1, 349.26) = 24.33$, $\gamma_{11} = 0.043$, $p < .001$, and behavioural trust, $F(1, 349) = 26.15$, $\gamma_{11} = 0.047$, $p < .001$, during trust building phase.

Also, similar analyses supported social value orientation as a significant positive predictor of psychological trust, $F(1, 349) = 6.87$, $\gamma_{12} = 0.022$, $p = .009$, but not of behavioural trust, $F(1, 349) = 3.39$, $\gamma_{12} = 0.014$, $p = .067$, during trust violation phase.

During trust repair phase, social value orientation predicted psychological trust, $F(1, 345.94) = 32.00$, $\gamma_{13} = 0.064$, $p < .001$, and behavioural trust, $F(1, 346.93) = 29.61$, $\gamma_{13} = 0.070$, $p < .001$, positively and significantly. For each unit increase in social value orientation, psychological trust increased by 0.064 unit while behavioural trust increased by 0.070 unit between round 6 to round 9. Hence, the higher the social value orientation one has, the greater is the extent of effective interpersonal trust repair.

Trusting others. Multi-level analyses indicated “trusting others” dimension of predisposition to trust to be a significant positive predictor of psychological trust, $F(1, 348.97) = 10.02$, $\gamma_{11} = 0.63$, $p = .002$, but not of behavioural trust, $F(1, 349) = 0.49$, $\gamma_{11} = 0.15$, $p = .48$, during trust building phase.

Similar analyses also found “trusting others” dimension of predisposition to trust to be a significant positive predictor of psychological trust, $F(1, 349) = 5.53$, $\gamma_{12} = 0.44$, $p = .019$, but not of behavioural trust, $F(1, 349) = 0.039$, $\gamma_{12} = 0.033$, $p = .84$, during trust violation phase.

During trust repair phase, “trusting others” dimension of predisposition to trust predicted both psychological trust, $F(1, 344.80) = 29.33$, $\gamma_{13} = 1.37$, $p < .001$, as well as behavioural trust, $F(1, 344.72) = 18.21$, $\gamma_{13} = 1.24$, $p < .001$, positively and significantly. For each unit increase in trusting others, psychological trust increased by 1.37 unit while behavioural trust increased by

1.24 unit between round 6 to round 9. Thus, higher trust propensity towards others enhances the extent of interpersonal trust repair.

Others' reliability and integrity. Multi-level analyses implied "others' reliability and integrity" dimension of predisposition to trust to be a significant positive predictor of psychological trust, $F(1, 349.22) = 5.35$, $\gamma_{11} = 0.42$, $p = .021$, but not of behavioural trust, $F(1, 349) = 0.89$, $\gamma_{11} = 0.18$, $p = .35$, during trust building phase.

Similar analyses showed "others' reliability and integrity" dimension of predisposition to trust as a significant positive predictor of psychological trust, $F(1, 349) = 8.81$, $\gamma_{12} = 0.51$, $p = .003$, but not of behavioural trust, $F(1, 349) = 2.31$, $\gamma_{12} = 0.23$, $p = .13$, during trust violation phase.

During trust repair phase, further analyses noted "others' reliability and integrity" dimension of predisposition to trust to be a significant positive predictor of psychological trust, $F(1, 345.40) = 21.28$, $\gamma_{13} = 1.07$, $p < .001$, and behavioural trust, $F(1, 345.80) = 8.67$, $\gamma_{13} = 0.79$, $p < .001$. For each unit increase in trust propensity of others' reliability and integrity, psychological trust increased by 1.07 unit while behavioural trust increased by 0.79 unit between round 6 to round 9. Therefore, higher trust propensity in others' reliability and integrity improves the extent of interpersonal trust repair.

Trait forgiveness. Multi-level analyses suggested trait forgiveness to be an insignificant predictor of psychological trust, $F(1, 351.13) = 3.31$, $\gamma_{11} = 0.30$, $p = .070$, as well as of behavioural trust, $F(1, 349) = 1.15$, $\gamma_{11} = -0.19$, $p = .29$, during trust building phase.

Similar analyses concluded trait forgiveness to be an insignificant predictor of psychological trust, $F(1, 349) = 1.20$, $\gamma_{12} = 0.17$, $p = .27$, and of behavioural trust, $F(1, 349) = 0.049$, $\gamma_{12} = 0.030$, $p = .83$, during trust violation phase.

During trust repair phase, additional analyses found trait forgiveness to be a significant positive predictor of psychological trust, $F(1, 345.72) = 4.98$, $\gamma_{13} = 0.47$, $p = .026$, but not behavioural trust, $F(1, 346.71) = 0.42$, $\gamma_{13} = 0.16$, $p = .52$. For each unit increase in trait forgiveness, psychological trust increased substantially by 0.47 unit while behavioural trust increased marginally by 0.16 unit between round 6 to round 9. Therefore, it can be concluded that higher trait forgiveness improves extent of trust repair in terms of trust perception of others but not in terms of actual allocation of resources.

Implicit beliefs of moral character. Multi-level analyses found implicit beliefs to be an insignificant predictor of psychological trust, $F(1, 348.98) = 0.64$, $\gamma_{11} = -0.10$, $p = .42$, and of behavioural trust, $F(1, 349) = 0.45$, $\gamma_{11} = -0.092$, $p = .50$, during trust building phase.

Also, similar analyses reported implicit beliefs to be an insignificant predictor of psychological trust, $F(1, 349) = 1.78$, $\gamma_{12} = 0.16$, $p = .18$, and of behavioural trust, $F(1, 349) = 0.49$, $\gamma_{12} = 0.074$, $p = .48$, during trust violation phase.

During trust repair phase, further analyses revealed implicit belief to be a significant negative predictor of psychological trust, $F(1, 345.24) = 9.56$, $\gamma_{13} = -0.51$, $p = .002$, as well as of behavioural trust, $F(1, 345.57) = 5.59$, $\gamma_{13} = -0.44$, $p = .019$. For each unit increase in implicit beliefs, psychological trust dropped by 0.51 unit while behavioural trust dropped by 0.44 unit between round 6 to round 9. Hence, the higher implicit belief one has, the lower is the extent of interpersonal trust repair. This finding simply means that the more one thinks that moral character cannot be changed for the better, the less likely will s/he trusts the transgressor again.

Past focus. Multi-level analyses determined past focus to be an insignificant predictor of psychological trust, $F(1, 349.29) = 2.76$, $\gamma_{11} = 0.20$, $p = .098$, as well as of behavioural trust, $F(1, 349) = 0.023$, $\gamma_{11} = 0.02$, $p = .88$, during trust building phase.

Similarly, additional analyses found past focus to be an insignificant predictor of both psychological trust, $F(1, 349) = 0.23$, $\gamma_{12} = 0.055$, $p = .63$, and behavioural trust, $F(1, 349) = 1.60$, $\gamma_{12} = -0.13$, $p = .21$, during trust violation phase.

During trust repair phase, further analyses concluded past focus to be an insignificant predictor of both psychological trust, $F(1, 345.53) = 0.69$, $\gamma_{13} = 0.13$, $p = .41$, and behavioural trust, $F(1, 346.13) = 0.060$, $\gamma_{13} = -0.044$, $p = .81$. For each unit increase in past focus, psychological trust increased by 0.13 unit and behavioural trust decreased by 0.044 unit marginally between round 6 to round 9. Since the changes in trust levels are negligible, it can be confirmed that being past-focused does not affect the extent of interpersonal trust repair.

Current focus. Multi-level analyses proved current focus to be an insignificant predictor of both psychological trust, $F(1, 349.18) = 2.68$, $\gamma_{11} = 0.23$, $p = .10$, and behavioural trust, $F(1, 349) = 0.0003$, $\gamma_{11} = 0.003$, $p = .99$, during trust building phase.

Likewise, additional analyses found current focus to be an insignificant predictor of psychological trust, $F(1, 349) = 2.28$, $\gamma_{12} = 0.20$, $p = .13$, as well as of behavioural trust, $F(1, 349) = 0.005$, $\gamma_{12} = 0.008$, $p = .94$, during trust violation phase too.

During trust repair phase, further analyses also confirmed current focus to be an insignificant predictor of psychological trust, $F(1, 345.01) = 2.17$, $\gamma_{13} = 0.27$, $p = .14$, but it was found to be a significant predictor of behavioural trust, $F(1, 345.10) = 3.91$, $\gamma_{13} = -0.41$, $p = .049$. For each unit increase in current focus, psychological trust increased marginally by 0.27 unit while behavioural trust decreased substantially by 0.41 unit between round 6 to round 9. Therefore, it can be concluded that higher current focus impedes the extent of trust repair in terms of actual allocation of resources, but it does not affect trust perception of others.

Future focus. Multi-level analyses found future focus to be an insignificant predictor of both psychological trust, $F(1, 349.03) = 0.36$, $\gamma_{11} = 0.086$, $p = .55$, and behavioural trust, $F(1, 349) = 0.18$, $\gamma_{11} = 0.063$, $p = .68$, during trust building phase.

Likewise, additional analyses established future focus to be an insignificant predictor of psychological trust, $F(1, 349) = 0.22$, $\gamma_{12} = 0.064$, $p = .64$, as well as of behavioural trust, $F(1, 349) = 0.083$, $\gamma_{12} = -0.034$, $p = .77$, during trust violation phase.

During trust repair phase, related analyses showed future focus to be an insignificant predictor of psychological trust, $F(1, 345.56) = 1.80$, $\gamma_{13} = -0.25$, $p = .18$, but it was a significant predictor of behavioural trust, $F(1, 346.25) = 9.02$, $\gamma_{13} = -0.62$, $p = .003$. As for each unit increase in future focus, psychological trust decreased marginally by 0.25 unit while behavioural trust decreased substantially by 0.62 unit between round 6 to round 9. Hence, it can be implied that higher future focus impedes the extent of trust repair in terms of actual allocation of resources, but it does not affect trust perception of others.

Extraversion. Multi-level analyses specified extraversion to be an insignificant predictor of both psychological trust, $F(1, 349.01) = 0.56$, $\gamma_{11} = 0.12$, $p = .45$, and behavioural trust, $F(1, 349) = 0.003$, $\gamma_{11} = -0.009$, $p = .96$, during trust building phase.

Likewise, similar analyses also found extraversion to be an insignificant predictor of psychological trust, $F(1, 349) = 1.46$, $\gamma_{12} = 0.19$, $p = .23$, as well as of behavioural trust, $F(1, 349) = 0.039$, $\gamma_{12} = 0.027$, $p = .84$, during trust violation phase.

During trust repair phase, additional analyses conveyed extraversion as an insignificant predictor of both psychological trust, $F(1, 345.02) = 0.69$, $\gamma_{13} = -0.18$, $p = .41$, and behavioural trust, $F(1, 345.09) = 2.59$, $\gamma_{13} = -0.38$, $p = .11$. For each unit increase in extraversion, psychological trust decreased by 0.18 unit and behavioural trust decreased by 0.38 unit

marginally between round 6 to round 9. Thus, being extraverted does not affect the extent of interpersonal trust repair.

Agreeableness. Multi-level analyses revealed agreeableness as a significant positive predictor of psychological trust, $F(1, 349.15) = 7.94$, $\gamma_{11} = 0.62$, $p = .005$, but not of behavioural trust, $F(1, 349) = 0.018$, $\gamma_{11} = 0.032$, $p = .89$, during trust building phase.

Subsequent analyses found agreeableness to be an insignificant predictor of both psychological trust, $F(1, 349) = 3.63$, $\gamma_{12} = 0.40$, $p = .058$, and behavioural trust, $F(1, 349) = 0.22$, $\gamma_{12} = -0.085$, $p = .64$, during trust violation phase.

As for trust repair phase, additional analyses established agreeableness to be insignificant in predicting both psychological trust, $F(1, 344.93) = 1.51$, $\gamma_{13} = 0.35$, $p = .22$, and behavioural trust, $F(1, 344.89) = 0.40$, $\gamma_{13} = -0.21$, $p = .53$. For each unit increase in agreeableness, psychological trust increased by 0.35 unit while behavioural trust decreased by 0.21 unit marginally between round 6 to round 9. Therefore, being agreeable does not influence the extent of interpersonal trust repair.

Conscientiousness. Multi-level analyses indicated conscientiousness as an insignificant predictor of psychological trust, $F(1, 349.17) = 2.69$, $\gamma_{11} = 0.34$, $p = .10$, as well as of behavioural trust, $F(1, 349) = 0.0001$, $\gamma_{11} = -0.003$, $p = .99$, during trust building phase.

Likewise, several analyses found conscientiousness to be an insignificant predictor of both psychological trust, $F(1, 349) = 0.017$, $\gamma_{12} = 0.025$, $p = .90$, and behavioural trust as well, $F(1, 349) = 1.64$, $\gamma_{12} = -0.22$, $p = .20$, during trust violation phase.

As for trust repair phase, further analyses determined conscientiousness to be a significant negative predictor of both psychological trust, $F(1, 345.81) = 5.52$, $\gamma_{13} = -0.63$, $p = .019$, and behavioural trust, $F(1, 346.69) = 7.62$, $\gamma_{13} = -0.83$, $p = .006$. Each unit increase in

conscientiousness reduced psychological trust by 0.63 unit and behavioural trust by 0.83 unit substantially. Hence, it can be concluded that the more conscientious one is, the less likely it will be to repair one's trust.

Neuroticism. Multi-level analyses deemed neuroticism to be an insignificant predictor of both psychological trust, $F(1, 349.00) = 0.49$, $\gamma_{11} = -0.12$, $p = .48$, and behavioural trust, $F(1, 349) = 0.026$, $\gamma_{11} = 0.030$, $p = .87$, during trust building phase.

Relevant analyses also noted neuroticism to be insignificant in predicting both psychological trust, $F(1, 349) = 0.15$, $\gamma_{12} = -0.065$, $p = .70$, and behavioural trust, $F(1, 349) = 1.15$, $\gamma_{12} = -0.15$, $p = .28$, during trust violation phase.

During trust repair phase, additional analyses concluded neuroticism as an insignificant predictor of psychological trust, $F(1, 345.68) = 0.16$, $\gamma_{13} = 0.091$, $p = .69$, as well as of behavioural trust, $F(1, 346.32) = 0.031$, $\gamma_{13} = -0.045$, $p = .86$. For each unit increase in neuroticism, psychological trust increased by 0.091 unit while behavioural trust decreased by 0.045 unit marginally between round 6 to round 9. Thus, being neurotic does not affect the extent of interpersonal trust repair.

Openness. Multi-level analyses suggested openness to be an insignificant predictor of both psychological trust, $F(1, 349.08) = 0.89$, $\gamma_{11} = 0.21$, $p = .35$, and behavioural trust, $F(1, 349) = 0.006$, $\gamma_{11} = -0.018$, $p = .94$, during trust building phase.

Similar analyses specified openness as an insignificant predictor of psychological trust, $F(1, 349) = 0.12$, $\gamma_{12} = -0.071$, $p = .73$, as well as of behavioural trust, $F(1, 349) = 0.73$, $\gamma_{12} = -0.15$, $p = .40$, during trust violation phase.

As for trust repair phase, additional analyses determined openness as an insignificant predictor of both psychological trust, $F(1, 344.81) = 1.07$, $\gamma_{13} = -0.30$, $p = .30$, and behavioural

trust, $F(1, 344.76) = 3.86$, $\gamma_{13} = -0.63$, $p = .050$. For each unit increase in openness, psychological trust decreased by 0.30 unit while behavioural trust decreased by 0.63 unit marginally. Hence, it can be implied that being open to new experiences does not influence interpersonal trust repair in terms of actual allocation of resources with others or trust perception of others.

Risk preference. Multi-level analyses found risk preference to be insignificant in predicting both psychological trust, $F(1, 334.25) = 0.001$, $\gamma_{11} = -0.002$, $p = .98$, and behavioural trust, $F(1, 333) = 0.022$, $\gamma_{11} = -0.011$, $p = .88$, during trust building phase.

Also, related analyses implied risk preference to be insignificant in predicting both psychological trust, $F(1, 333) = 0.24$, $\gamma_{12} = 0.032$, $p = .63$, and behavioural trust, $F(1, 333) = 2.00$, $\gamma_{12} = -0.080$, $p = .16$, during trust violation phase.

During trust repair phase, additional analyses also indicated risk preference as an insignificant predictor of psychological trust, $F(1, 329.44) = 0.27$, $\gamma_{13} = 0.047$, $p = .60$, as well as of behavioural trust, $F(1, 329.48) = 0.45$, $\gamma_{13} = 0.070$, $p = .50$. As for each unit increase in risk preference, psychological trust increased by 0.047 unit and behavioural trust increased by 0.070 unit negligibly. Thus, one's risk preference does not affect the extent of interpersonal trust repair.

Discussion

This chapter can be summarised into individual difference variables that improve, impede, or have no substantial effect on the three trust phases, especially on interpersonal trust repair (see Figure 8).

Trust building phase. Social value orientation is the only individual difference variable that improves both psychological trust and behavioural trust during trust development between individuals of zero acquaintance. Also, trust propensity in others, trust propensity in others'

reliability and integrity, and agreeableness have positive effect on building psychological trust.

All other individual difference variables have no effect on trust building among strangers.

Trust violation phase. Only social value orientation, trust propensity in others, and trust propensity in others' reliability and integrity are individual difference variables that can cushion the drop in psychological trust level due to interpersonal trust violation. All other variables do not exhibit any observable effect on the extent of trust violation.

Trust repair phase. Social value orientation, trust propensity in others, and trust propensity in others' reliability and integrity are individual difference variables that improve the extent of interpersonal trust repair on both psychological trust levels as well as behavioural trust manifestations.

Trait forgiveness enhances individuals' psychological trust levels of their transgressors, but not their behavioural trust levels. Although trait forgiveness has no significant effect on repairing behavioural trust, statistical result shows that this moderator affects behavioural trust in the same direction as psychological trust. One possible explanation may be that psychological trust and behavioural trust are not exactly the same construct though they are related. As mentioned in previous chapter, the correlation between psychological trust and behavioural trust in the experimental study is 0.59 and it is significant, $t(282) = 26.96, p < .001, d = 1.60$, suggesting that both types of trust can be dissociated. Another possibility is that behavioural trust may also be influenced by the game context itself, which include a lucky draw campaign that *"motivate them to maximise their virtual earnings in each round"* and *"maximising mutual payoffs depends on both parties"*. The extent of repairing behavioural trust may have been driven by gain maximisation concern, making trait forgiveness less relevant in repairing behavioural trust.

On the other hand, implicit beliefs and conscientiousness impede the extent of interpersonal trust repair on both psychological trust levels as well as behavioural trust manifestations.

In addition, current focus and future focus diminish the extent of interpersonal trust repair solely on individuals' behavioural trust manifestations. They have no substantial effect on individuals' trust perceptions of others. These findings are contrary to original predictions. A potential explanation may have to do with the game context that involves only individuals of zero acquaintance. These moderators may work as predicted for individuals with certain level of relationship closeness, which give them the tendency to reconcile by looking forward, repairing trust, and continuing mutual interaction with their respective interaction partners who break their trust. In this experimental study context, individuals have no social incentive to repair trust after it is broken. Hence, this may explain why current focus and future focus affect behavioural trust negatively in this study context as participants may have elicited reduced trust levels openly by passing less money to their respective partners to signal low or no intention to continue mutual interaction so as to move on with life. This has to do with outward expression of low or no intention to interact with their interaction partners of zero acquaintance any further, but not inward interpretation of their partners' trustworthiness. This explanation may also possibly explain why current focus and future focus has no observed effect on repairing psychological trust.

Past focus, extraversion, agreeableness, neuroticism, openness, and risk preference do not have any effect on the extent of interpersonal trust repair.

In this study, past focus may not have affected the extent of repairing psychological trust and behavioural trust negatively as predicted because the initial prediction is meant to work

among individuals of certain level of relationship closeness. However, this is not the case in this experimental study with a game context that involves only individuals of zero acquaintance. As past focus may have negligible relevance in this study context, it does not appear to have any substantial effect on repairing interpersonal trust.

The predictions regarding the effects of Big Five dimensions on the extent of interpersonal trust repair have been made based on their known effects on *building* interpersonal trust. However, extraversion, agreeableness, neuroticism, and openness dimensions appear to have no effect on interpersonal trust *repair* in the experimental study. Trust building and trust repair are fundamentally different processes since trust building works on improving non-violated positive expectations of one's interaction partner while trust repair focuses on mending violated negative expectations of one's interaction partner (Kim et al., 2009). Trust building is specifically concerned with enabling desired outcomes by reducing a trustor's perceived vulnerability or risk while trust repair is mainly concerned with addressing the trustworthiness of the trustee affected by negative trust-violating incident (Kim et al., 2009). Hence, the predictions of Big Five dimensions based on trust building may not carry over to trust repair, except conscientiousness. More experimental studies are required to determine if similar results can be replicated.

Even though participants have their respective risk preferences, the game context may not have been deemed risky to them in the first place since they will definitely be receiving their two course credits (for those from research participation pool) or S\$5 cash payment (for those from paid studies) at the end of the research study. Hence, risk preference construct does not stand out in this game context. Supplementary analyses find that risk preference has almost zero correlation with both psychological trust and behavioural trust in every single round.

Theoretical Implications

Psychological trust vs. behavioural trust. As mentioned in previous chapter, both types of trust are fundamentally different from each other in which psychological trust captures trust intentions while behavioural trust measures trust behaviours. Hence, it may be expected for some individual difference variables to affect only one type of trust, but not the other. For instance, higher trait forgiveness improves extent of trust repair in terms of trust perception of others but not in terms of actual allocation of resources. Also, it can be observed that current focus and future focus diminish the extent of behavioural trust repair, but not psychological trust repair. Future research effort can be made to distinguish between trust intentions and trust behaviours so as to appreciate the implications on interpersonal trust repair research.

Trust not confounded by risk preferences. Despite the conceptual distinction between trust and risk, researchers have expressed their concerns that both constructs may be closely related in personal exchange contexts (Cook & Cooper, 2003). Other researchers have described that inferences made regarding trust in behavioural economic trust games may be confounded by individuals' risk preferences (Fehr, 2009; Karlan, 2005; Kosfeld et al., 2005). Houser et al. (2010) clarified this misconception by running an experimental study to prove that trust game indeed measures trust and it is not a measure of risk. Trust decision is not confounded by one's risk preferences (Houser et al., 2010). Similarly, this study extends research findings to the trust repair process and provides empirical support that one's risk preference does not affect interpersonal trust reparative effectiveness, be it on psychological trust or behavioural trust.

Consideration of individual differences. Most importantly, this experimental study has highlighted the importance of individual difference variables in interpersonal trust repair. This research endeavour prompts researchers to consider individual differences when proposing

interpersonal trust repair framework or relevant model so as to provide a better understanding of why trust repair may or may not work.

Practical Implications

This is probably the first novel research attempt to understand how individual difference variables may affect trust building, trust violation, and trust repair phases. These research findings provide insights to an undernourished research angle in interpersonal trust repair.

In particular, it is interesting and useful to note which individual difference variables can actually cushion the drop in psychological trust levels when trust is broken.

Most importantly, it is beneficial for practitioners and researchers to be able to identify individual difference variables that strengthen the extent of interpersonal trust reparative effectiveness as well as those that weaken interpersonal trust repair efforts.

Limitations

Firstly, this study is not able to test all available individual difference variables, such as attribution styles and regulatory focus theory, which may be related to each of the three trust phases. This thesis also does not attempt to explore the effects of all individual difference variables. Instead, this thesis hopes to bring attention to this research perspective of examining the influence of individual difference variables, particularly on interpersonal trust repair process.

Secondly, potential response bias arising from participants answering the battery of questionnaires in this study is not being accounted for in the statistical analyses on the influence of individual differences on extent of interpersonal trust repair. However, the discriminant results from the various individual difference measures may suggest that response bias is not a major concern in this study.

CHAPTER SIX: THESIS DISCUSSION

General Discussion

This thesis seeks to understand the effectiveness of interpersonal trust repair between two individuals of zero acquaintance after an incident of broken trust has taken place. A multi-method approach is adopted to answer the research questions of interest in order to achieve the main aims of this thesis through a meta-analysis and a quantitative experiment. The contributions of this thesis are discussed.

Theoretical Contributions

Trust reparative effectiveness. This thesis may have provided some insights to trust reparative effectiveness. Similar to Schweitzer et al. (2006) and Tomlinson's (2012) studies, the experimental study in this thesis has found apology to be an ineffective trust repair strategy when it consisted of only two trust repair components, namely acknowledgement of responsibility and expression of regret. However, apology is effective in repairing interpersonal trust when it comprises of three trust repair components, namely admission of responsibility, expression of regret, as well as a promise statement regarding future intention (Kim et al., 2004; Schniter et al., 2013; Tomlinson et al., 2004). This may suggest that how researchers manipulate a trust reparative attempt matters in its extent of interpersonal trust repair. Future research endeavour in examining trust repair components has great potential.

Moderators of trust reparative effectiveness. This thesis has pointed out that it may be flawed to manipulate integrity-based trust violation as being intentional in many existing empirical studies. In this thesis, integrity-based trust violation is being manipulated in its defining feature as being dishonest by not fulfilling a promise and it is being renamed as explicit

trust violation. Also, equality norm violation is identified from the literature review and it is being renamed as implicit trust violation. This thesis has attempted to manipulate both implicit trust violation and explicit trust violation in their defining features.

In addition, this thesis highlights that the choice of dependent variables in experimental studies matter in interpersonal trust repair. For instance, the meta-analytical study found that apology is more effective than denial in repairing trust when the dependent variable adopted was perceived integrity, but not willingness to risk. This finding suggests that trust beliefs and trust intentions may be conceptually different from each other. Similarly, the experimental study examines psychological trust and behavioural trust levels across trust building, trust violation, and trust repair phases and discovers similarities and differences between these two types of trust, which capture trust intentions and trust behaviours respectively. Hence, it may be interesting to explore the underlying conceptual distinctions among trust beliefs, trust intentions, and trust behaviours when it comes to interpersonal trust repair.

Influence of individual differences. This thesis has made a holistic attempt to understand the influence of relevant individual difference variables on interpersonal trust repair that is above and beyond that of contextual variables. Also, it explores the effects of individual difference variables on trust building as well as trust violation phases. This novel attempt to examine various individual difference variables makes the research on interpersonal trust repair more comprehensive. This insightful thesis may prompt researchers to consider including individual differences into future models or theories related to interpersonal trust repair.

Practical Contributions

Trust reparative effectiveness. Only apology and financial compensation are being reviewed for their respective trust reparative effectiveness and they are both identified to be

effective trust repair strategies in the meta-analytical study. This may suggest that research effort on other commonly known strategies, such as promise, and explanation, that are relatively neglected in the literature.

In addition, another set of meta-analyses is conducted to examine the relative effectiveness of trust repair strategies. Apology is found to be more effective than denial, which is in turn more effective than reticence, in repairing interpersonal trust in general.

In the experimental study, financial compensation appears to be the only consistent trust repair strategy that is effective in repairing interpersonal (behavioural and psychological) trust, but not apology. Promise is found to be effective in repairing behavioural trust, but not psychological trust.

Moderators of trust reparative effectiveness. This thesis has made a novel attempt to understand the methodological variations in conducting experimental studies as well as explore variables of theoretical interests that may affect interpersonal trust reparative effectiveness through the meta-analytical study. For instance, the meta-analysis found that an apology works better in scenario-based experiments than in actual experiments and it repairs trust between individuals of vertical relationships more effectively than between those of horizontal relationships, but financial compensation repair trust better in actual experiments than in scenario-based experiments and it works better between individuals of horizontal relationships than those of vertical relationships. These meta-analytical findings may potentially explain why financial compensation is effective in repairing interpersonal trust, but not apology, in the experimental study as the design of this study involves actual allocation decisions between strangers that may favour financial compensation over apology inherently.

This thesis has found that explicit trust violation reduces behavioural trust to a greater extent than an implicit trust violation. However, it is harder to repair psychological trust after it is being broken explicitly than being violated implicitly.

Influence of individual differences. It is practical to note the specific individual difference variables, such as social value orientation, that can actually cushion the drop in psychological trust levels when trust is broken. Also, it is beneficial for everyone to identify the exact individual difference variables, such as trust propensity in others, that strengthen the extent of interpersonal trust reparative effectiveness as well as those that weaken interpersonal trust repair efforts, such as implicit beliefs.

Future Research

In view of the research gaps in existing interpersonal trust repair literature, broad research directions and specific procedural recommendation are proposed to make the entire research endeavour holistic.

Inclusion of Control Group

Firstly, the meta-analytical review process has revealed the lack of a proper control group in many existing studies when determining the effectiveness of trust repair strategies. As a result, it is not possible to have sufficient effect sizes to review the effectiveness of other trust repair strategies, such as denial, promise, reticence, explanation, and justification. This is an area of concern that future research effort looking into trust reparative effectiveness should take into account the inclusion of a proper control group in each study. This will make future investigation examining effectiveness of interpersonal trust repair strategies possible.

Component-based Perspective of Trust Repair

Secondly, the meta-analytical attempt has found differences in manipulating an apology across different studies. This finding has prompted a novel perspective on studying trust repair components by breaking each trust repair strategy into its components. This level of analysis can assist academic researchers in truly understanding the effectiveness of each unique component in the entire trust reparative episode, as compared to the surface-level understanding of the general labels of trust repair strategies that is currently the focus in trust repair literature. Hence, such research perspective is likely to bring more value to the research community.

Notably, this component-based perspective of trust repair proposes that all trust repair strategies can be reduced to their simplest and most fundamental components and each trust reparative attempt can be made up of either one of these components or a combination of any two or more components in any possible combination or sequence. Hence, this perspective may assist individuals in uncovering new trust repair strategies that are not mentioned in the literature but may already be commonly applied in real-life situations, such as gift-giving (Camerer, 1988).

An offer of restitution, which is one of the identified trust repair component, may not necessarily be restricted to just financial compensation. In fact, gift-giving and meal-treating may be considered offer of restitution too. Researchers can potentially run additional studies to using these strategies to examine their respective trust reparative effectiveness.

Emphasis on Individual Differences

Thirdly, the meta-analytical study has illustrated that trust repair studies have generally been focusing on contextual factors affecting the design of each study. Hence, future research effort may be extended to look at other individual difference variables that may affect interpersonal trust repair, such as prevention-focused versus promotion-focused dimension, as

well as allocentrism versus idiocentrism dimension. For instance, it may possibly be more difficult to repair trust with prevention-focused individuals who tend to be cautious in ensuring no further losses with those partners who have hurt them in their previous interactions than promotion-focused individuals who are concerned with what may potentially hold for them in their subsequent interactions with their transgressors. By exploring the allocentrism and idiocentrism dimensions, it may potentially provide some insights when it comes to interpersonal trust repair within collectivistic and individualistic cultures respectively.

The experimental study has responded to the call to understand the influence of various individual difference variables, such as social value orientation and trust propensity, on interpersonal trust repair. However, additional research effort can be made to understand the causal relationship of each of these individual difference variables with interpersonal trust repair by manipulating each variable as independent variable in separate experimental studies.

From the experimental study, it is noteworthy that trait forgiveness improves victims' trust perceptions of their transgressors, but not behavioural trust manifestations towards them. Perhaps, trait forgiveness may not be essential in trust repair between strangers since the victims are likely to move on from the transgressions they experience than to seek emotional healing of uncertain relationships with their transgressors whom they barely know. However, it may be interesting to look at the role of trait forgiveness on trust repair among individuals of close relationships, such as married couples, who tend to have this tendency to reconcile when possible (Tomlinson et al., 2004). Trait forgiveness can potentially lead to stronger interpersonal relationships after couples are able to navigate and resolve matters of the heart or broken trust sufficiently. In this Confucian society, future research effort may also dwell specifically into Chinese *guanxi* dynamics and trait forgiveness on interpersonal trust repair.

Trust Repair from Transgressor's Perspective

Existing research on trust repair has focused on victim's perspective, but not transgressor's perspective, when assessing effectiveness of a trust reparative attempt. A call has been made to study trust repair as a two-way street or a bilateral process between the transgressors and victims (Kim et al., 2009) in which both parties play active roles in working towards reconciliation. Therefore, future research effort may look at interpersonal trust repair through the lens of the transgressor and the victim in order to understand the similarities and differences between these two parties in terms of their perception of what constitutes effective trust repair. It seeks to find out the discrepancies between transgressors and victims in trust repair and whether transgressors do provide what victims expect in a trust reparative attempt. An effective trust repair will require the transgressor to willingly provide what the victim expects, but this is unlikely in most real-life scenarios. Also, a victim may perceive an incident of trust violation has occurred, but the transgressor may not be aware that the victim's trust has been violated to warrant trust reparative effort in the first place.

Cultural Considerations in Trust Repair

It will be interesting to study cultural differences in interpersonal trust repair along dimensions of national cultures as proposed by Hofstede (2001), such as individualism-collectivism and masculinity-femininity, or those dimensions as advanced by Inglehart and Welzel (2010), namely traditional versus secular-rational values and survival versus self-expression values. For example, the individualism-collectivism dimension may play a role on whether the process of interpersonal trust repair may be similar or different across work and non-work contexts. For collectivistic cultures, it seems desirable for diffused relationships to exist since professional relationships at work can spill over to personal relationships in non-work

context (Wasti et al., 2011). However, it seems more appropriate for interaction partners in individualist cultures to maintain specific relationships in either work or non-work contexts, but personal-professional diffusion is deemed undesirable (Wasti et al., 2011).

Also, there may cultural differences on the effectiveness of different trust repair strategies. For instance, an apology may have higher intrinsic value within individualistic cultures which value personal values than within collectivistic cultures that prioritise group goals. It may be more common for individuals within collectivistic cultures to apologise even for small inconveniences caused as they care how others feel than individuals within individualistic cultures. As a result, an apology may have higher perceived value within individualistic cultures than within collectivistic cultures as this trust repair strategy is likely to be deemed more costly to one's self-image when one apologises.

In addition, Lewis (2006) suggests that cultures influence our time perception. Hence, future research may include on a cultural level of analysis to understand the effect of time perception on effective interpersonal trust repair between two interaction partners, on top of the contextual and individual levels of analysis that this thesis examines.

Psychological Processes of Trust Repair

Indeed, interpersonal trust is likely to be jeopardised when trust is broken. However, there is no known study to date that looks at how trust violation may affect the underlying psychological processes, namely cognition-based trust and affect-based trust, as well as subsequent trust repair. This information is important as cognition-based trust and affect-based trust have different consequential effects on organisational outcomes (Levin & Cross, 2004; McAllister, 1995; Ng & Chua, 2006). This research initiative can provide researchers a better understanding of interpersonal trust dynamics through the cognitive channel and affective channel respectively.

Cognition-based trust refers to trust building up from external, observable factors, such as reliability, dependability, and competence (Johnson-George & Swap, 1982), making behaviours of interaction partners predictable (McAllister, 1995). Cognition-based trust is of instrumental and task-oriented nature that involves cost minimisation and benefit maximisation (Ng & Chua, 2006). Since its basis to trust others is rational reasoning (Chowdhury, 2005), cognition-based trust can casually be known as “trust from the head” (Chua, Ingram, & Morris, 2008). On the other hand, affect-based trust points to trust building up from internal, intuitive factors, such as emotional bonds arising from expression of genuine care and concern for each other, making motives of interaction partners understandable (McAllister, 1995). Indeed, affect-based trust may develop when interaction partners’ behaviours are attributed to benevolent and sincere intentions (McAllister, 1995). Affect-based trust is of communal and relationship-orientated nature that reflects both confidence and emotional rapport (Ng & Chua, 2006). Since its basis to trust others is emotional engagement (Chowdhury, 2005), affect-based trust can simply be known as “trust from the heart” (Chua et al., 2008).

Both cognition-based trust and affect-based trust play distinct but complementary roles in trust dynamics among interpersonal exchanges. Both of them serve as two distinct social psychological processes that can co-exist in interpersonal trust judgment (Chua et al., 2008; Chua, Morris, & Ingram, 2009; Ng & Chua, 2006), in which both processes are present in a trust relationship but they may differ in their relative dominance at any one time. One empirical support finds that both cognition-based trust and affect-based trust are highly intertwined (Chua et al., 2009). This means that cognition-based trust and affect-based trust are not mutually exclusive in interpersonal trust judgment and they should not be understood as two separate

types of trust that do not co-exist. Hence, future research effort can be extended to understand the psychological processes of interpersonal trust repair.

Conclusion

Interpersonal trust repair is not all about which trust repair strategy works best in certain contexts. It is also about which trust repair strategy actually works best for each unique individual. Effective trust repair between individuals is indeed an art. At first glance, interpersonal trust repair may seem complicated. However, it is the goal of this thesis to simplify the trust repair process. When contextual conditions and individual differences are aligned, there is hope for broken trust to be repaired.

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Trust Repair Strategy	Number of Effect Sizes	Meta-Analysis Done?
Apology	21	Yes
Financial Compensation	11	Yes
Denial	0	No
Promise	2	No
Reticence	0	No
Explanation	0	No
Justification	0	No

Table 1. Decision to conduct meta-analysis on unique effectiveness of each interpersonal trust repair strategy (vs. control).

Trust Repair Strategy	Apology	Financial Compensation
Effectiveness	√*	√*
Nature of Trust Violation	√*	X
Choice of Dependent Variable	X	X
Payment for Participation	√	X
Incentive for Participation	√*	X
Type of Study Design	√*	√*
Type of Study Context	X	√*
Power Difference in Relationship	√*	√*
Type of Relationship	√*	√*
Trust Repair Components	√*	X
Country of Study	√*	X
Source of Participants	X	X
Participant's Perspective in Study	X	X

Note: √ denotes meta-analytical result is being reported as each categorical moderator has at least two groups with at least five effect sizes each; X denotes meta-analytical result is not being reported either because each categorical moderator does not have at least two groups with at least five effect sizes each or it is not unveiled for a particular trust repair strategy during the coding process; * denotes meta-analytical result is significant at .05 level.

Table 2. Meta-analytical results on unique effectiveness of trust repair strategies at a glance.

Trust Repair Strategy	N	Mean Effect Size												Homogeneity Analysis		
		Fixed Effect						Random Effect						Q	df	p
		ES	SE	-95%CI	+95%CI	Z	p	ES	SE	-95%CI	+95%CI	Z	p			
Apology	21	0.4077	0.0548	0.3004	0.5151	7.4422	.0000	0.5267	0.0985	0.3336	0.7197	5.3475	.0000	59.0084	20	.0000
Financial Compensation	11	1.2857	0.0838	1.1214	1.4500	15.3391	.0000	1.3502	0.1636	1.0295	1.6709	8.2523	.0000	35.0766	10	.0001

Table 3. Effectiveness of trust repair strategies.

Moderator	Group	Mean Effect Size by Group							Homogeneity Q		
		ES	SE	-95%CI	+95%CI	Z	p	k	Q	df	p
Nature of Trust Violation	Competence-Based	0.6454	0.0853	0.4782	0.8125	7.5680	.0000	12	15.0558	1	.0001
	Equality Norm	0.1883	0.0813	0.0291	0.3476	2.3180	.0204	6			
Payment for Participation	Unpaid	0.3415	0.0702	0.1935	0.4687	4.7158	.0000	11	2.0415	1	.1531
	Paid	0.5106	0.1042	0.3064	0.7147	4.9009	.0000	7			
Incentive for Participation	Course Credits	0.3311	0.0880	0.1690	0.5141	3.8793	.0001	7	4.3419	1	.0372
	Paid for Participation	0.6672	0.1292	0.4141	0.9204	5.1661	.0000	5			
Type of Study Design	Scenario-Based	0.6269	0.0866	0.4573	0.7966	7.2428	.0000	11	15.0654	1	.0001
	Actual Experiment	0.1767	0.0772	0.0253	0.3280	2.2882	.0221	7			
Power Difference in Relationship	Horizontal	0.1767	0.0772	0.0253	0.3280	2.2882	.0221	7	18.0248	1	.0000
	Vertical	0.6419	0.0777	0.4895	0.7943	8.2568	.0000	14			
Type of Relationship	Stranger-Stranger	0.1767	0.0772	0.0253	0.3280	2.2882	.0221	7	13.6630	1	.0002
	Leader-Team Member	0.6508	0.1024	0.4501	0.8515	6.3547	.0000	8			
Trust Repair Components	Acknowledgement + Regret	0.3553	0.0864	0.1860	0.5246	4.1132	.0000	8	5.7125	1	.0168
	Acknowledgement + Regret + Promise	0.6454	0.0853	0.4782	0.8125	7.5680	.0000	12			
Country of Study	Belgium	0.6616	0.1218	0.4228	0.9004	5.4312	.0000	6	6.8966	2	.0318
	Netherlands	0.2644	0.0992	0.0700	0.4588	2.6655	.0077	5			
	United States	0.3394	0.0891	0.1647	0.5140	3.8091	.0001	7			

Table 4. Moderator analysis for apology.

Moderator	Group	Mean Effect Size by Group							Homogeneity Q		
		ES	SE	-95% CI	+95% CI	Z	p	k	Q	df	p
Type of Study Design	Scenario-Based	1.1647	0.1037	0.9614	1.3679	11.2321	.0000	6	3.9341	1	.0473
	Actual Experiment	1.5140	0.1424	1.2349	1.7931	10.6332	.0000	5			
Type of Study Context	Unfulfilled CEO Pay Cut	1.1647	0.1037	0.9614	1.3679	11.2321	.0000	6	3.9341	1	.0473
	Dictator Game	1.5140	0.1424	1.2349	1.7931	10.6332	.0000	5			
Power Difference in Relationship	Horizontal	1.5140	0.1424	1.2349	1.7931	10.6332	.0000	5	3.9341	1	.0473
	Vertical	1.1647	0.1037	0.9614	1.3679	11.2321	.0000	6			
Type of Relationship	Stranger-Stranger	1.5140	0.1424	1.2349	1.7931	10.6332	.0000	5	3.9341	1	.0473
	CEO-Employee	1.1647	0.1037	0.9614	1.3679	11.2321	.0000	6			

Table 5. Moderator analysis for financial compensation.

Comparing Trust Repair Strategies	Number of Effect Sizes	Meta-Analysis Done?
Apology vs. Financial Compensation	2	No
Apology vs. Denial	51	Yes
Apology vs. Reticence	12	Yes
Apology vs. Justification	0	No
Denial vs. Reticence	12	Yes

Table 6. Decision to conduct meta-analysis on relative effectiveness of each pair of interpersonal trust repair strategies.

Comparing Trust Repair Strategies	Apology vs. Denial	Apology vs. Reticence	Denial vs. Reticence
Relative Effectiveness	√*	√	√*
Nature of Trust Violation	√*	√*	√
Choice of Dependent Variable	√	X	X
Payment for Participation	√*	X	X
Incentive for Participation	√*	√	√
Type of Study Design	X	X	X
Type of Study Context	√*	√	√
Power Difference in Relationship	√*	X	X
Type of Relationship	√*	√	√
Trust Repair Components	√*	√	X
Country of Study	√*	√	√
Source of Participants	√	√	√
Participant's Perspective in Study	√*	√	√

Note: √ denotes meta-analytical result is being reported as each categorical moderator has at least two groups with at least five effect sizes each; X denotes meta-analytical result is not being reported either because each categorical moderator does not have at least two groups with at least five effect sizes each or it is not unveiled for a particular pair of trust repair strategies during the coding process; * denotes meta-analytical result is significant at .05 level.

Table 7. Meta-analytical results on relative effectiveness of each pair of interpersonal trust repair strategies at a glance.

Comparing Trust Repair Strategies	N	Mean Effect Size												Homogeneity Analysis		
		Fixed Effect						Random Effect						Q	df	p
		ES	SE	-95% CI	+95% CI	Z	p	ES	SE	-95% CI	+95% CI	Z	p			
Apology vs. Denial	51	0.1716	0.0294	0.1140	0.2291	5.8424	.0000	0.3788	0.1339	0.1163	0.6414	2.8283	.0047	984.3395	50	.0000
Apology vs. Reticence	12	0.0454	0.0779	-0.1072	0.1980	0.5829	.5599	0.0275	0.1823	-0.3299	0.3849	0.1509	.8801	57.7492	11	.0000
Denial vs. Reticence	12	0.1828	0.0769	0.0320	0.3336	2.3764	.0175	0.1828	0.0769	0.0320	0.3336	2.3764	.0175	9.1026	11	.6124

Table 8. Relative effectiveness of trust repair strategies.

Moderator	Group	Mean Effect Size by Group							Homogeneity Q		
		ES	SE	-95%CI	+95%CI	Z	p	k	Q	df	p
Nature of Trust Violation	Competence-Based	0.3987	0.0518	0.2972	0.5001	7.7032	.0000	17	184.2538	2	.0000
	Integrity-Based	-0.3219	0.0471	-0.4141	-0.2296	-6.8387	.0000	24			
	Unclassified	0.5975	0.0574	0.4851	0.7099	10.4176	.0000	7			
Choice of Dependent Variable	Perceived Competence	0.0958	0.0556	-0.0131	0.2048	1.7244	.0846	14	5.4809	2	.0645
	Perceived Integrity	0.1285	0.0539	0.0228	0.2342	2.3834	.0172	19			
	Willingness to Risk	-0.0687	0.0686	-0.2031	0.0657	-1.0015	.3166	10			
Payment for Participation	Unpaid	0.0202	0.0359	-0.0503	0.0906	0.5614	.5745	37	54.4105	1	.0000
	Unknown	0.4758	0.0509	0.3760	0.5757	9.3396	.0000	14			
Incentive for Participation	Course Credits	0.0294	0.0370	-0.0432	0.1020	0.7925	.4281	31	54.4553	2	.0000
	Class Exercise	-0.1268	0.1482	-0.4173	0.1637	-0.8555	.3923	6			
	Unknown	0.4758	0.0509	0.3760	0.5757	9.3396	.0000	14			
Type of Study Context	Tax Accounting Fraud	0.0208	0.0400	-0.0576	0.0992	0.5206	.6026	28	55.2566	2	.0000
	Unfulfilled CEO Pay Cut	-0.0944	0.0919	-0.2746	0.0858	-1.0264	.3047	6			
	Selection of Team Members	0.7248	0.0913	0.5459	0.9037	7.9424	.0000	6			
Power Difference in Relationship	Horizontal	0.4736	0.0490	0.3775	0.5696	9.6612	.0000	17	59.2094	1	.0000
	Vertical	0.0025	0.0367	-0.0694	0.0744	0.0679	.9458	34			
Type of Relationship	Manager-Job Applicant	0.0208	0.0400	-0.0576	0.0992	0.5206	.6026	28	55.2566	2	.0000
	CEO-Employee	-0.0944	0.0919	-0.2746	0.0858	-1.0264	.3047	6			
	Coach-Fan	0.7248	0.0913	0.5459	0.9037	7.9424	.0000	6			
Trust Repair Components	Acknowledgement + Regret	0.2220	0.0511	0.1219	0.3220	4.3470	.0000	14	51.7324	3	.0000
	Acknowledgement + Promise	0.1520	0.0771	0.0008	0.3032	1.9710	.0487	10			
	Acknowledgement + Forgiveness	0.7248	0.0913	0.5459	0.9037	7.9424	.0000	6			
	Acknowledgement + Regret + Promise	0.0025	0.0453	-0.0862	0.0913	0.0557	.9556	21			
Country of Study	Netherlands	0.3717	0.0581	0.2578	0.4856	6.3961	.0000	11	21.2630	2	.0000
	Singapore	-0.0944	0.0919	-0.2746	0.0858	-1.0264	.3047	6			
	United States	0.1343	0.0366	0.0625	0.2061	3.6651	.0002	34			

Source of Participants	Undergraduates	0.1009	0.0532	-0.0034	0.2052	1.8961	.0579	20				
	Postgraduates	-0.1268	0.1482	-0.4173	0.1637	-0.8555	.3923	6	2.7832	2	.2487	
	Undergraduates & Postgraduates	0.1291	0.0416	0.0475	0.2107	3.1010	.0019	24				
Participant's Perspective in Study	First Party	0.1418	0.0338	0.0755	0.2080	4.1939	.0000	35				
	Third Party	0.5174	0.0775	0.3654	0.6693	6.6727	.0000	10	29.0335	2	.0000	
	Unclear	-0.0944	0.0919	-0.2746	0.0858	-1.0264	.3047	6				

Table 9. Moderator analysis for apology vs. denial.

Moderator	Group	Mean Effect Size by Group							Homogeneity Q		
		ES	SE	-95%CI	+95%CI	Z	p	k	Q	df	p
Nature of Trust Violation	Competence-Based	0.5072	0.1097	0.2922	0.7222	4.6231	.0000	6	35.7096	1	.0000
	Integrity-Based	-0.4235	0.1105	-0.6402	-0.2068	-3.8309	.0001	6			
Incentive for Participation	Course Credits	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6	0.0066	1	.9352
	Class Exercise	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6			
Type of Study Context	Tax Accounting Fraud	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6	0.0066	1	.9352
	Unfulfilled CEO Pay Cut	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6			
Type of Relationship	Manager-Job Applicant	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6	0.0066	1	.9352
	CEO-Employee	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6			
Trust Repair Components	Acknowledgement + Regret	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6	0.0066	1	.9352
	Acknowledgement + Promise	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6			
Country of Study	Singapore	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6	0.0066	1	.9352
	United States	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6			
Source of Participants	Undergraduates	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6	0.0066	1	.9352
	Postgraduates	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6			
Participant's Perspective in Study	First Party	0.0356	0.1436	-0.2458	0.3170	0.2478	.8043	6	0.0066	1	.9352
	Unclear	0.0495	0.0927	-0.1322	0.2312	0.5339	.5934	6			

Table 10. Moderator analysis for apology vs. reticence.

Moderator	Group	Mean Effect Size by Group							Homogeneity Q		
		ES	SE	-95%CI	+95%CI	Z	p	k	Q	df	p
Nature of Trust Violation	Competence-Based	0.1533	0.1087	-0.0598	0.3664	1.4104	.1584	6	0.1470	1	.7014
	Integrity-Based	0.2123	0.1089	-0.0010	0.4257	1.9506	.0511	6			
Incentive for Participation	Course Credits	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6	0.1081	1	.7423
	Class Exercise	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6			
Type of Study Context	Tax Accounting Fraud	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6	0.1081	1	.7423
	Unfulfilled CEO Pay Cut	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6			
Type of Relationship	Manager-Job Applicant	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6	0.1081	1	.7423
	CEO-Employee	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6			
Country of Study	Singapore	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6	0.1081	1	.7423
	United States	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6			
Source of Participants	Undergraduates	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6	0.1081	1	.7423
	Postgraduates	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6			
Participant's Perspective in Study	First Party	0.2220	0.1417	-0.0559	0.4998	1.5658	.1174	6	0.1081	1	.7423
	Unclear	0.1665	0.0916	-0.0130	0.3460	1.8175	.0691	6			

Table 11. Moderator analysis for denial vs. reticence.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1 Psychological Trust		Model 2 Behavioural Trust		Model 3 Psychological Trust		Model 4 Behavioural Trust		Model 5 Psychological Trust		Model 6 Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	5.57***	0.13	7.02***	0.14	8.05***	0.18	9.37***	0.15	5.00***	0.37	6.97***	0.38
Trust Building	0.83***	0.04	0.61***	0.04								
Trust Violation					-3.59***	0.24	-3.27***	0.28				
Trust Repair									0.41***	0.04	0.35***	0.06
Level 2 Model (γ)												
Nature of Trust Violation					0.24	0.25	-0.63***	0.22	0.79**	0.33	0.15	0.33
Nature of Trust Violation * Trust Violation					0.70**	0.34	0.91**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.01**	0.46	-1.42***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.16	0.46	-0.63	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.19	0.46	-0.27	0.46

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1 = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2 = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3 = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4 = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5 = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6 = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 12. Results for final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1a Psychological Trust		Model 2a Behavioural Trust		Model 3a Psychological Trust		Model 4a Behavioural Trust		Model 5a Psychological Trust		Model 6a Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.44***	0.26	5.78***	0.28	7.50***	0.27	9.04***	0.24	3.43***	0.45	5.23***	0.49
Trust Building	0.95***	0.08	0.77**	0.08								
Trust Violation					-4.60***	0.37	-4.90***	0.42				
Trust Repair									0.46***	0.08	0.63***	0.13
Level 2 Model (γ)												
Nature of Trust Violation					0.17	0.25	-0.67***	0.22	0.58*	0.31	-0.02	0.32
Nature of Trust Violation * Trust Violation					0.57*	0.34	0.70*	0.38				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.97**	0.44	-1.39***	0.45
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.24	0.44	-0.70	0.45
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.24	0.44	-0.30	0.45
<i>SVO Angle</i>	0.04***	0.01	0.05***	0.01	0.02***	0.01	0.01*	0.01	0.06***	0.01	0.07***	0.01
<i>SVO Angle</i> * Trust Building	-0.00*	0.00	-0.01**	0.00								
<i>SVO Angle</i> * Trust Violation					0.04***	0.01	0.07***	0.01				
<i>SVO Angle</i> * Trust Repair									-0.00	0.00	-0.01**	0.00

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1a = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2a = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3a = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4a = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5a = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6a = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 13. Results after adding SVO Angle into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1b Psychological Trust		Model 2b Behavioural Trust		Model 3b Psychological Trust		Model 4b Behavioural Trust		Model 5b Psychological Trust		Model 6b Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	3.60***	0.64	6.55***	0.69	6.67***	0.61	9.27***	0.53	0.72	0.86	3.09***	0.98
Trust Building	1.01***	0.19	0.68***	0.2								
Trust Violation					-6.54***	0.82	-7.13***	0.94				
Trust Repair									0.27	0.19	0.75**	0.30
Level 2 Model (γ)												
Nature of Trust Violation					0.22	0.25	-0.63***	0.22	0.72**	0.31	0.11	0.32
Nature of Trust Violation * Trust Violation					0.65*	0.34	0.85**	0.39				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.94**	0.44	-1.37***	0.45
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.16	0.44	-0.63	0.45
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.18	0.44	-0.26	0.45
<i>Trusting Others</i>	0.63***	0.20	0.15	0.21	0.44**	0.19	0.03	0.16	1.37***	0.25	1.24***	0.29
<i>Trusting Others</i> * Trust Building	-0.06	0.06	-0.02	0.06								
<i>Trusting Others</i> * Trust Violation					0.95***	0.25	1.24***	0.29				
<i>Trusting Others</i> * Trust Repair									0.04	0.06	-0.13	0.09

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1b = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2b = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3b = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4b = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5b = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6b = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 14. Results after adding Trusting Others into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1c Psychological Trust		Model 2c Behavioural Trust		Model 3c Psychological Trust		Model 4c Behavioural Trust		Model 5c Psychological Trust		Model 6c Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.12***	0.64	6.39***	0.68	6.33***	0.61	8.61***	0.53	1.30	0.88	4.24***	1.00
Trust Building	0.63***	0.19	0.62***	0.2								
Trust Violation					-5.67***	0.82	-5.43***	0.95				
Trust Repair									0.05	0.19	0.09	0.30
Level 2 Model (γ)												
Nature of Trust Violation					0.19	0.25	-0.65***	0.22	0.64**	0.31	0.05	0.32
Nature of Trust Violation * Trust Violation					0.64*	0.34	0.84**	0.39				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.87**	0.44	-1.31***	0.45
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.06	0.44	-0.55	0.45
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.16	0.44	-0.25	0.45
<i>Others' Reliability & Integrity</i>	0.42**	0.20	0.18	0.19	0.51***	0.17	0.23	0.15	1.07***	0.23	0.79***	0.27
<i>Others' Reliability & Integrity</i> * Trust Building	0.06	0.05	-0.00	0.06								
<i>Others' Reliability & Integrity</i> * Trust Violation					0.61***	0.23	0.63**	0.27				
<i>Others' Reliability & Integrity</i> * Trust Repair									0.10*	0.05	0.08*	0.09

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1c = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2c = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3c = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4c = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5c = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6c = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 15. Results after adding Others' Reliability & Integrity into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1d Psychological Trust		Model 2d Behavioural Trust		Model 3d Psychological Trust		Model 4d Behavioural Trust		Model 5d Psychological Trust		Model 6d Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.61***	0.55	7.62***	0.58	7.49***	0.54	9.28***	0.47	3.44***	0.79	6.45***	0.88
Trust Building	0.93***	0.16	0.45***	0.17								
Trust Violation					-4.87***	0.74	-3.58***	0.85				
Trust Repair									0.63***	0.16	0.33	0.26
Level 2 Model (γ)												
Nature of Trust Violation					0.27	0.25	-0.62***	0.22	0.86***	0.33	0.18	0.33
Nature of Trust Violation * Trust Violation					0.76**	0.34	0.92**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.02**	0.46	-1.42***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.20	0.46	-0.65	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.17	0.46	-0.26	0.46
<i>Trait Forgiveness</i>	0.30*	0.16	-0.19	0.17	0.17	0.16	0.03	0.13	0.47**	0.21	0.16	0.24
<i>Trait Forgiveness</i> * Trust Building	-0.03	0.05	0.05	0.05								
<i>Trait Forgiveness</i> * Trust Violation					0.39*	0.21	0.09	0.24				
<i>Trait Forgiveness</i> * Trust Repair									-0.07	0.05	0.01	0.08

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1d = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2d = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3d = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4d = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5d = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6d = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 16. Results after adding Trait Forgiveness into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1e Psychological Trust		Model 2e Behavioural Trust		Model 3e Psychological Trust		Model 4e Behavioural Trust		Model 5e Psychological Trust		Model 6e Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	6.00***	0.55	7.39***	0.58	7.39***	0.52	9.08***	0.45	6.99***	0.74	8.71***	0.83
Trust Building	0.63***	0.16	0.45***	0.17								
Trust Violation					-0.63	0.69	-0.57	0.81				
Trust Repair									0.30*	0.16	0.21	0.25
Level 2 Model (γ)												
Nature of Trust Violation					0.22	0.25	-0.63***	0.22	0.83**	0.32	0.19	0.32
Nature of Trust Violation * Trust Violation					0.76**	0.33	0.97**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.92**	0.45	-1.35***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.07	0.46	-0.55	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.11	0.45	-0.20	0.46
<i>Implicit Belief</i>	-0.10	0.13	-0.09	0.14	0.16	0.12	0.07	0.11	-0.51***	0.16	-0.44**	0.19
<i>Implicit Belief</i> * Trust Building	0.05	0.04	0.04	0.04								
<i>Implicit Belief</i> * Trust Violation					-0.73***	0.16	-0.67***	0.19				
<i>Implicit Belief</i> * Trust Repair									0.03	0.04	0.03	0.06

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1e = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2e = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3e = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4e = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5e = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6e = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 17. Results after adding Implicit Belief into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1f Psychological Trust		Model 2f Behavioural Trust		Model 3f Psychological Trust		Model 4f Behavioural Trust		Model 5f Psychological Trust		Model 6f Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.66***	0.57	6.93***	0.61	7.80***	0.54	9.93***	0.47	4.41***	0.80	7.17***	0.89
Trust Building	1.15***	0.17	0.71***	0.18								
Trust Violation					-3.77***	0.74	-3.64***	0.85				
Trust Repair									0.30*	0.17	0.27	0.26
Level 2 Model (γ)												
Nature of Trust Violation					0.23	0.25	-0.61***	0.22	0.76**	0.33	0.16	0.33
Nature of Trust Violation * Trust Violation					0.69**	0.34	0.90**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.98**	0.46	-1.42***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.17	0.46	-0.63	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.21	0.46	-0.27	0.46
Past Focus	0.20*	0.12	0.02	0.13	0.06	0.12	-0.13	0.10	0.13	0.16	-0.04	0.18
Past Focus * Trust Building	-0.07*	0.04	-0.02	0.04								
Past Focus * Trust Violation					0.04	0.16	0.08	0.18				
Past Focus * Trust Repair									0.02	0.04	0.02	0.06

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1f = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2f = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3f = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4f = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5f = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6f = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 18. Results after adding Past Focus into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1g Psychological Trust		Model 2g Behavioural Trust		Model 3g Psychological Trust		Model 4g Behavioural Trust		Model 5g Psychological Trust		Model 6g Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.44***	0.71	7.00***	0.75	7.06***	0.68	9.33***	0.59	3.68***	0.97	8.97***	1.08
Trust Building	0.70***	0.21	0.74***	0.22								
Trust Violation					-4.13***	0.92	-0.96	1.06				
Trust Repair									0.48**	0.21	-0.3	0.33
Level 2 Model (γ)												
Nature of Trust Violation					0.24	0.25	-0.63***	0.22	0.80**	0.32	0.15	0.33
Nature of Trust Violation * Trust Violation					0.70**	0.34	0.90**	0.39				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.99**	0.46	-1.44***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.18	0.46	-0.62	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.20	0.46	-0.26	0.46
Current Focus	0.23	0.14	0.00	0.15	0.20	0.13	0.01	0.12	0.27	0.18	-0.41**	0.21
Current Focus * Trust Building	-0.03	0.04	-0.03	0.05								
Current Focus * Trust Violation					0.11	0.18	-0.48**	0.21				
Current Focus * Trust Repair									-0.02	0.04	0.13**	0.07

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1g = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2g = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3g = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4g = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5g = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6g = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 19. Results after adding Current Focus into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1h Psychological Trust		Model 2h Behavioural Trust		Model 3h Psychological Trust		Model 4h Behavioural Trust		Model 5h Psychological Trust		Model 6h Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	5.15***	0.72	6.70***	0.76	7.73***	0.69	9.54***	0.60	6.23***	0.99	10.06***	1.10
Trust Building	0.75***	0.21	0.83***	0.22								
Trust Violation					-2.33**	0.94	-1.06	1.08				
Trust Repair									0.40*	0.21	-0.03	0.33
Level 2 Model (γ)												
Nature of Trust Violation					0.24	0.25	-0.63***	0.22	0.77**	0.32	0.11	0.32
Nature of Trust Violation * Trust Violation					0.68**	0.34	0.87**	0.39				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.04**	0.46	-1.50***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.14	0.46	-0.58	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.19	0.46	-0.27	0.46
<i>Future Focus</i>	0.09	0.14	0.06	0.15	0.06	0.13	-0.03	0.12	-0.25	0.18	-0.62***	0.21
<i>Future Focus</i> * Trust Building	0.02	0.04	-0.05	0.04								
<i>Future Focus</i> * Trust Violation					-0.25	0.18	-0.45**	0.21				
<i>Future Focus</i> * Trust Repair									0.00	0.04	0.08	0.07

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1h = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2h = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3h = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4h = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5h = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6h = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 20. Results after adding Future Focus into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1i Psychological Trust		Model 2i Behavioural Trust		Model 3i Psychological Trust		Model 4i Behavioural Trust		Model 5i Psychological Trust		Model 6i Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	5.14***	0.60	7.05***	0.63	7.39***	0.58	9.28***	0.50	5.63***	0.84	8.34***	0.94
Trust Building	0.85***	0.18	0.67***	0.19								
Trust Violation					-2.41***	0.78	-2.09**	0.28				
Trust Repair									0.29*	0.17	0.03	0.28
Level 2 Model (γ)												
Nature of Trust Violation					0.25	0.25	-0.63***	0.22	0.78**	0.33	0.14	0.33
Nature of Trust Violation * Trust Violation					0.68**	0.34	0.89**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.02**	0.46	-1.44***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.16	0.46	-0.63	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.20	0.46	-0.29	0.46
<i>Extraversion</i>	0.12	0.16	-0.01	0.17	0.19	0.15	0.03	0.13	-0.18	0.21	-0.38	0.24
<i>Extraversion</i> * Trust Building	-0.00	0.05	-0.02	0.05								
<i>Extraversion</i> * Trust Violation					-0.33	0.21	-0.33	0.24				
<i>Extraversion</i> * Trust Repair									0.03	0.05	0.09	0.08

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1i = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2i = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3i = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4i = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5i = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6i = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 21. Results after adding Extraversion into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1j Psychological Trust		Model 2j Behavioural Trust		Model 3j Psychological Trust		Model 4j Behavioural Trust		Model 5j Psychological Trust		Model 6j Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	2.96***	0.94	6.88***	1.00	6.37***	0.90	9.73***	0.78	3.50***	1.27	7.85***	1.43
Trust Building	1.20***	0.28	0.94***	0.30								
Trust Violation					-3.45***	1.23	-2.49*	1.42				
Trust Repair									0.60**	0.27	0.65	0.44
Level 2 Model (γ)												
Nature of Trust Violation					0.26	0.25	-0.63***	0.22	0.81**	0.33	0.14	0.33
Nature of Trust Violation * Trust Violation					0.70**	0.34	0.90**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.00**	0.46	-1.42***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.15	0.46	-0.64	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.18	0.46	-0.29	0.46
<i>Agreeableness</i>	0.62***	0.22	0.03	0.24	0.40*	0.21	-0.09	0.18	0.35	0.29	-0.21	0.33
<i>Agreeableness</i> * Trust Building	-0.09	0.07	-0.08	0.07	-0.03	0.29	-0.19	0.33				
<i>Agreeableness</i> * Trust Violation												
<i>Agreeableness</i> * Trust Repair									-0.05	0.06	-0.07	0.10

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1j = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2j = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3j = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4j = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5j = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6j = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 22. Results after adding Agreeableness into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1k Psychological Trust		Model 2k Behavioural Trust		Model 3k Psychological Trust		Model 4k Behavioural Trust		Model 5k Psychological Trust		Model 6k Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.27***	0.80	7.03***	0.86	7.95***	0.78	10.21***	0.67	7.47***	1.11	10.26***	1.23
Trust Building	1.25***	0.24	1.00***	0.25								
Trust Violation					-1.14	1.05	-1.64	1.22				
Trust Repair									0.25	0.23	0.53	0.37
Level 2 Model (γ)												
Nature of Trust Violation					0.24	0.25	-0.65***	0.22	0.74**	0.32	0.07	0.32
Nature of Trust Violation * Trust Violation					0.64*	0.34	0.87**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.08**	0.46	-1.54***	0.45
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.26	0.46	-0.78*	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.22	0.46	-0.31	0.45
Conscientiousness	0.34	0.21	-0.00	0.22	0.03	0.20	-0.22	0.17	-0.63**	0.27	-0.83***	0.30
Conscientiousness * Trust Building	-0.11*	0.06	-0.10	0.07								
Conscientiousness * Trust Violation					-0.63**	0.26	-0.42	0.31				
Conscientiousness * Trust Repair									0.04	0.06	-0.05	0.10

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1k = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2k = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3k = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4k = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5k = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6k = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 23. Results after adding Conscientiousness into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 11 Psychological Trust		Model 21 Behavioural Trust		Model 31 Psychological Trust		Model 41 Behavioural Trust		Model 51 Psychological Trust		Model 61 Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	6.01***	0.64	6.91***	0.68	8.28***	0.61	9.91***	0.53	4.67***	0.89	7.13***	1.00
Trust Building	1.00***	0.19	0.81***	0.20								
Trust Violation					-3.84***	0.82	-3.47***	0.95				
Trust Repair									0.52***	0.19	0.18	0.30
Level 2 Model (γ)												
Nature of Trust Violation					0.25	0.25	-0.61***	0.22	0.78**	0.33	0.15	0.33
Nature of Trust Violation * Trust Violation					0.69**	0.34	0.90**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-1.00**	0.46	-1.42***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.16	0.46	-0.62	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.19	0.46	-0.26	0.46
<i>Neuroticism</i>	-0.12	0.17	0.03	0.19	-0.06	0.16	-0.15	0.14	0.09	0.23	-0.05	0.26
<i>Neuroticism</i> * Trust Building	-0.05	0.05	-0.06	0.05								
<i>Neuroticism</i> * Trust Violation					0.07	0.22	0.06	0.26				
<i>Neuroticism</i> * Trust Repair									-0.03	0.05	0.05	0.08

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 11 = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 21 = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 31 = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 41 = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 51 = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 61 = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 24. Results after adding Neuroticism into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1m Psychological Trust		Model 2m Behavioural Trust		Model 3m Psychological Trust		Model 4m Behavioural Trust		Model 5m Psychological Trust		Model 6m Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	4.78***	0.86	7.09***	0.91	8.33***	0.82	9.96***	0.71	6.14***	1.16	9.42***	1.30
Trust Building	1.30***	0.25	0.90***	0.27								
Trust Violation					-2.77**	1.11	-2.08	1.28				
Trust Repair									0.66***	0.25	-0.37	0.40
Level 2 Model (γ)												
Nature of Trust Violation					0.24	0.25	-0.63***	0.22	0.77**	0.32	0.14	0.33
Nature of Trust Violation * Trust Violation					0.69**	0.34	0.90**	0.40				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.99**	0.46	-1.41***	0.46
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.14	0.46	-0.62	0.46
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.18	0.46	-0.25	0.46
<i>Openness</i>	0.21	0.22	-0.02	0.23	-0.07	0.21	-0.15	0.18	-0.30	0.29	-0.64*	0.32
<i>Openness</i> * Trust Building	-0.12*	0.06	-0.08	0.07								
<i>Openness</i> * Trust Violation					-0.21	0.28	-0.31	0.32				
<i>Openness</i> * Trust Repair									-0.06	0.06	0.19*	0.10

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1m = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2m = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3m = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4m = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5m = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6m = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 25. Results after adding Openness into final models of trust building, trust violation, and trust repair phases.

Fixed Effects	Trust Building Phase (Rounds 1 to 4)				Trust Violation Phase (Rounds 5 to 6)				Trust Repair Phase (Rounds 6 to 9)			
	Model 1n Psychological Trust		Model 2n Behavioural Trust		Model 3n Psychological Trust		Model 4n Behavioural Trust		Model 5n Psychological Trust		Model 6n Behavioural Trust	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Level 1 Model ($\pi\gamma$)												
Intercept	5.63***	0.47	7.09***	0.50	7.82***	0.45	9.87***	0.38	4.60***	0.68	6.49***	0.75
Trust Building	0.83***	0.14	0.76***	0.15								
Trust Violation					-3.95***	0.61	-4.36***	0.71				
Trust Repair									0.37***	0.14	0.41*	0.22
Level 2 Model (γ)												
Nature of Trust Violation					0.32	0.26	-0.55**	0.22	0.87***	0.33	0.21	0.34
Nature of Trust Violation * Trust Violation					0.69*	0.35	0.90**	0.41				
Type of Trust Repair Strategy (0: Control vs 3: Financial Compensation)									-0.98**	0.47	-1.44***	0.48
Type of Trust Repair Strategy (1: Apology vs 3: Financial Compensation)									-0.23	0.47	-0.72	0.47
Type of Trust Repair Strategy (2: Promise vs 3: Financial Compensation)									-0.20	0.47	-0.37	0.47
<i>Risk Preference</i>	-0.00	0.07	-0.01	0.08	0.03	0.07	-0.08	0.06	0.05	0.09	0.07	0.10
<i>Risk Preference</i> * Trust Building	-0.00	0.02	-0.02	0.02								
<i>Risk Preference</i> * Trust Violation					0.05	0.09	0.16	0.11				
<i>Risk Preference</i> * Trust Repair									0.01	0.02	-0.01	0.03

Note: * denotes significance at $p < 0.10$. ** denotes significance at $p < 0.05$. *** denotes significance at $p < 0.01$. Nature of trust violation coded as 0 for implicit trust violation and 1 for explicit trust violation. Type of trust repair strategy coded as 0 for control, 1 for apology, 2 for promise, and 3 for financial compensation. Model 1n = Final model for trust building phase (Rounds 1 to 4; DV: Psychological Trust). Model 2n = Final model for trust building phase (Rounds 1 to 4; DV: Behavioural Trust). Model 3n = Final model for trust violation phase (Rounds 5 to 6; DV: Psychological Trust). Model 4n = Final model for trust violation phase (Rounds 5 to 6; DV: Behavioural Trust). Model 5n = Final model for trust repair phase (Rounds 6 to 9; DV: Psychological Trust). Model 6n = Final model for trust repair phase (Rounds 6 to 9; DV: Behavioural Trust).

Table 26. Results after adding Risk Preference into final models of trust building, trust violation, and trust repair phases.

Figure 1. Overview of trust repair process and the role of trust repair components.

Schlenker & Darby (1981)	Blue-Kulka & Olshtain (1984)	Scher & Darley (1997)	Chapman & Thomas (2006)	Fehr & Gelfand (2010)	Lekicki & Polin (2012)
<ul style="list-style-type: none"> •Using a perfunctory apology •Saying "I'm sorry" •Expressing remorse •Offering help •Requesting forgiveness •Using self-castigation 	<ul style="list-style-type: none"> •Expression of regret •Explanation of the cause of violation •Expression of responsibility •Offer of repair •Promise of forbearance 	<ul style="list-style-type: none"> •Expression of remorse •Expression of responsibility •Promise of forbearance •Offer of repair 	<ul style="list-style-type: none"> •Expressing regret •Accepting responsibility •Making restitution •Genuinely repenting •Requesting forgiveness 	<ul style="list-style-type: none"> •Offer of compensation •Expression of empathy •Acknowledgement of violated rules/norms 	<ul style="list-style-type: none"> •Expression of regret for the offence •Acknowledgement of responsibility •Declaration of repentance •Offer of repair •Explanation of why the violation occurred •Request for forgiveness

Figure 2. Review of underlying components of apologies in the literature.

Figure 3. Study procedure at a glance.

Figure 4. Mean psychological trust levels across all rounds of individuals who experienced implicit trust violation.

Figure 5. Mean psychological trust levels across all rounds of individuals who experienced explicit trust violation.

Figure 6. Mean behavioural trust levels across all rounds of individuals who experienced implicit trust violation.

Figure 7. Mean behavioural trust levels across all rounds of individuals who experienced explicit trust violation.

Individual Difference Variables	Trust Building Phase		Trust Violation Phase		Trust Repair Phase	
	<i>Psychological Trust</i>	<i>Behavioural Trust</i>	<i>Psychological Trust</i>	<i>Behavioural Trust</i>	<i>Psychological Trust</i>	<i>Behavioural Trust</i>
Social Value Orientation	+	+	+		+	+
Predisposition to Trust: Trusting Others	+		+		+	+
Predisposition to Trust: Others' Reliability & Integrity	+		+		+	+
Trait Forgiveness					+	
Implicit Beliefs					-	-
Temporal Focus: Past Focus						
Temporal Focus: Current Focus						-
Temporal Focus: Future Focus						-
Big Five Trait: Extraversion						
Big Five Trait: Agreeableness	+					
Big Five Trait: Conscientiousness					-	-
Big Five Trait: Neuroticism						
Big Five Trait: Openness						
Risk Preference						

Note: Green cell with plus (+) sign represents significant positive predictor while red cell with minus (-) sign represents significant negative predictor. Yellow cell represents insignificant predictor.

Figure 8. Influence of individual difference variables on trust building, trust violation, and trust repair phases at a glance.

Appendix A

Recruitment Email to Paid Study Participants

Dear All,

I'm running a study with my supervisors, Assoc Prof Ho Moon-Ho Ringo (Division of Psychology, NTU) and Assoc Prof Yohanes Eko Riyanto (Division of Economics, NTU) that looks into decision-making in a typical socio-economic context at **HSS Psychology Labs @ Basement 1**.

This study should take you about 45 minutes to 1 hour. You will be asked to answer some questionnaires as well as play a game. Besides enjoying a participation fee of S\$5, you can also earn additional experimental money in the game, which will be converted to lucky draw credits for you. The lucky draw prizes are as followed:

1. First Prize: Universal Studio Singapore One-Day Pass for 2 (worth S\$148.00)
2. Second Prize: Crab in a Bag Imperial Pot for 5 with Islandwide Delivery in Singapore (worth S\$132.00)
3. Third Prize: Go-Karting Experience for 2 in Singapore (worth S\$90.00)

The available study sessions are:

1. 13 January 2016 (Wednesday) 2.00pm to 3.00pm
2. 13 January 2016 (Wednesday) 3.30pm to 4.30pm
3. 13 January 2016 (Wednesday) 5.00pm to 6.00pm
4. 14 January 2016 (Thursday) 2.00pm to 3.00pm
5. 14 January 2016 (Thursday) 3.30pm to 4.30pm
6. 14 January 2016 (Thursday) 5.00pm to 6.00pm

Please register for one of the available study sessions at this link <http://tinyurl.com/zu4dj7a>.

Let me know if you've got any question.

Thanks and have a Great New Year ahead.

Warmest regards,
Sean Lim
Study Co-Investigator
School of Humanities and Social Sciences

Appendix B

Recruitment Poster for Paid Study Participants

Dear All,

I'm running a study with my supervisors, Assoc Prof Ho Moon-Ho Ringo (Division of Psychology, NTU) and Assoc Prof Yohanes Eko Riyanto (Division of Economics, NTU) that looks into decision-making in a typical socio-economic context in **HSS Psychology Labs @ Basement 1**.

This study should take you about 45 minutes to 1 hour. You will be asked to answer some questionnaires as well as play a game. Besides enjoying a participation fee of S\$5.00, you can also earn additional experimental money, which will be converted to lucky draw credits for you.

Lucky Draw Prizes

First Prize: Universal Studio Singapore One-Day Pass for 2
(worth S\$148.00)

Second Prize: Crab in a Bag Imperial Pot for 5 with Islandwide Delivery in Singapore
(worth S\$119.90)

Third Prize: Go-Karting Experience for 2 in Singapore
(worth S\$90.00)

Please sign up for one of the available study sessions at this link

<http://tinyurl.com/zu4dj7a>.

Alternatively, you can scan on the QR code.

For questions regarding this study, please direct them to me (limy0201@e.ntu.edu.sg).

I look forward to your active participation.

Thanks and have a Great New Year ahead! ☺

Warmest regards,

Sean Lim Yu Sin

Appendix C

Lucky Draw Prizes

First Prize: Universal Studio Singapore One-Day Pass for 2 (worth S\$148.00)

Second Prize: Crab in a Bag Imperial Pot for 5 with Islandwide Delivery in Singapore (worth S\$119.90)

Third Prize: Go-Karting Experience for 2 in Singapore (worth S\$90.00)

Appendix D

Study Protocol for Paid Study Participants

This study protocol serves as a guideline for all experimenters to be consistent when conducting the respective paid study sessions for the study “Decision-making in a typical socio-economic context”.

Before the Study Session

All experimenters are to gather at the long table in HSS Psychology Labs @ Basement 1 at least 30 minutes before the start of first study session of the day.

One of the experimenters will have to retrieve the lab keys (HSS-B1-17 & HSS-B1-22) and bring along all the materials necessary for the study (e.g., pens/pencils, black papers, general instruction sheets).

Outside the labs. One experimenter will assist in setting up the Registration Booth outside the two labs being used for the study. This involves putting up the study labels on the long table for participants to identify which study they are coming for, placing the attendance lists on the table top nearest to the main entrance to HSS Psychology Labs, putting the Participant Identification Number cards face down in the middle section of the table, and setting up a laptop and smartphone (or two smartphones) for random assignment of participants to either Room A (HSS-B1-17) or Room B (HSS-B1-22). These mobile devices will have to be connected to NTU wireless network for this random assignment to work smoothly. Also, these mobile devices will have to open up this link http://ntuhss.az1.qualtrics.com/jfe/form/SV_0CHskIansGI8IEh to assign participants to either Room A or Room B randomly.

In addition, room labels (Room A or Room B) are to be put up at eye level, so that the experimenter can direct participants into their respective rooms with ease.

In Room A (HSS-B1-17). One experimenter will be in charge of setting up this room by switching on all seven available desktops and making sure they are in good working condition. Next, connect each desktop in this room to the study link http://ntuhss.az1.qualtrics.com/jfe/form/SV_3E2ynmsCX321pzf using Google Chrome as the web browser. The experimenter is to maximise the Google Chrome window before switching off the monitor. Also, the experimenter is to place the “General Study Instructions” sheet on the table top in front of the monitor/keyboard as well as a pen/pencil and a white sheet of paper on the left hand side of the table top. Lastly, the experimenter is to check that there are sufficient envelopes with S\$5-note, “Participation Fee Acknowledgement” sheets, “Informed Consent”

forms, as well as a spare laptop (fully charged and connected to NTU wireless network) in the room.

In Room B (HSS-B1-22). Another experimenter will be in charge of setting up this room by switching on all eight available desktops and making sure they are in good working condition. S/he is to connect each desktop in this room to the study link http://ntuhss.az1.qualtrics.com/jfe/form/SV_0UO6wOxcPFCMpLv using Google Chrome as the web browser. Similarly, the experimenter is to maximise the Google Chrome window before switching off the monitor. Thereafter, the experimenter is to place the “General Study Instructions” sheet on the table top in front of the monitor/keyboard as well as a pen/pencil and a white sheet of paper on the left hand side of the table top. Lastly, the experimenter has to check that there are sufficient envelopes with S\$5-note, “Participation Fee Acknowledgement” sheets, “Informed Consent” forms, as well as a spare laptop (fully charged and connected to NTU wireless network) in the room.

Arrival of Participants

One of the experimenters will check with the participants who enter through the main door by saying “Hello! Are you here for the decision-making study?”. Next, the experimenter will request each participant to sign their attendance by saying “Please kindly find your name on this list and sign your attendance.”. After which, the experimenter will instruct each participant to pick a Participant Identification Number card randomly by saying “Please pick one of the cards here. [pause] We will identify you using this 6-digit code throughout this study. Please keep it with you.”.

Another experimenter will request for this 6-digit code from each participant and key into this link http://ntuhss.az1.qualtrics.com/jfe/form/SV_0CHskIansGI8IEh to assign him/her to either Room A or Room B randomly by saying “Please share with me your 6-digit code. [pause] You’re assigned to Room A/B. This way, please [point in the direction of the assigned room].”. The experimenters in charge of Room A and Room B are to instruct participants in their respective rooms individually by saying “Please take one of the empty seats in this room. Kindly read the instructions on the table in front of you. Do not switch on the monitor yet. We will start this study together when everyone is here. Please wait for the others to arrive.”.

Start of Study Session

Each study session will start when everyone arrives. Otherwise, it will start latest 10 minutes after scheduled timing (to accommodate some of the latecomers). One experimenter will cue the start of each study session in both rooms. The experimenter in charge of each room will begin by saying “Thanks for taking part in this study. Sorry to keep you all waiting. [pause] Does any one of you have any question regarding the study instruction? [check for response] Please raise your

hand at any point in time if you've got any question and we will attend to you shortly. Please switch on the monitor and commence on this study.”.

The experimenters in both rooms are to walk around to check that every participant is on the right page and provide assistance when necessary.

During the Study Session

Experimenters are to respond to participants' questions (if any) during each study session. Also, experimenters may have to deal with unexpected incidents, such as breaking down of desktop computer.

If the participant is at the beginning of the study when the desktop computer breaks down, experimenter may wish to direct him/her to another seat with a working desktop computer (if the session is not full). Otherwise, the experimenter is to replace the desktop computer that has broken down with the spare laptop in each room.

However, if the participant is already more than halfway through the study, the experimenter can try restarting the desktop computer. If it is beyond salvage, the experimenter will pass him an envelope with S\$5-note to thank him for his participation.

After 15 minutes into the study, the experimenter should walk around the room to check on the participants' progress. After which, the experimenter should get the box of goodies (sweets, biscuits, and tidbits) and place it on the side of the table nearest to the door with “Our Warmest Appreciation” note in front of this box of goodies.

The experimenter will then direct participants individually to the front table after they complete the entire study. The experimenter is to check with each participant by asking “Did you opt to receive your S\$5 or did you convert your S\$5 into extra lucky draw credits?”. If yes, the experimenter has to hand over an envelope with S\$5 to the participant and get him/her to sign the “Participation Fee Acknowledgement” slip and fill up the “Informed Consent” sheet. Otherwise, the experimenter should simply get the participant to sign the “Participation Fee Acknowledgement” slip and fill up the “Informed Consent” sheet.

Before each participant steps out of the room, experimenter will be requested to show appreciation by saying “Please feel free to take any of these sweets, biscuits, and tidbits. You can take more than one item, just help yourself, but don't take the whole box away.”.

After the Study Session

Once everyone has left the room, the experimenter is required to refresh the study link on Google Chrome and switch off the monitor. Also, the experimenter should remove any litter and replace

any of the missing items on the table (e.g., blank paper, pen/pencil, instruction sheet) to get ready for the next study session (if any).

If the next study session still has many vacancies, the experimenters will be requested to walk around in HSS building to look for impromptu participants.

If there is no more study session, the experimenter will close the web browser and turn out the desktop computers. Also, the experimenter will have to pack up everything accordingly, making sure not to leave anything behind in the rooms.

At the end of each day, experimenters will gather together to talk briefly about any issue/problem faced as well as how similar incidents can be prevented in subsequent study sessions.

Appendix E

Study Protocol for RP Pool Participants

This study protocol serves as a guideline for all experimenters to be consistent when conducting the respective study sessions for the study “Decision-making in a typical socio-economic context”.

Before the Study Session

All experimenters are to gather at the long table in HSS Psychology Labs @ Basement 1 at least 30 minutes before the start of first study session of the day.

One of the experimenters will have to retrieve the lab keys (HSS-B1-17 & HSS-B1-22) and bring along all the materials necessary for the study (e.g., pens/pencils, blank papers, general instruction sheets).

Outside the labs. One experimenter will assist in setting up the Registration Booth outside the two labs being used for the study. This involves putting up the study labels on the long table for participants to identify which study they are coming for, placing the attendance lists on the table top nearest to the main entrance to HSS Psychology Labs, putting the Participant Identification Number cards face down in the middle section of the table, and setting up a laptop and smartphone (or two smartphones) for random assignment of participants to either Room A (HSS-B1-17) or Room B (HSS-B1-22). These mobile devices will have to be connected to NTU wireless network for this random assignment to work smoothly. Also, these mobile devices will have to open up this link http://ntuhss.az1.qualtrics.com/SE/?SID=SV_55VFWlmOawOlPv to assign participants to either Room A or Room B randomly.

In addition, room labels (Room A or Room B) are to be put up at eye level, so that the experimenter can direct participants into their respective rooms with ease.

In Room A (HSS-B1-17). One experimenter will be in charge of setting up this room by switching on all seven available desktops and making sure they are in good working condition. Next, connect each desktop in this room to the study link http://ntuhss.az1.qualtrics.com/jfe/form/SV_51KZGdH2gnxdGsZ using Google Chrome as the web browser. The experimenter is to maximise the Google Chrome window before switching off the monitor. Also, the experimenter is to place the “General Study Instructions” sheet on the table top in front of the monitor/keyboard as well as a pen/pencil and a white sheet of paper on the left hand side of the table top.

In Room B (HSS-B1-22). Another experimenter will be in charge of setting up this room by switching on all eight available desktops and making sure they are in good working condition. S/he is to connect each desktop in this room to the study link http://ntuhss.az1.qualtrics.com/SE/?SID=SV_29yMfb0nbKhOz7T using Google Chrome as the web browser. Similarly, the experimenter is to maximise the Google Chrome window before switching off the monitor. Thereafter, the experimenter is to place the “General Study Instructions” sheet on the table top in front of the monitor/keyboard as well as a pen/pencil and a white sheet of paper on the left hand side of the table top.

Arrival of Participants

One of the experimenters will check with the participants who enter through the main door by saying “Hello! Are you here for the decision-making study?”. Next, the experimenter will request each participant to sign their attendance by saying “Please kindly find your name on this list and sign your attendance.”. After which, the experimenter will instruct each participant to pick a Participant Identification Number card randomly by saying “Please pick one of the cards here. [pause] We will identify you using this 5-digit code throughout this study. Please keep it with you.”.

Another experimenter will request for this 5-digit code from each participant and key into this link http://ntuhss.az1.qualtrics.com/SE/?SID=SV_55VFWImOawO1pPv to assign him/her to either Room A or Room B randomly by saying “Please share with me your 5-digit code. [pause] You’re assigned to Room A/B. This way, please [point in the direction of the assigned room].”. The experimenters in charge of Room A and Room B are to instruct participants in their respective rooms individually by saying “Please choose one of the empty seats in this room. Kindly read the instructions on the table in front of you. Do not switch on the monitor yet. We will start this study together when everyone is here. Please wait for the others to arrive.”.

Start of Study Session

Each study session will start when everyone arrives. Otherwise, it will start latest 5 minutes after scheduled timing to accommodate some of the latecomers (only upon decision by main experimenter on the spot). One experimenter will cue the start of each study session in both rooms. The experimenter in charge of each room will begin by saying “Thanks for taking part in this study. Sorry to keep you all waiting. [pause] Does any one of you have any question regarding the study instruction? [check for response] Please raise your hand at any point in time if you’ve got any question and we will attend to you shortly. Please switch on the monitor and commence on this study.”.

The experimenters in both rooms are to walk around to check that every participant is on the right page and provide assistance when necessary.

During the Study Session

Experimenters are to respond to participants' questions (if any) during each study session. Also, experimenters may have to deal with unexpected incidents, such as breaking down of desktop computer.

If the participant is at the beginning of the study when the desktop computer breaks down, experimenter may wish to direct him/her to another seat with a working desktop computer (if the session is not full). Otherwise, the experimenter is to replace the desktop computer that has broken down with the spare laptop in each room.

However, if the participant is already more than halfway through the study, the experimenter can try restarting the desktop computer. If it is beyond salvage, the experimenter will thank him for his participation and mark him as completed the study session. The main experimenter will award him with one course credit.

After 15 minutes into the study, the experimenter should walk around the room to check on the participants' progress. After which, the experimenter should get the box of goodies (sweets, biscuits, and tidbits) and place it on the side of the table nearest to the door with "Our Warmest Appreciation" note in front of this box of goodies.

The experimenter will have to check that participants have completed the entire study properly. Before each participant steps out of the room, experimenter will be requested to show appreciation by saying "Please feel free to take any of these sweets, biscuits, and tidbits. You can take more than one item, just help yourself, but don't take the whole box away."

After the Study Session

Once everyone has left the room, the experimenter is required to refresh the study link on Google Chrome and switch off the monitor. Also, the experimenter should remove any litter and replace any of the missing items on the table (e.g., blank paper, pen/pencil, instruction sheet) to get ready for the next study session (if any).

If there is no more study session, the experimenter will close the web browser and turn out the desktop computers. Also, the experimenter will have to pack up everything accordingly, making sure not to leave anything behind in the rooms. The main experimenter will return the lab keys accordingly.

At the end of each day, experimenters will gather together to talk briefly about any issue/problem faced as well as how similar incidents can be prevented in subsequent study sessions.

Appendix F

General Study Instructions to Paid Study Participants

In this study, you will be requested to respond to some questionnaires as well as play an allocation game using the desktop in front of you.

Please be assured that there is no right or wrong answer to any of the responses/decisions that you make in this study. You can answer truthfully as your responses/decisions will be anonymous to other participants as well as the experimenters.

Please note that you will not be able to go back to earlier parts of the study to change your previous responses or refer back to earlier pieces of information once you have clicked "Next" to proceed with the study.

Please avoid clicking the "Back" or "Refresh" button on the web browser at all times.

Please kindly stay put at your seat throughout the study.

Please refrain from communicating with anyone else during this study session (unless you are told to do so).

Please ensure that your mobile devices are switched off or set to silent mode.

Kindly raise your hand if you have any question at any point in time. The experimenter will attend to you shortly.

Upon successful completion of this study, you will be paid S\$5 for your participation. Also, you have the opportunity to take part in an attractive lucky draw campaign. More information about this lucky draw campaign will be released to you along the way.

If you opt to take part in this lucky draw campaign, you will be prompted to provide your contact details so that we can inform you if you are one of the lucky winners. In addition, you can choose to exchange your S\$5 participation fee for 5 additional lucky draw credits to boost your chances of winning an attractive prize.

Please raise your hand now if you have any question. Otherwise, kindly wait for experimenter's cue to turn on the monitor in front of you and commence on this study.

Appendix G

General Study Instructions to RP Pool Participants

In this study, you will be requested to respond to some questionnaires as well as play an allocation game using the desktop in front of you.

Please be assured that there is no right or wrong answer to any of the responses/decisions that you make in this study. You can answer truthfully as your responses/decisions will be anonymous to other participants as well as the experimenters.

Please note that you will not be able to go back to earlier parts of the study to change your previous responses or refer back to earlier pieces of information once you have clicked "Next" to proceed with the study.

Please avoid clicking the "Back" or "Refresh" button on the web browser at all times.

Please kindly stay put at your seat throughout the study.

Please refrain from communicating with anyone else during this study session (unless you are told to do so).

Please ensure that your mobile devices are switched off or set to silent mode.

Kindly raise your hand if you have any question at any point in time. The experimenter will attend to you shortly.

Upon successful completion of this study, you will be awarded 2 course credits for your participation. Also, you have the opportunity to take part in an attractive lucky draw campaign. More information about this lucky draw campaign will be released to you along the way.

If you opt to take part in this lucky draw campaign, you will be prompted to provide your contact details so that we can inform you if you are one of the lucky winners.

Please raise your hand now if you have any question. Otherwise, kindly wait for experimenter's cue to turn on the monitor in front of you and commence on this study.

Appendix H

Social Value Orientation Scale

Instructions

In this task you have been randomly paired with another person, whom we will refer to as the **other**. This other person is someone you do not know and will remain mutually anonymous. All of your choices are completely confidential. You will be making a series of decisions about allocating resources between you and this other person. For each of the following questions, please indicate the distribution you prefer most by **marking the respective position along the midline**. You can only make one mark for each question.

Your decisions will yield money for both yourself and the other person. In the example below, a person has chosen to distribute money so that he/she receives 50 dollars, while the anonymous other person receives 40 dollars.

There are no right or wrong answers, this is all about personal preferences. After you have made your decision, **write the resulting distribution of money on the spaces on the right**. As you can see, your choices will influence both the amount of money you receive as well as the amount of money the other receives.

Example:

Appendix I

Comprehension Check

Introduction to Allocation Game

There are two parties in this allocation game, Player A and Player B.

Step 1: Player A will receive a cash amount of **S\$10** at the start of each round.

Step 2: Player A will have to decide how much of this money to pass to Player B, ranging from **S\$0 to S\$10**.

Step 3: The amount of money that Player A passes will be tripled before reaching Player B.

Step 4: Player B will then have to decide whether to send back either half of the tripled amount (keeping the other half for himself) or nothing (keeping all for himself) to Player A.

Hypothetical Example A

Step 1: Player A receives a cash amount of **S\$10** in this round.

Step 2: In this example, Player A has decided to pass **S\$10** to Player B.

Step 3: This amount of money that Player A has passed triples to **S\$30** before reaching Player B.

Step 4: As illustrated, Player B has decided to return **S\$15** back to Player A, which is half of the tripled amount he has received earlier.

At the end of this round, Player A has S\$15 and Player B has S\$15.

Hypothetical Example B

Step 1: Player A receives a cash amount of **S\$10** in this round.

Step 2: In this example, Player A has decided to pass **S\$6** to Player B while keeping S\$4 for himself.

Step 3: The amount of money that Player A has passed triples to **S\$18** before reaching Player B.

Step 4: As illustrated, Player B has decided to return **S\$0** back to Player A, keeping all money for himself.

At the end of this round, Player A has S\$4 and Player B has S\$18.

Comprehension Check Quiz

You will be asked 3 simple questions to check on your understanding of this game before participating in the actual game.

Question 1

If Player A decides to pass S\$10 to Player B, how much money will Player B receive?

1. S\$0
2. S\$10
3. S\$20
4. S\$30

Question 2

Player A decides to pass S\$4 to Player B. Player B then decides to return half of the amount that s/he has received back to Player A.

How much money will Player B be returning back to Player A?

1. S\$0
2. S\$4
3. S\$6
4. S\$12

Question 3

In this round, Player A decides to pass S\$8 to Player B. Player B then decides to return half of the amount that s/he has received back to Player A.

Which of the following options illustrates the correct amount of money that Player A and Player B will have at the end of this round respectively?

1. Player A S\$14; Player B S\$12
2. Player A S\$6; Player B S\$4
3. Player A S\$2; Player B S\$8
4. Player A S\$2; Player B S\$12

Comprehension Check Review

Please check your answers in the previous page against the solutions in this page.

Please check to make sure that you understand how this game works before moving on to the actual game with your assigned partner.

Question 1

If Player A decides to pass S\$10 to Player B, how much money will Player B receive?

1. S\$0
2. S\$10
3. S\$20
4. S\$30

Correct Answer: S\$30

Explanation: The amount of money that Player A decides to pass will be tripled before reaching Player B. Since Player A passes S\$10, Player B will receive S\$30.

Question 2

Player A decides to pass S\$4 to Player B. Player B then decides to return half of the amount that s/he has received back to Player A.

How much money will Player B be returning back to Player A?

1. S\$0
2. S\$4
3. S\$6
4. S\$12

Correct Answer: S\$6

Explanation: Since Player A passes S\$4, Player B will receive S\$12. In this example, Player B returns back half of the amount s/he receives. Since s/he receives S\$12, Player B will return S\$6 back to Player A.

Question 3

In this round, Player A decides to pass S\$8 to Player B. Player B then decides to return half of the amount that s/he has received back to Player A.

Which of the following options illustrates the correct amount of money that Player A and Player B will have at the end of this round respectively?

1. Player A S\$14; Player B S\$12
2. Player A S\$6; Player B S\$4
3. Player A S\$2; Player B S\$8
4. Player A S\$2; Player B S\$12

Correct Answer: Player A S\$14; Player B S\$12

Explanation: Player A starts each round with a cash amount of S\$10. Since Player A passes S\$8 in this round, s/he is left with S\$2 at this juncture. Player B will receive S\$24 since the passed amount of S\$8 triples. In this round, Player B returns back half of the amount he receives. Since he receives S\$24, he will return S\$12 back to Player A and he is left with S\$12 for himself. Hence, Player A will have S\$14 (S\$12 from Player B and S\$2 from leftover amount) while Player B will have S\$12 at the end of this round.

Appendix J

Predisposition to Trust Scale

There is no right or wrong answer.

Please indicate the option that best describes how much you agree or disagree with each of the 20 statements below (*1 = strongly disagree, 6 = strongly agree*).

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

Trusting Others

- C01. Other people are out to get as much as they can for themselves. (*reverse-coded*)
- C02. Other people cannot be relied upon. (*reverse-coded*)
- C03. I have little faith in other people's promises. (*reverse-coded*)
- C04. Other people are primarily interested in their own welfare despite what they say. (*reverse-coded*)
- C05. In these competitive times, I have to be alert; otherwise, others will take advantage of me. (*reverse-coded*)
- C06. Other people who act in a friendly way towards me are disloyal behind my back. (*reverse-coded*)
- C07. Other people lie to get ahead. (*reverse-coded*)
- C08. Other people are only concerned with their own well-being. (*reverse-coded*)
- C09. Other people let you down. (*reverse-coded*)

Others' Reliability and Integrity

- C10. Other people can be relied upon to do what they say they will do.
- C11. Those in authority are likely to say what they really believe.
- C12. Other people answer public opinion polls honestly.
- C13. Experts can be relied upon to tell the truth about the limits of their knowledge.
- C14. Witnesses tell the truth in all circumstances.
- C15. Other people do what they say they will do.
- C16. Other people live by the idea that honesty is the best policy.

Risk Aversion

C17. It is important to 'save for a rainy day'.

C18. I prefer a modest but safe return on my savings rather than a higher return that is uncertain.

C19. "It is better to be safe than sorry."

C20. If I had money to invest, I would look for security rather than spectacular returns.

This original 20-item Predisposition to Trust Scale (Ashleigh, Higgs, & Dulewicz, 2012) was developed to address the limitations of the previous scale in order to provide an instrument that indeed measures one's general willingness to trust. The scores of the following items will be summed and then averaged to yield a composite rating for each dispositional factor:

- 1) Trusting Others: 1R, 2R, 3R, 4R, 5R, 6R, 7R, 8R, 9R*
- 2) Others' Reliability and Integrity: 10, 11, 12, 13, 14, 15, 16*
- 3) Risk Aversion: 17, 18, 19, 20*

Also, the scores of all items in this scale will be summed and then averaged to yield an overall composite rating for each participant.

Appendix K

Tendency to Forgive Scale

There is no right or wrong answer.

Please indicate the option that best describes how much you agree or disagree with each of 4 statements below (*1 = strongly disagree, 6 = strongly agree*).

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

D01. I tend to get over it quickly when someone hurts my feelings.

D02. If someone wrongs me, I often think about it a lot afterward. (*reverse-coded*)

D03. I have a tendency to harbour grudges. (*reverse-coded*)

D04. When people wrong me, my approach is just to forgive and forget.

This measure is the original Tendency to Forgive (TTS; Brown, 2000, 2002, 2003) scale. All items will be summed and averaged to yield a composite tendency to forgive rating for each participant.

Appendix L

Measure of Implicit Person Theories

There is no right or wrong answer.

Please indicate the option that best describes how much you agree or disagree with each of 3 statements below (*1 = strongly disagree, 6 = strongly agree*).

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

G01. The kind of person someone is, is something very basic about them, and it can't be changed very much.

G02. People can do things differently, but the important parts of who they are can't really be changed.

G03. Everyone is a certain kind of person and there is not much that can be done to really change that.

Participants with mean theory score of 4.0 and above (indicating overall agreement) will be classified as entity theorists while those with mean theory score of 3.0 and below (indicating overall disagreement) will be classified as incremental theorists. Participants whose mean theory scores fall between 3.0 to 4.0 will be Unclassified (Chiu, Hong, & Dweck, 1997).

Appendix M

Temporal Focus Scale

Please read each of the following 12 statements, indicate how frequently these thoughts are on your mind (*1 = never, 7 = constantly*).

1	2	3	4	5	6	7
Never	Rarely	Sometimes	Occasionally	Frequently	Always	Constantly

Past Focus

- H01. I replay memories of the past in my mind.
- H02. I reflect on what has happened in my life.
- H03. I think about things from my past.
- H04. I think back to my earlier days.

Current Focus

- H05. I focus on what is currently happening in my life.
- H06. My mind is on the here and now.
- H07. I think about where I am today.
- H08. I live my life in the present.

Future Focus

- H09. I think about what my future has in store.
- H10. I think about times to come.
- H11. I focus on my future.
- H12. I imagine what tomorrow will bring for me.

This measure is the original Temporal Focus Scale (TFS; Shipp, Edwards, & Lambert, 2009). The respective items for each sub-scale will be summed and averaged to yield composite past focus, current focus, & future focus ratings for each participant. Median split will be used to classify participants as either high or low on past, current, & future foci.

Appendix N

Big Five Inventory

Please indicate the option that best describes how much you agree or disagree with each of the 44 statements about yourself (*1 = strongly disagree, 6 = strongly agree*).

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

- I01. I see myself as someone who is talkative.
- I02. I see myself as someone who tends to find fault with others. (*reverse-coded*)
- I03. I see myself as someone who does a thorough job.
- I04. I see myself as someone who is depressed, blue.
- I05. I see myself as someone who is original, comes up with new ideas.
- I06. I see myself as someone who is reserved. (*reverse-coded*)
- I07. I see myself as someone who is helpful and unselfish with others.
- I08. I see myself as someone who can be somewhat careless. (*reverse-coded*)
- I09. I see myself as someone who is relaxed, handles stress well. (*reverse-coded*)
- I10. I see myself as someone who is curious about many different things.
- I11. I see myself as someone who is full of energy.
- I12. I see myself as someone who starts quarrels with others. (*reverse-coded*)
- I13. I see myself as someone who is a reliable worker.
- I14. I see myself as someone who can be tense.
- I15. I see myself as someone who is ingenious, a deep thinker.
- I16. I see myself as someone who generates a lot of enthusiasm.
- I17. I see myself as someone who has a forgiving nature.
- I18. I see myself as someone who tends to be disorganised. (*reverse-coded*)
- I19. I see myself as someone who worries a lot.
- I20. I see myself as someone who has an active imagination.
- I21. I see myself as someone who tends to be quiet. (*reverse-coded*)
- I22. I see myself as someone who is generally trusting.
- I23. I see myself as someone who tends to be lazy. (*reverse-coded*)

- I24. I see myself as someone who is emotionally stable, not easily upset. (*reverse-coded*)
- I25. I see myself as someone who is inventive.
- I26. I see myself as someone who has an assertive personality.
- I27. I see myself as someone who can be cold and aloof. (*reverse-coded*)
- I28. I see myself as someone who perseveres until the task is finished.
- I29. I see myself as someone who can be moody.
- I30. I see myself as someone who values artistic, aesthetic experiences.
- I31. I see myself as someone who is sometimes shy, inhibited. (*reverse-coded*)
- I32. I see myself as someone who is considerate and kind to almost everyone.
- I33. I see myself as someone who does things efficiently.
- I34. I see myself as someone who remains calm in tense situations. (*reverse-coded*)
- I35. I see myself as someone who prefers work that is routine. (*reverse-coded*)
- I36. I see myself as someone who is outgoing, sociable.
- I37. I see myself as someone who is sometimes rude to others. (*reverse-coded*)
- I38. I see myself as someone who makes plans and follows through with them.
- I39. I see myself as someone who gets nervous easily.
- I40. I see myself as someone who likes to reflect, play with ideas.
- I41. I see myself as someone who has few artistic interests. (*reverse-coded*)
- I42. I see myself as someone who likes to cooperate with others.
- I43. I see myself as someone who is easily distracted. (*reverse-coded*)
- I44. I see myself as someone who is sophisticated in art, music, or literature.

This measure is the original Big Five Inventory (BFI; John & Srivastava, 1999). The scores of the following items will be summed and then averaged to yield a composite rating for each BFI dimension, where R denotes reverse-coded items:

- 1) *Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36*
- 2) *Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42*
- 3) *Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R*
- 4) *Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39*
- 5) *Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44*

Appendix O

Risk Preference Scale

In this task, you will be asked to choose between Option A (sure gain) and Option B (lottery) for each of the 11 scenarios below. Please click on your preferred option.

There is no right or wrong answer. This is all about personal preferences.

	(A)	(B)
Scenario 1	S\$1	100% chance of getting S\$0 & 0% chance of getting S\$3
Scenario 2	S\$1	90% chance of getting S\$0 & 10% chance of getting S\$3
Scenario 3	S\$1	80% chance of getting S\$0 & 20% chance of getting S\$3
Scenario 4	S\$1	70% chance of getting S\$0 & 30% chance of getting S\$3
Scenario 5	S\$1	60% chance of getting S\$0 & 40% chance of getting S\$3
Scenario 6	S\$1	50% chance of getting S\$0 & 50% chance of getting S\$3
Scenario 7	S\$1	40% chance of getting S\$0 & 60% chance of getting S\$3
Scenario 8	S\$1	30% chance of getting S\$0 & 70% chance of getting S\$3
Scenario 9	S\$1	20% chance of getting S\$0 & 80% chance of getting S\$3
Scenario 10	S\$1	10% chance of getting S\$0 & 90% chance of getting S\$3
Scenario 11	S\$1	0% chance of getting S\$0 & 100% chance of getting S\$3

Appendix P

Participant Demographics

Please kindly share with us the following information about yourself.

Your Demographics	
Gender (e.g., male, or female):	
Age (e.g., 21, 28, or 32):	
Race (e.g., Chinese, Malay, or Indian)	
Nationality (e.g., Singaporean, or Malaysian)	
School (e.g., School of Humanities & Social Sciences, or Nanyang Business School)	
Course of Study (e.g., Accounting, Mechanical Engineering, or Psychology)	
Year of Study (e.g., 1, 2, 3, or 4):	

Appendix Q

Participation Fee Acknowledgement

Question 1: Do you opt to receive your participation fee of S\$5.00 in this study? (Please tick ✓)

☐ Yes

☐ No

Question 2: Have you received your participation fee of S\$5.00? (Please tick ✓)

☐ Yes

☐ No

☐ Not Applicable

Your Signature

Date of Acknowledgement

Appendix R

Matching Activity on Apology and Promise (Online Version)

Matching Activity

Please read the following statements on the left-hand side carefully.

Kindly click, drag and drop each of these statements into one of the following groups on the right-hand side based on whether you think each of them refers to an "Apology", "Promise", or "Not Sure".

Please click "End" once you've completed this simple matching activity.

Items

I know I'm wrong. I'm really sorry about it.

I deeply regret having hurt you.

I know I hurt your feelings and I feel terrible about it.

I give you my word that such unfortunate incident will never happen again.

I'll stay true to you no matter what happens in the near future.

I'll stay committed to the goals I've set.

Please allow me to make it up to you for the wrongdoing I've done.

I'll act according to what I've said.

Apology

Promise

Not Sure

Appendix S

Matching Activity on Apology and Promise (Hardcopy Version)

Read the following statements below and indicate in the blanks provided whether you think each of these statements refers to an “Apology”, “Promise”, or “Not Sure”.

I'll stay committed to the goals I've set.

• _____

I know I'm wrong. I'm really sorry about it.

• _____

I deeply regret having hurt you.

• _____

I give you my word that such unfortunate incident will never happen again.

• _____

I know I hurt your feelings and I feel terrible about it.

• _____

I'll act according to what I've said.

• _____

Please allow me to make it up to you for the wrongdoing I've done.

• _____

I'll stay true to you no matter what happens in the near future.

• _____

Appendix T

IRB Approval Letter

Research Support Office

Reg. No. 200604393R

IRB-2015-09-046

29 October 2015

Associate Professor Ho Moon-Ho Ringo
School of Humanities and Social Sciences

NTU INSTITUTIONAL REVIEW BOARD APPROVAL

Project Title: Fixing a Broken Trust: Understanding the Effectiveness of Trust Repair Strategies

I refer to your application for ethics approval with respect to the above project.

The Board has deliberated on your application and noted from your application that your research involves collecting behavioral data from participants through decision making games.

You have also confirmed that informed consent will be obtained from the participants and you have guaranteed the confidentiality of your participants' biodata obtained from them.

The documents reviewed are:

- a) NTU IRB application form dated **27 September 2015**
- b) Participant information sheet and consent form: version 2 dated **23 October 2015**
- c) Data collection form: version 1 dated **27 September 2015**

The Board is therefore satisfied with the bioethical consideration for the project and approves the ethics application under **Expedited** review. The approval period is from **29 October 2015 to 31 October 2016**. The NTU IRB reference number for this study is **IRB-2015-09-046**. Please use this reference number for all future correspondence.

The following protocol and compliances are to be observed upon NTU IRB approval

1. All research involving procedures greater than minimal risk on minors (individuals who are less than the legal age of 21 years old) requires IRB approved written Parental Consent and assent from the participant to be obtained before any research protocols can be administered. Minimal risk refers to an anticipated level of harm and discomfort that is no greater than that ordinarily encountered in daily life, or during the performance of routine educational, physical, or psychological examination.
2. Only the approved Participants Information Sheet and Consent Form should be used. It must be signed by each subject prior to initiation of any protocol procedures. In addition, each subject should be given a copy of the signed consent form.

Blk N2.1, B4-01, 76 Nanyang Drive, Singapore 637331 Nanyang Avenue, Singapore 639798
Tel : +65 6791 9857, Fax: 6793 2019
www.ntu.edu.sg

Research Support Office

3. Consent forms are important documents therefore they should be stored in the strictest arrangement. Loss of consent form would result in disciplinary action.
4. No deviation from, or changes of, the protocol should be initiated without prior written NTU IRB approval of an appropriate amendment.
5. The Principal Investigator should report promptly to NTU IRB regarding:
 - a. Deviation from, or changes to the protocol.
 - b. Changes increasing the risk to the subjects and/or affecting significantly the conduct of the trial
 - c. All serious adverse events (SAEs) which are both serious and unexpected.
 - d. New information that may affect adversely the safety of the subjects of the conduct of the trial.
 - e. Completion of the study.
6. Continuing Review Request/ Notice of Study completion form should be submitted to NTU IRB for the following:
 - a. Annual review: Status of the study should be reported to the NTU IRB at least annually using the Continuing Review Request/ Notice of Study completion form.
 - b. Study completion or termination: Continuing Review Request/ Notice of Study completion form is to be submitted within 4 to 6 weeks of study completion or termination.
7. All Principal Investigators should comply with existing legislation that would have an impact on the domain of their research.

A handwritten signature in black ink, appearing to read "Lee Sing Kong".

Professor Lee Sing Kong,
Chair, NTU Institutional Review Board
encl.

cc Chair, School of Humanities and Social Sciences
 Members, NTU Institutional Review Board

Appendix U

Participant Information Sheet & Informed Consent Form

You are being invited to take part in a research study on decision making. Please read this form carefully and ask any questions you may have before agreeing to take part in the study. If you agree to participate, please sign on the informed consent form.

Project Title

Fixing a Broken Trust: Understanding the Effectiveness of Trust Repair Strategies

Principle Investigator

Ho Moon-Ho Ringo
Associate Professor
Division of Psychology, HSS-NTU
Contact : HOMH@ntu.edu.sg
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Co-Investigators

Yohanes Eko Riyanto
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Lim Yu Sin
Graduate Student
Division of Psychology, HSS-NTU
Contact : LIMY0201@e.ntu.edu.sg
Phone: -

What the study is about

This study seeks to understand the pattern of individual decision-making in a typical socio-economic exchange setting. If you agree to participate in this experiment, we will provide you the detailed instructions later which tell you what to do in this study. Rest assured that your decisions will be kept anonymous to other participants as well as the experimenters. You will be assigned a random identification number as your identifier throughout this study.

What we will ask you to do

During the experiment, you will be asked to make a number of decisions and you will accumulate experimental money based on the decisions you and your interaction partner make.

The experimental money you have earned will be converted to lucky draw credits at the end of this study. Each participant's actions are anonymous. The decisions that you make during the experiment will be stored in electronic files using an identification number, which will be used by the researchers in all subsequent analyses of the results from this experiment, rather than your name. The researchers will not know which decisions are made by you as a specific individual when they analyse your decisions.

Expected duration of participation

The whole session will last for about 1 hour, including instructions, comprehension check, the main experiment, and a series of post-experiment questionnaires.

Risks and discomforts

There will be no risk or discomfort from participating in this research.

Compensation for injury

There will be no injury expected in this experiment.

Benefits

Other than the lucky draw credits and the show-up fee (course credits for those of you from the participant pool), there is no other direct benefit to participants. The knowledge gained from this study will contribute to the economics and psychology literature in general and help us to better understand the behavioural aspects in socio-economic decision-making.

Payment for participation

For your participation in this experiment, you will receive the show-up payment of S\$5.00 (two course credits for those of you from the participant pool) in addition to whatever amount of experimental money that you can earn from the experiment. Note that the amount of experimental money you earn from the experiment depends on your own and other's decisions made during the experiment.

The experimental money you earn from this study will be converted to lucky draw credits that give you a chance to win one of these attractive prizes:

1. First Prize: Universal Studio Singapore One-Day Pass for 2 (worth S\$148.00)
2. Second Prize: Crab in a Bag Imperial Pot for 5 with Islandwide Delivery in Singapore (worth S\$132.00)
3. Third Prize: Go-Karting Experience for 2 in Singapore (worth S\$90.00)

Also, you have the option to convert your participation fee of S\$5.00 to 5 lucky draw credits to boost your chances of winning one of the top prizes in the lucky draw. The probability of winning depends on the total number of participants who opt in this lucky draw and the combined number of lucky draw credits across these participants. The lucky draw will be conducted in a fair and unbiased manner, where lucky draw credit will be drawn randomly for each of the stated prizes. Only the winners (with corresponding lucky draw credits) in this lucky draw will be informed of their prizes.

Privacy/Confidentiality

Participants are not personally identified, but instead each of them is given a randomly generated identification number as the identifier used throughout the study. The decisions made by

participants will be anonymous. Consequently, there will be no identifiable information used in any publication or presentation arising from this research project.

Taking part is voluntary

Your decision to participate in this research is voluntary and completely up to you. You can also withdraw from the research at any time without giving any reason by informing the experimenters and all the data collected will be discarded.

For those of you who are participating for course credits, this study serves as an alternative for you to obtain the same number of credits for a class assignment in your course/module.

If you have any question

The main researchers conducting this study are Associate Professor Ho Moon-Ho Ringo of the Division of Psychology, School of Humanities and Social Sciences, Nanyang Technological University, Associate Professor Yohanes Eko Riyanto of the Division of Economics, School of Humanities and Social Sciences, Nanyang Technological University, and Graduate Student Lim Yu Sin of the Division of Psychology, School of Humanities and Social Sciences, Nanyang Technological University. Please ask any question that you may have now. If you have questions later, you may contact A/P Ho Moon-Ho Ringo at HOMH@ntu.edu.sg (or at +65-63168944) or A/P Yohanes Eko Riyanto at YERIYANTO@ntu.edu.sg (or at +65-67906271). If you have any question or concern regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) for Human Participants at irb@ntu.edu.sg (or at +65-65922495) or access their website at <http://research.ntu.edu.sg/GuidelinesnForms/Pages/default.aspx>. You will be given a copy of this form for your own safe keeping.

Statement of Consent

I hereby acknowledge that:

1. My signature is my acknowledgement that I have agreed to take part in the above research.
2. I have received a copy of this information sheet that explains the use of my data in this research. I understand its contents and agree to donate my data for the use of this research.
3. I can withdraw from the research at any point of time by informing the Principal Investigator and all data will be discarded.

I will not have any right to any commercial benefits that may result from this research.

Name and Signature (Participant)

Date

Name and Signature (Consent Taker)

Date