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A Critical Review of the Conceptualization, Operationalization, and Empirical Literature on Cognition-Based and Affect-Based Trust

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ABSTRACT Trust plays a pivotal role in the development and maintenance of effective working relationships. In this paper we offer a critical review of the conceptualization and operationalization of cognition-based and affect-based trust. While definitions and measures of trust are abundant, the view of trust as a concept with cognitive and affective bases is well established. Nevertheless, the validity of this approach has rarely been examined. Our theoretical and empirical review (content validity study, systematic review and meta-analysis) of the literature reveals a failure to fully capture cognition or affect in current trust theory and measurement. We find the construct of affect-based trust to be particularly problematic in its current form. Resolving these issues is critical to advancing our understanding of the differentiating roles of these two important bases of trust. We detail areas for future research on the conceptualization and measurement of trust to stimulate theoretical exploration and methodological advances.

Keywords: affect-based trust, affect, cognition, cognition-based trust, critical review, trust

INTRODUCTION

Trust represents an important theoretical construct within organisational studies (Bunker et al., 2004) and has been defined as ‘a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviours of another’ (Rousseau et al., 1998, p. 395). A plethora of research has emerged investigating the antecedents as well as the proximal and distal outcomes of trust in referents

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at different levels (e.g., trust in the individual, team, unit, and organization; Fulmer and Gelfand, 2012). Despite the growing popularity of the construct, the conceptualization and measurement of trust is far from uniform in the literature. Many scholars argue that trust is unidimensional (e.g., Mayer et al., 1995), while others conceptualize and measure it as a multidimensional construct. Indeed, a substantive body of work positions trust as being made up of distinct categories with different bases (e.g., Lewicki and Bunker, 1996; McAllister, 1995; Rousseau et al., 1998). By far the most prominent multidimensional conceptualization is McAllister's (1995) which suggests that trust can be based on cognition or affect (see also Lewicki and Bunker, 1996).

Within this popular approach, cognition-based trust describes a rational evaluation of an individual and reflects beliefs about that individual's reliability, dependability and competency. In contrast, affect-based trust is positioned as an emotional attachment that stems from the mutual care and concern that exist between individuals (Bigley and Pearce, 1998). The bifurcation of trust into two bases is predicated on the notion that cognition-based and affect-based trust are distinct and therefore should have differential antecedents and outcomes (McAllister, 1995). Studies often argue for, and try to test, such differences (e.g., Erdem and Ozen, 2003; Parayitam and Dooley, 2009; Yang et al., 2009; Zhu and Akhtar, 2014a).

Despite this, and as we highlight in this review, there is a lack of clear and consistent empirical support for the distinctiveness of cognition-based and affect-based trust. For example, some studies find cognition-based trust is more strongly associated with outcomes, such as job performance (e.g., Yang et al., 2009; Zhu and Akhtar, 2014b), while others find affect-based trust is more strongly associated with the same outcomes (e.g., Lu and Hao, 2013; Yang and Mossholder, 2010), or report no significant differences between the two (e.g., Yang and Wu, 2014). Further to this, a meta-analysis of team trust by De Jong et al. (2016) revealed that both cognitive and affective trust predicted team performance to a similar extent. As such, accurately specifying the nomological network of affect-based and cognition-based trust is currently problematic. Finally, the overall correlation between the affective and cognitive components of trust tends to be very high (e.g., $r = 0.76$; De Jong et al., 2016), again begging the question as to whether these constructs, or their measures, are indeed sufficiently distinct. As we will highlight throughout our review, a critical implication of these issues is that as it currently stands it is difficult to establish firm conclusions from this empirical literature. One reason for this may be that cognition-based and affect-based trust are not functionally distinct. Another is that the inconsistent empirical findings and generally high levels of correlation may reflect a methodological artefact.

In this review we highlight the conceptual, empirical and measurement issues facing this multidimensional conceptualization of trust. We also highlight important avenues for advancing our understanding of trust and its affective and cognitive bases. In the first section of our review, we examine the definitions of cognition and affect-based trust and explore the theoretical distinction between these two bases while drawing parallels with other theoretical trust models. In doing so, we consider the theoretical limitations of cognition and affect-based trust as capturing only a small subset of cognitive bases for trust with limited attention to the emotions and moods that are typically conceptualized as representing affect (van Knippenberg, 2018). The second

section of our review takes a critical view of the current approach to the measurement of trust. We report the findings of a content analysis study that assesses the extent to which five commonly used trust scales actually capture affective and cognitive content, as rated by our subject matter experts (SMEs). We then offer a systematic review of the empirical literature on cognition and affect-based trust including a meta-analytic examination of the distinctiveness and nomological network of cognition-based and affect-based trust across 184 empirical studies. Finally, we present an agenda for future research in this area.

Taken together our critical review offers three important contributions to the literature. Our primary contributions are to the trust literature where the insights provided challenge our understanding of the bases of trust and in particular the extent to which we have captured affect-based trust in the literature to date. Specifically, we question the dominant multidimensional conceptualisation and the popular operationalisation of trust based on McAllister (1995). We argue that neither the theoretical foundations nor the commonly used measures of cognition and affect-based trust are fit for purpose. We find the theoretical distinction between cognition-based and affect-based trust implied by their names is not reflected in their definitions or measurement. This leads to a deficit in our understanding of affective bases for trust and an overly narrow conceptualization of the cognitions that drive trust decisions. With this review, we contribute to a small but growing literature which offers a dissenting view regarding the current treatment of multidimensional trust in the literature (e.g., Li, 2015; van Knippenberg, 2018).

Second, our review also contributes to the trust literature by reframing our understanding of trust and stimulating further work in this field. We do this through arguing that trust is best conceptualized as a unidimensional construct (e.g., Mayer et al., 1995) that represents the willingness to be vulnerable but that the bases for this willingness are far broader than those currently represented in the unidimensional trust literature. In our future research directions we highlight several overlooked cognitive bases of trust. We also theorize regarding the role of affect in influencing trust both directly and through the interplay with cognitive trust cues. In doing so, we integrate theory from the literature on judgment and decision making (e.g., Lerner et al., 2015) as a framework to build our understanding of trust.

Finally, our contribution extends beyond the trust domain to the wider management literature. It is well established that trust is a salient concept that is relevant to several management disciplines and debates and as such is important to better understand. Our review and conclusions can serve to inform other important constructs which are also theorized to comprise of cognitive and affective bases or dimensions. For example, notions of both cognition and affect are commonly found within the job attitudes literature, and recent work there suggests cognition and affect in relation to such attitudes are hard to separate (Judge and Kammeyer-Mueller, 2012). In a related vein, increasing attention to the role of affect in leadership processes shows that affective and cognitive processes are intertwined and mutually influence each other (van Knippenberg and Van Kleef, 2016). As such, our theorizing relating to the nature of emotions and the interplay of cognition and affect seems relevant for the wider management literature as well.

A CONCEPTUAL/THEORETICAL REVIEW

The Unidimensional and Multidimensional View of Trust

A pertinent issue plaguing the trust literature concerns the tendency for researchers to conceptualize and operationalize trust differently across theoretical perspectives and empirical studies. These discrepancies are particularly evident in the discussion of the dimensional nature of trust (Lewicki et al., 1998; Lewicki et al., 2006; Sitkin and Roth, 1993). Essentially two paradigms of thought have emerged (Tomlinson et al., 2020) and developed largely in parallel. A strong unidimensional focus is evident in the literature particularly with regard to the operationalization of trust with the most commonly used definitions largely adopting a unidimensional stance. For example, Mayer et al. (1995) define trust as the ‘willingness to be vulnerable to the actions of a trustee based on the expectation that the trustee will perform a particular action, irrespective of any monitoring or control mechanism’ (p. 712). Similarly, Rousseau et al.’s (1998) cross-discipline review defined trust as a ‘psychological state comprising the intentions to accept vulnerability based on positive expectations of the intentions of another’ (p. 395). The trust measures most often used also only capture a single dimension of trust, which is cognitive in nature (McEvily and Tortoriello, 2011). For example, the Mayer et al. (1995) trust as a unitary construct and the corresponding ‘willingness to be vulnerable’ measure has had considerable uptake in the empirical literature (McEvily et al., 2003).

Despite the above, the view that different forms of trust exist, and that the type of trust held may make a difference to its effects, is a second popular one (McEvily and Tortoriello, 2011). Indeed, much of the seminal theoretical work in the field positions trust as multidimensional (e.g., Lewicki and Bunker, 1996; Rousseau et al., 1998). As a result there appears to be a disconnect between theory, which suggests that trust can have different bases, and empirical research where this is often ignored (McEvily et al., 2003).

Multidimensional Models of Trust

One prominent multidimensional approach to understanding trust has been to separate dimensions of trust on the basis of whether they are cognitive or affective. More generally, distinctions between cognition and affect originated in the discipline of psychology where they have been considered as components of the mind and human experience since the 18th century (Forgas, 2008). Cognition is arguably the broader of the two concepts and is defined by the American Psychological Association as consisting of all aspects of knowing and awareness including processes such as perception, reasoning and judgment (APA, 2020). The study of cognition in organizations has largely dominated the management and organizational psychology literature over the last number of decades and is discussed across a wide range of topics and organizational activities (Hodgkinson and Healey, 2008). Narrowing to the concept of trust, van der Werff et al. (2019, p.110) describe trust cognitions as ‘all perceptual, evaluative, reasoning, and judgmental processes involved in a trust decision’. Building on this, we would define cognition-based trust to reflect *trust that is based on any type of cognition including perception of*

and judgment about, characteristics of another party, the quality of the relationship, and the social environment in which interactions are taking place.

In contrast, affect is typically defined as feeling states including emotion and mood (Barsade and Gibson, 2007; Frijda, 1986). This aspect of the human experience has received considerably less attention in the wider organisational literature until what has been termed the affective revolution of the last few decades (Ashkanasy et al., 2017). Commonly accepted distinctions between cognition and affect-based trust emerged in the literature in the mid-1990s, around the same time as the beginnings of the affective revolution. Unfortunately, seminal theory in the multidimensional trust literature did not reflect definitions of cognition and affect as conceptualized in the wider psychological and organisational field. Looking at the definition of affect, we would define affect-based trust as *trust that is based on experiences of emotion and mood which is either specific to a particular relationship, or more generalised, incidental affect which influences trust in that relationship.*

Instead, the most influential theorizing in this area of the trust literature is that of McAllister (1995) who draws on the work of Shapiro (1990) and Lewis and Weigert (1985), among others, to delineate cognition-based and affect-based trust. As noted, McAllister (1995) describes cognition-based trust as grounded in judgments about another's reliability, dependability, and competence which provide a rational basis for trust. Affect-based trust is described as being underpinned by emotional bonds and expectations of interpersonal care and concern (see also Bigley and Pearce, 1998). McAllister (1995) argues that cognition-based trust in another person is built on the outcomes of previous interactions as well as perceptions of similarity in characteristics such as culture or ethnicity and formal aspects of the other's professional qualifications. Affect-based trust is argued to arise from perceptions of the motives of the other party based on experiences such as frequency of interaction and provision of help and assistance. McAllister (1995) also proposed that cognition-based trust is more superficial but provides a foundation on which affect-based trust can develop.

Parallels can be drawn between McAllister's (1995) conceptualization and other prominent trust models that adopt a multidimensional view of trust. For instance, Lewicki and Bunker (1996) developed a model of trust, founded on the work of Shapiro et al. (1992). They outlined three distinct bases of trust: calculus-based trust, knowledge-based trust, and identification-based trust. Calculus and knowledge-based trust both emphasize the importance of the potential costs and benefits of a relationship and of reliability, met expectations, and promise keeping. These forms of trust are, in theory, cognitive and rational in nature, similar to McAllister's (1995) cognition-based trust. The third stage of trust development Lewicki and Bunker (1996) proposed, identification-based trust, forms a different yet still cognitive base of trust, which is founded in identification and self-definitional processes such as a sense of shared values, desires, and understanding. Later efforts to incorporate a fourth, affect-based trust dimension in the Lewicki and Bunker model have been published only in the form of a conference paper (McAllister et al., 2006) and perhaps as a result have not been as heavily cited in the literature.

Rousseau et al. (1998) also refer to calculus-based trust, in line with Lewicki and Bunker (1996), and distinguish it from relational trust. Their conceptualization of relational trust is similar to what McAllister calls affect-based trust and is defined as 'an emotional response based on interpersonal attachment and identification' (Rousseau et al., 1998; p.

398). In proposing this construct they explicitly draw on the work of both affect-based and identification-based trust. In a similar vein to McAllister (1995), Rousseau and colleagues also discuss the development of dimensions over time proposing that calculative trust is gradually replaced by relational trust through repeated interactions. The proposed differing developmental trajectories of these dimensions reflects the belief that these dimensions of trust are associated with distinctive developmental timelines (Dietz, 2011). However, the specifics of how these dimensions interplay or develop over time has received scant theoretical (or empirical) attention (Korsgaard et al., 2018). Moreover, despite evidence that emotion is found to have an immediate impact on job attitudes (Judge and Kammeyer-Mueller, 2012) as well as judgment and decision making (Forgas, 1995), traditional trust theory has tended to suggest that affect-based trust takes longer to develop.

Finally, conceptual overlap of cognition and affect-based trust can also be seen with Mayer et al.'s (1995) trust model. While Mayer and colleagues propose a unidimensional model of trust, they argue that its immediate antecedent is a multidimensional trustworthiness cognition consisting of judgments of the other party's ability, benevolence, and integrity. While an affective versus cognitive distinction in trustworthiness dimensions is not drawn by Mayer and colleagues themselves either in their 1995 paper or in a later extension to their earlier work where they argue they take a cognitive approach (Schoorman et al., 2007), others have drawn parallels. Specifically, the definitions offered by Mayer et al. (1995) for ability and integrity as elements of trustworthiness have been likened to McAllister's cognition-based trust. Benevolence trustworthiness and affect-based trust have been considered similar in definition as both are strongly focused on relationships and emotional bonds between actors (e.g., Colquitt et al., 2011; van der Werff and Buckley, 2017). Li (2015) also distinguishes between two forms of trustworthiness, static trustworthiness which relates to relatively fixed traits of the trustee such as those captured by cognition-based trust, and dynamic trustworthiness which captures relationship specific dimensions in line with how affect-based trust has been treated. These trustworthiness antecedents are also primarily relational rather than affective in the sense of being based in experienced moods and emotions.

The key difference between these conceptualizations of trustworthiness and McAllister's (1995) cognition and affect-based trust is that these elements of trustworthiness are seen as proximal antecedents of trust rather than as different forms of trust. Indeed, Mayer et al. (1995) are careful not to confound trust and its antecedents. As such, the unidimensional view implies that even if trust itself is conceptualized to be unidimensional, trust might have different *bases*, and what such trust is based on may make a difference to its effects. In contrast, scholars such as McAllister (1995) advocate for the multidimensional view wherein qualitatively different *dimensions* of trust are believed to exist (Dietz, 2011).

Looking closely at the descriptions offered by McAllister (1995) for both cognition and affect-based trust leads to two important observations. The first is that cognition-based trust reflects cognitions specifically about the trustee. For example, cognitions around the other party's capability are prominent in its definition. Although the characteristics of another party are just a subset of the possible cognitions on which trust might be based, McAllister's (1995) definition of cognition-based trust does not extend beyond this. Li (2007) describes this focus of trustworthiness as being a form of depersonalized trust that

largely ignores more relational cognitions related to shared values and interests. As these cognitions are person-centric they also exclude any potentially relevant, broader cognitions (e.g., situational influences, personal motivations, third party influences) that might influence a willingness to be vulnerable to another party.

Second, affect-based trust, as currently treated in the literature, does not contrast with what is called cognition-based trust as being non-cognitive in nature. Rather affect-based trust seems to be based on cognitions about the relationship with the trustee instead of (characteristics of) the trustee per se. For instance, affect-based trust includes expectations for benevolent actions as well as judgments about the strength or quality of the relationship. This distinction is a departure from the work of Lewis and Weigert (1985) on emotional and cognitive trust on which McAllister (1995) draws. Specifically, Lewis and Weigert (1985) consider all aspects of trustworthiness to provide the 'good reasons' on which cognitive processes of trust are based, including expectations for benevolent action. They also highlight the emotional bond between those in a trusting relationship and comment on the emotionality of trust violations that lead to outrage and hurt the foundations of the relationship. In both accounts, the conceptualization of affect-based trust certainly has more affective connotations than that of cognition-based trust, but it does not capture a purely affective process in line with dominant definitions of affect (e.g., Frijda, 1986) or our definition of affect-based trust provided above. The relationship-based nature of the concept is more prominent than the presumed affective basis, and for the most part, affect (emotions and mood) is not explicitly included.

Commonalities with other theoretical work can be seen here (e.g., Lewicki and Bunker, 1996; Rousseau et al., 1998). Most notably, all models appear to be capturing some form of cognition, albeit typically a rather narrow subset. Further they all discuss a more relational side of trust, which for the most part, may include elements of affect. Importantly however the models confound affect with more cognitive assessments about the relationship between the trustor and trustee. Thus, the relationship and not affect is center-stage in all these models. As such, both cognition and affect-based trust are in fact based on cognitions. What is currently called affect-based trust strongly confounds affect with what would be more accurately described as a cognitive assessment of the relationship. We are not suggesting of course that cognitions about the relationship are not important, indeed trust is an inherently relational process. However, if our intention is to understand an *affect-based* trust (and to potentially distinguish this from a separate cognition-based trust) then we would argue that affect should play a more central and prominent role in its definition and theorizing than is currently the case. To clarify the above, we summarized the literature in Table I and mapped out the conceptual space in Figure 1.

Conclusion of the Conceptual/Theoretical Review

Definitional issues with these two trust bases have begun to be recognized in the literature and as such, we propose clearer and more focused definitions of both (see Figure 1). Some scholars have proposed that while cognition-based trust focuses on the potential benefits provided by another party, affect-based trust is a direct assessment of the relationship between the two parties (Colquitt et al., 2014; Yang et al., 2009). This has led

Table I. A summary of affect and cognition-based work on trust

	<i>McAllister (1995)</i>	<i>Levicki and Banker (1996)</i>	<i>Rousseau et al. (1998)</i>	<i>Mayer et al. (1995)</i>
Dimensionality of Trust	Two dimensions: cognition-based trust, affect-based trust	Three dimensions: calculus-based trust, knowledge-based trust, identification-based trust	Three dimensions: calculative trust, relational trust, institutional trust	Unidimensional. Preceded by multidimensional trustworthiness cognitions: ability, benevolence, integrity
Trust Cognitions	Cognition-based trust	All dimensions refer to cognitive processes varying from rational weighing up of costs and benefits to considering what is known about the other and strongly identifying with another party	Calculus-based trust seen as a rational process based on a judgment that the trustee will act in a way that is beneficial. The judgment includes perceptions of deterrence or control in the environment and information regarding the characteristics of the other party.	Trust itself is a willingness or intention to be vulnerable.
			Relational trust is based on information about the trustee and the relationship	Trustworthiness is an aggregate perception of the characteristics of the other party. The ability and integrity sub-dimensions of this are also widely recognised as reflecting trust related cognition.

(Continues)

Table I. (Continued)

Trust Affect	<i>McAllister (1995)</i>	<i>Levicki and Bunker (1996)</i>	<i>Rousseau et al. (1998)</i>	<i>Mayer et al. (1995)</i>
			Emotion is thought to be an aspect of relational trust where long-term interaction leads to the development of emotional bonds and attachments and socioemotional support. However, trust is based on an evaluation of these bonds not the emotion they evoke	While benevolence in trustworthiness is sometimes considered to have emotional connotations, it is fundamentally still a perception or judgment about the motives of the other party

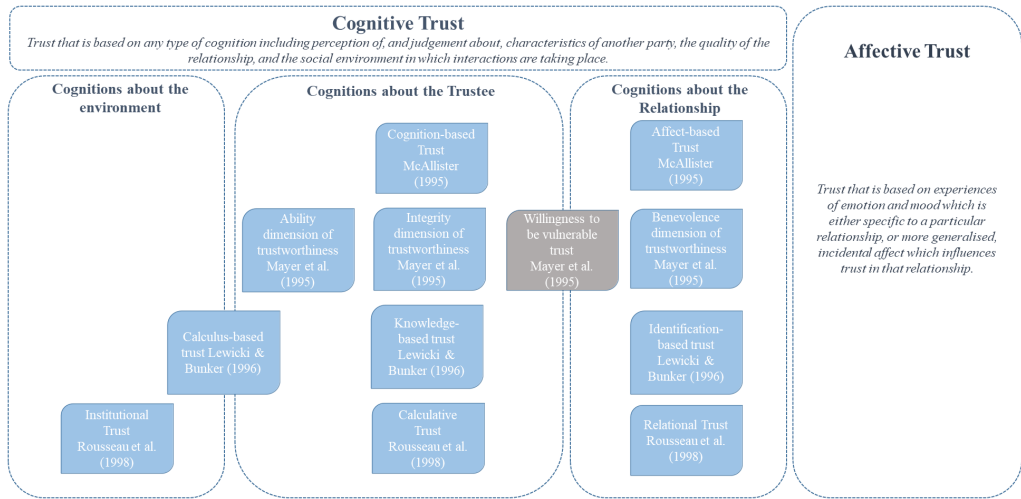


Figure 1. Conceptual map [Colour figure can be viewed at wileyonlinelibrary.com]

to the suggestion that affect-based trust, as it has been treated in the literature to date, should be more accurately termed ‘relationship-based trust’ (van Knippenberg, 2018) as while the relationship is described as an ‘emotional bond’, affect and emotions are not explicitly captured. Instead, they are either implied, not prominent, and sometimes even absent.

MEASUREMENT AND EMPIRICAL REVIEW

Given the problems identified above with the theoretical distinction between cognition and affect-based trust an important next step would be to consider the body of empirical literature that has amassed in this field. We conduct this phase of our review in two key steps. First, we review current measurement of cognitive and affective trust based on the results of a content analysis of five scales which capture multidimensional aspects of trust. Then we provide a systematic review and meta-analysis of empirical research studying cognition and affect-based trust.

The Measurement of Cognition-Based and Affect-Based Trust

Operationalizations of a construct are the mechanism for bridging theory and empirical research. The development and use of accurate and study-appropriate measures of theoretical constructs like trust are the basic building blocks of quantitative empirical activity. One way in which the accuracy of a measure is recognized is when item content provides representative coverage of the theoretical construct. So, what do scales measuring cognition and affect-based trust actually assess? A close lexical examination of the items designed by McAllister (1995) confirms our assessment of the theory in that the cognitive items focus predominantly on cognitions about the characteristics of the other party (somewhat analogous to trustworthiness) while the affect-based trust items capture a broader perspective. Of the five items designed to capture affect-based trust

(see Table II for the formulation), only one has a predominantly affective focus (i.e., 'We would both feel a sense of loss if one of us was transferred and we could no longer work together'). Other items in the scale appear to be quite light in affective content and include cognitions about the relationship (e.g., 'We have a sharing relationship. We can both freely share our ideas, feelings and hopes') or further assessments or expectations for the other party's character or motives (e.g., 'If I shared my problems with this person, I know (s)he would respond constructively and caringly').

As yet there has been little systematic research dedicated to assessing the validity of commonly used trust measures and the measurement of trust has been described as 'rudimentary and highly fragmented' (McEvily and Tortoriello, 2011, p. 1269). To address this, we conducted a content validity analysis wherein 31 subject matter experts (SMEs) engaged in an item-level review of five scales, that ostensibly assess cognition-based and affect-based trust. Our SMEs all hold a PhD in organizational behaviour or organizational psychology and expertise in the fields of trust, emotions, or general organizational behaviour. We were guided in our choice of scales by the results of our systematic review (reported later) and the recommendations given in the trust measurement review by McEvily and Tortoriello (2011). Accordingly, we focus on the scale designed by McAllister (1995) but also include Mayer and Davis (1999), Gillespie (2003) and Cummings and Bromiley (1996) which were identified by McEvily and Tortoriello (2011) as being the most noteworthy and replicated scales for measuring trust between individuals within an organization. In the systematic review presented later in this manuscript, we found that in studies measuring cognition-based and affect-based trust that do not report using McAllister (1995), the most commonly represented scale was developed by Yang and colleagues (Yang, 2005; Yang and Mossholder, 2006; Yang et al., 2009). Thus, we also include the scale of Yang and Mossholder (2006) resulting in a total of 64 items from 5 measures to be considered.

Given the aforementioned issues regarding the definitions of cognition and affect-based trust, we turned to the wider literature for guidance in providing definitions for these bases (e.g., Lee et al., 2015). As such definitions for cognition and affect were taken from attitude research (an 'other' option, namely behavioural was also given). Attitude theory constitutes an established body of research which clearly delineates between different types of attitude content, which holds heuristic value here. As such, SMEs, in our content analysis, were asked to rate each item according to whether it captures cognitive or affective evaluations related to trust using definitions based on those offered in the attitude research literature (see Appendix A).

The results of the full content analysis are presented in Table II. In our discussion here we will focus predominantly on the McAllister (1995) scale given its dominance as the primary operationalization of cognition and affect-based trust. With regard to Table II, two important observations require discussion. First, there is considerable variation within McAllister's (1995) affect-based scale. For instance, item 3 was viewed by 81 per cent of SMEs as affect-based, whereas 52 per cent of SMEs felt Item 1 was in fact affect-based. Item 2 was viewed as not being either affective or cognitive in content by 65 per cent of SMEs. SMEs were also mixed in their ratings of the remaining two items. Interestingly, averaging across the 5 items that are labeled affect-based, only 43 per cent of the SME ratings indicate them to indeed reflect primarily affect-based content.

Table II. Content validity study findings

Scale	Item	Cognitive	Affective	Other
McAllister (1995) Cognition-based trust	This person approaches his/her job with professionalism and dedication	26	0	5
	Given this person's track record, I see no reason to doubt his/her competence and preparation for the job	27	0	4
	I can rely on this person not to make my job more difficult by careless work	20	1	10
	Most people, even those who aren't close friend of this individual trust and respect him/her at work	21	8	2
McAllister (1995) Affect-based trust	Other work associates of mine who must interact with this individual consider him/her to be trustworthy	20	4	7
	If people knew more about this individual and his/her background they would be more concerned and monitor his/her performance more closely	23	3	5
	We have a sharing relationship. We can both freely share our ideas, feelings and hopes	5	16	10
Mayer and Davis (1999) Ability	I can talk freely to this individual about difficulties I am having at work and know that (s)he will want to listen	7	3	21
	We would both feel a sense of loss if one of us was transferred and we could no longer work together	4	25	2
	If I shared my problems with this person, I know(s)he would respond constructively and caringly	13	9	9
	I would have to say that we have both made considerable emotional investments in our working relationship	7	14	10
Mayer and Davis (1999) Ability	This individual is very capable of performing his/her job	30	0	1
	This individual is known to be successful in the things he/she tries to do	31	0	0
	This individual has much knowledge about the work that needs to be done	30	0	1
	I feel very confident about this individual's skills	21	10	0
(Continues)	This individual has specialized capabilities that can increase our performance	31	0	0
	This individual is well qualified	30	0	1

(Continues)

Table II. (Continued)

Scale	Item	Cognitise	Affectise	Other
Mayer and Davis (1999) Benevolence	This individual is very concerned about my welfare	19	9	3
	My needs and desires are very important to this individual	19	6	6
	This individual would not knowingly do anything to hurt me	16	10	5
	This individual really looks out for what is important to me	20	5	6
	This individual will go out of his/her way to help me	19	4	8
	This individual has a strong sense of justice	27	3	1
Mayer and Davis (1999) Integrity	I never have to wonder whether this individual will stick to his/her word	24	3	4
	This individual tries hard to be fair in dealings with others	25	0	6
	This individual's actions and behaviours are not very consistent	23	2	6
	I like this individual's values	8	23	0
Mayer and Davis (1999) Trust	Sound principles see to guide this individual's behaviour	25	2	4
	If I had my way, I wouldn't let this individual have any influence over issues that are important to me	10	4	17
	I would be willing to let this individual have complete control over my future in this company	9	3	19
	I really wish I had a good way to keep an eye on this individual	7	12	12
	I would be comfortable giving this individual a task or a problem which was critical to me, even if I could not monitor their actions	13	3	15
	I can rely on this individual's work-related skills and abilities	22	1	8
Gillespie (2003) Reliance	I can rely on this individual's task-related skills and abilities	22	1	8
	I can depend on this person to handle an important issue on my behalf	17	4	10
	I can rely on this individual to represent my work accurately to others	22	1	8
	I can depend on this individual to back me up in difficult situations	19	4	8

(Continues)

Table II. (Continued)

<i>Scale</i>	<i>Item</i>	<i>Cognitive</i>	<i>Affective</i>	<i>Other</i>
Gillespie (2003) Disclosure	I can share my personal feelings with this individual	5	8	18
	I can confide in this individual about personal issues that are affecting my work	10	2	19
	I can discuss how I honestly feel about my work, even negative feelings and frustration	4	9	18
	I can discuss work-related problems or difficulties that could potentially be used to disadvantage me	5	1	25
Cummings and Bromiley (1996) Organizational Trust Inventory	I can share my personal beliefs with this individual	7	5	19
	I think that this individual tells the truth in negotiations	27	3	1
	I think that this individual meets their negotiated obligations	31	0	0
	In my opinion this individual is reliable	28	3	0
	I think that this individual succeeds by stepping on other people	24	4	3
	I feel that this individual tries to get the upper hand	11	16	4
	I think that this individual takes advantage of my problems	22	4	5
	I feel that this individual negotiates with me honestly	12	17	2
	I feel that this individual will keep their work	12	17	2
	I think that this individual does not mislead me	28	1	2
Yang and Mossholder (2006) Cognition-based trust	I feel that this individual tries to get out of their commitments	14	13	4
	I feel that this individual negotiates joint expectations fairly	15	12	4
	I feel that this individual takes advantage of people who are vulnerable	10	15	6
	I can depend on this individual to meet his/her responsibilities	19	2	10
	I can rely on this individual to do what is best at work	21	1	9
	This individual follows through with commitments s(he) makes	25	0	6
	Given this person's track record, I see no reason to doubt his/her competence	29	0	2
	I'm confident in this individual because (s)he approaches work with professionalism	24	5	2

(Continues)

Table II. (Continued)

<i>Scale</i>	<i>Item</i>	<i>Cognitive</i>	<i>Affective</i>	<i>Other</i>
Yang and Mossholder (2006) Affect-based trust	I'm confident that this individual will always care about my personal needs at work	17	14	0
	If I shared my problems with this person, I know(s)he would respond with care	16	8	7
	I'm confident that I could share my work difficulties with this individual	14	7	10
	I'm sure I could openly communicate my feelings to this individual	12	9	10
	I feel secure with this individual because of his/her sincerity	6	23	2

The second important observation of Table II is the fact that the cognition-based scale is rated to be much more consistent with its aim. Across the 6 items 74 per cent of the ratings indicated the items to be cognitive in content.

The fact that there is a substantial degree of variation in the affect-based scale as to whether the items are seen as affective is problematic. Put simply, the scale that ostensibly assesses affect-based trust also, and in the eyes of experts even more so, assesses cognition-based or another type of trust. Based on our SME's responses, if a researcher has used the McAllister (1995) measure to assess affect-based trust, then that scale is approximately 43 per cent affective, 23 per cent cognitive, 26 per cent other. Thus, this scale appears to offer a broad, non-specific measure of various elements of trust, albeit at varying ratios.

Taken together, when looking across all the scales included in the content analysis, it is perhaps unsurprising that the most heavily represented category is that of cognition. However, it is interesting to note though that very few of the items or scales were unanimously classified as capturing a single dimension. The three dimensions of Mayer and Davis's trustworthiness scale, Gillespie's reliance dimension and the cognitive sub scales of both McAllister (1995) and Yang and Mossholder (2006) are all predominantly cognitive in line with the conceptualizations on which they are based. Similarly, of the 12 Cummings and Bromiley (1996) items, eight were classified by the majority of SMEs as involving a cognitive evaluation. The Mayer and Davis (1999) measure of ability is also largely classified as cognitive although it appears to be somewhat contaminated by the stem for item 4 ('I feel') which carries affective connotations. Also, as noted above, the three sub dimensions of trustworthiness, as measured by Mayer and Davis (1999), have occasionally been used in the empirical literature to capture cognition-based and affect-based trust. For example, Colquitt et al. (2011) use ability and integrity to operationalize cognition-based trust and benevolence (and identification) to operationalize affect-based trust. The classifications provided by the SMEs in our study run contrary to this and their classifications suggest that while some items tapping benevolence are seen as slightly more affective in tone than most ability items; the majority of experts also identify the benevolence items as cognitive evaluations. In fact, the only item in the trustworthiness scale that was classified by more experts as affective rather than cognitive was an item from the integrity scale: 'I like this individual's values'.

Overall our SMEs failed to clearly differentiate between the two bases of trust, suggesting that they are not distinct measures. Specifically, our content analysis suggests that we are not doing a good job of capturing affect-based trust. Given our earlier conceptual critiques, this outcome is unsurprising. The two most used scales specifically dedicated to operationalizing affective bases of trust generated considerable disagreement amongst our experts. Only one item in the Yang and Mossholder (2006) scale was classified by the majority of experts as being affective (I feel secure with this individual because of his/her sincerity) while the others are seen as more cognitive. The McAllister (1995) scale only fares slightly better. Similarly, several items in both these scales that are intended to measure affect-based trust appeared to capture something that is neither affective nor cognitive in nature. The only items in other scales to show promise in capturing more affective evaluations of trust were identified in the Cummings and Bromiley (1996) scale. Specifically three of the items that begin with the stem 'I feel' were classified by the

majority of SMEs as involving an affective evaluation although again, this classification was far from unanimous.

As such, the affective element inherent in trust is not currently being assessed and therefore its impact and the interplay between cognition and affect in the trusting process is overlooked. In contrast, there seems to be a better basis to understand the McAllister measure, and related measures, as capturing different cognitive bases of trust (i.e., as we have argued in our conceptual analysis, about the person versus about the relationship). This is not what we asked SMEs to rate, as our intention is not to recast affect-based trust measures as relationship-based trust measures. Rather, our intention is to highlight the conceptual and methodological problem that what we call affect-based trust in the field is not in fact affect-based trust. The findings of the content analysis would suggest that for the most part, popular multidimensional measures are capturing two cognitive bases of trust, albeit with different foci. To consider the validity of multidimensional conceptualizations further we next examine empirical evidence for the relationship between cognition and affect-based trust and for their distinctiveness.

Empirical Studies of Cognition-Based and Affect-Based Trust

If cognition and affect-based trust represent meaningfully different forms of trust, we should expect this to be supported by indicators of divergent validity and distinct nomological networks in line with those proposed by McAllister (1995). To explore this, we conducted a systematic review of empirical studies as well as a meta-analysis of several key relationships which have attracted significant research attention. We identified articles for inclusion in our review via several steps. First, we reviewed the reference lists of prominent review articles of trust in the workplace (Burke et al., 2007; McEvily and Tortoriello, 2011). In doing so, we aimed to include all scholarly work that set out to capture the affective and/or cognitive dimensions of trust. Second, we searched ProQuest and PsychInfo for English-language papers published prior to May 2021, using keywords relating to cognition- and affect-based trust (i.e., ‘affective trust’, ‘affect-based trust’, ‘cognitive trust’ or ‘cognition-based trust’). Third, we searched for ‘in press’ articles at journals that commonly publish workplace trust articles (e.g., the Journal of Trust Research; Academy of Management Journal and the Journal of Applied Psychology). Primary studies were included if: (i) the measurement of trust included either affect-based, cognition-based or both (ii) reported zero-order correlations, and (iii) was published in a peer reviewed outlet. In total, 169 articles, with 184 independent studies (some articles included multiple studies) met these criteria. A full list of the articles included in our review can be found in Appendix B.

Most of the studies used a field sample of employees with 24 studies presenting data from student populations. Of these 24 samples, 10 concerned MBA (or similar) populations where students were also part of the work force. The trust referents that received the most attention are the leader (89 samples) and teammates or co-workers (58 samples). In comparison, referents at a team (20 samples), organizational (11 samples), top management (3 samples), customer (2 samples), inter-firm (1 sample) or subordinate (3 samples) level were less represented. The study of cognition-based and affect-based trust has been dominated by

the McAllister's (1995) operationalization of trust with 86 per cent of studies reporting that they draw solely on this scale or a derivative of the scale (e.g., Yang and Mossholder, 2010) or the McAllister scale in conjunction with items from another source. This attests to the popularity of the McAllister scale and its widespread uptake in the literature.

We supplemented this wider qualitative review by conducting a meta-analysis of a subset of the initial sample of 184 studies. The purpose of this meta-analysis was to provide quantitative evidence of (a) the relationship between cognition and affect-based trust and (b) to examine and compare the strength of their relationships with frequently measured (i.e., in 4 or more studies) covariates. As such, in the meta-analysis we only included studies which reported measures of both cognitive and affective trust. A study had to meet several further criteria to be included in our meta-analysis: i) it had to include a zero-order correlation between both cognitive and affective trust and one of the relevant variables; ii) the study had to include the sample size used to arrive at the correlation; iii) the sample had to be independent from other studies, if a sample overlapped with another study, it was only included once. In total 106 studies met these criteria and were included in our meta-analysis. The full list of covariates can be seen in Table III and includes a range of attitudinal (e.g., job satisfaction) and behavioural (e.g., job performance) constructs. We also separated our analysis based on commonly used trust referents; trust in leader (61 studies), trust in team/co-workers/peers (39 studies) and trust in top management/organization (3 studies).

Our meta-analysis was conducted in accordance with the guidelines of Hunter and Schmidt (2015). This method creates a sample weighted mean correlation (r) and a mean correlation corrected for unreliability in both independent and dependent variables, known as the corrected population correlation (ρ). Missing values (i.e., reliability of either predictor or criterion) were estimated based on average value across the studies in which information was provided (Hunter and Schmidt, 2015). The 95% confidence intervals (95% CI) of the sample-weighted mean correlation and the 80% credibility intervals (80% CV) of the corrected population correlation were also calculated. Confidence intervals determine the variability in the sample-weighted mean correlation that is due to sampling error. Furthermore, if the 95% confidence interval does not include zero, we can be confident that the sample-weighted mean correlation is significantly different from zero. Confidence intervals can also be used to judge whether effect sizes differ significantly from one another; effects sizes can be considered different when their confidence intervals are non-overlapping. If the 80% credibility interval of the corrected population correlation is large it indicates there is considerable variation across studies, suggesting moderators are likely to be operating.

Distinct bases. In reviewing the literature, we first sought to build on the findings of our content validity study to determine the extent to which cognition and affect-based trust indeed represent distinct variables. We did this through examining the correlations and factor structures reported. It is important to note however that evidence for multidimensionality only indicates that measures tap into different things and does not validate that the content they tap into represents cognitive and affective bases of trust. We first examined the correlations found between cognition-based and affect-based trust. As can be seen in Table III the meta-analytic correlation between cognition-based and affect-based trust is high for all referents; leader ($\rho = 0.77$), team/co-worker ($\rho = 0.69$), and top management/organisation ($\rho = 0.76$). These results support the

Table III. Meta analytic results

Variable	k	N	r	95% CI		p	SD _p	80% CI	
				Lower	Upper			Lower	Upper
Affect-Cognitive Trust Referents									
Leader	61	14819	0.67	0.64	0.70	0.77	0.12	0.62	0.92
Team/Co-workers/Peers	39	7667	0.59	0.54	0.64	0.69	0.15	0.50	0.89
Top Management/Organization	3	1038	0.66	0.43	0.90	0.76	0.19	0.52	1.00
Procedural Justice									
Affect-based Trust	9	2886	0.60	0.51	0.69	0.69	0.14	0.51	0.87
Cognition-based Trust	9	2886	0.60	0.52	0.69	0.70	0.11	0.56	0.84
Interactional/Interpersonal Justice									
Affect-based Trust	4	1428	0.62	0.47	0.78	0.68	0.17	0.47	0.90
Cognition-based Trust	4	1428	0.64	0.52	0.76	0.69	0.14	0.52	0.87
LMX									
Affect-based Trust	5	1048	0.60	0.45	0.75	0.67	0.16	0.47	0.88
Cognition-based Trust	5	1048	0.58	0.46	0.70	0.64	0.13	0.48	0.80
Affective Organizational Commitment									
Affect-based Trust in Leader	12	3083	0.49	0.43	0.56	0.56	0.12	0.41	0.71
Cognition-based Trust in Leader	12	3083	0.41	0.35	0.48	0.47	0.11	0.33	0.62
Job Satisfaction									
Affect-based Trust in Leader	6	1432	0.37	0.31	0.43	0.44	0.06	0.36	0.53
Cognition-based Trust in Leader	6	1432	0.34	0.28	0.39	0.41	0.03	0.38	0.45

(Continues)

Table III. (Continued)

Variable	k	N	r	95% CI		ρ	SD _p	80% CV	
				Lower	Upper			Lower	Upper
In-Role Job Performance									
Affect-based Trust in Leader	15	4019	0.22	0.18	0.25	0.25	0.05	0.18	0.31
Cognition-based Trust in Leader	15	4019	0.19	0.15	0.24	0.22	0.08	0.12	0.33
Extra-Role Job Performance (OCB)									
Affect-based Trust in Leader	11	2547	0.34	0.27	0.41	0.39	0.11	0.25	0.52
Cognition-based Trust in Leader	11	2547	0.23	0.17	0.30	0.27	0.10	0.14	0.39
Team Performance									
Affect-based Trust	13	1397	0.36	0.26	0.45	0.41	0.20	0.15	0.67
Cognition-based Trust	13	1397	0.45	0.36	0.55	0.52	0.19	0.28	0.76
Knowledge Sharing									
Affect-based trust in co-workers/team	11	3654	0.43	0.32	0.54	0.52	0.21	0.25	0.79
Cognition-based trust in co-workers/team	11	3654	0.36	0.24	0.48	0.44	0.22	0.16	0.73

Note: Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample weighted mean correlation; ρ = corrected population correlation; SD_p = standard deviation of the corrected population correlation; 95% CI = 95% confidence interval around the sample weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.

findings from previous meta-analyses reporting that the correlation between the two bases of trust is generally very high for team trust ($r = 0.76$; De Jong et al., 2016) and trust in the leader ($r = 0.79$, Legood et al., 2021). Overall, such consistently high correlations suggest that the two bases may lack empirical distinctiveness and that issues of multicollinearity may be present.

Correlations can provide some indication of the distinctiveness of cognition-based and affect-based trust, but further evidence comes from goodness of fit indices for measurement models that compare a unidimensional trust model to a two-dimensional model of cognition-based and affect-based trust. Only a few papers in our sample reported such models. In support, Lu (2014) and Chen et al. (2021) report acceptable fit of a two-factor trust model, but do not present model comparison information comparing a nested one-factor model of trust. Camgöz and Karapinar (2016) and Lei et al. (2018) compare nested models using trust in the leader data and report that the two-factor model demonstrates better fit. Similarly, Chua et al. (2009) report a two-factor model is a better fit for their data on trust in professional network contacts. Interestingly, Webber (2008a) reports that a unidimensional model is a significantly better fit when trust in teammates is measured three weeks following team formation, but that a two-dimensional model demonstrates a better fit five weeks later. All of these papers report using the McAllister scale or a derivative. While these papers provide some support for the two-dimensional structure, many papers collapse cognition-based and affect-based trust into a single dimension without indicating why this decision was made (e.g., Davis and Bryant, 2010; Mach and Baruch, 2015).

Differential nomological networks. If affect-based and cognition-based trust are distinct then one would expect to see differences in their nomological networks. Studies have investigated the impact of cognition-based and affect-based trust on a variety of outcomes. Importantly, while theoretically these variables are positioned as outcomes, the vast majority of studies is cross-sectional in nature and causality cannot be inferred from these (we also briefly review the limited causal evidence below and return to study design issues in the discussion). Our review found the most frequently measured 'behavioural' outcomes to be in-role and extra-role performance. Another behavioural outcome measured relatively frequently in relation to trust in teammates/co-workers was knowledge sharing. Many studies also focused on the link between cognition-based and/or affect-based trust and employee attitudes, in particular, job satisfaction and (affective) organizational commitment. Other common correlates include LMX and organizational justice (i.e., procedural, and interpersonal). Most pertinent to the current review is whether there are differential associations between these variables and cognition and affect-based trust. Put differently, is there evidence that either trust base has stronger association with any of these variables?

Interestingly, our review demonstrates that cognition and affect-based trust have inconsistent effects on the variables measured across individual studies. For instance, some studies showed that only affect-based trust was associated with performance (e.g., Eva et al., 2019; Fryxell et al., 2002; Lu and Hao, 2013; Miao et al., 2014; Webber, 2008b; Yang and Mossholder, 2010; Zhu et al., 2013). Conversely, some studies showed the opposite, with only cognition-based trust demonstrating an association

with performance (Chou et al., 2006; Yang et al., 2009; Zhu and Akhtar, 2014b). Our meta-analysis (see Table III) provides clarity as to the overall effect sizes and cognition and affect-based trust have markedly similar associations with the covariates included in the analysis. Take, for example, in-role performance; both affect-based and cognition-based trust show similar associations with this variable ($p = 0.25$ and $p = 0.22$, respectively). Similarly, the association between procedural justice and cognition-based trust ($p = 0.69$) is almost identical to that with affect-based trust ($p = 0.68$). Indeed, as evidenced by the overlapping 95% confidence intervals, no significant differences were found in the relationship between *any* of the correlates and affect-based or cognition-based trust. Thus, to date there is no evidence that cognition-based trust and affect-based trust demonstrate differential associations with the correlates included in this meta-analysis.

As a final point we also examined the causal evidence for how trust bases interact. We identified eight papers that aimed to investigate the causal relationship between them and that suggest that cognition-based trust predicts affect-based trust in vertical (Newman et al., 2014, 2016; Schaubroeck et al., 2011) and horizontal (Jiang et al., 2017) relationships. Using a longitudinal design, Webber (2008a) reports that early trust appears to be unidimensional and the affective base of trust emerges once team members have had a chance to demonstrate relationship building citizenship behaviours. In contrast however, one experimental study paints a potentially different picture. Using a different operationalization, Olekalns and Smith (2005) measure cognition-based and affect-based trust pre and post a simulated negotiation exercise with MBA students and found evidence to suggest that cognition-based trust builds incrementally as a result of interaction during the negotiation, while affect-based trust forms more rapidly and provides a lens through which the negotiation is viewed. In sum, the causal evidence on potential interactions between the trust bases is mixed and still rather limited to date.

Conclusions of the Measurement and Empirical Review

Taken together, the findings of the content analysis, empirical review and meta-analysis lead us to the conclusion that cognition and affect-based trust are too similar to be treated as distinct bases of trust. The high meta-analytical correlation between the subdimensions and the absence of clear evidence for different nomological networks are particularly problematic. Much of the evidence reviewed is supportive of our conceptual critique, in that we would expect the empirical data to be at least as well understood from the perspective of a person-based versus relationship-based trust distinction as from a cognition-based versus affect-based trust distinction. For example, as different cognitive bases would inevitably overlap because the person is part of the relationship and the relationship is a source of information about the person, the high correlations frequently observed within the literature are more consistent with this former view than with the latter.

A second thing to note is that the weak evidence that affect-based trust may be more strongly related to outcomes than cognition-based trust – even when not unequivocal – is well-understood from the perspective that these measures capture person-based versus relationship-based trust. Trust, after all, is relational; it captures one's willingness to be

vulnerable to the other and cannot be seen as a judgment about the other independent of self. From that perspective, one would expect that relationship-based trust is more strongly related to outcomes than person-based trust. Potentially a case can be made that trust more clearly based on affect (or more affective in tone) is more predictive than trust based on cognition. This however is a case that has not been made in the literature, nor a case that would as easily be envisioned as the case for greater predictive power of relationship-based trust.

Combined Summary of the Theoretical and Empirical Review

While new labels for these trust bases may be a step closer to resolving the conceptual issues identified, we propose that just relabelling affect as relational-based trust is not sufficient as a solution. Most critically, this is because our meta-analysis has provided empirical support that the measures do not capture sufficiently distinct variables. As such the use of the dominant operationalization of cognition and affect-based trust is problematic, regardless of the accuracy of the labels used. Considerable further theorizing and work is needed to move forward with conceptualizing and capturing these bases of trust. Even if we were to accept that both bases of trust are driven by a subset of cognitions; one of the person and the other the relationship, such a dichotomy is still not correct or complete for three key reasons. First, in our view, the way in which affect-based trust (or relationship-based trust) is currently captured does not cover all we should be asking about relationship-based trust if that is what is intended to be captured. For instance, recent theoretical work suggests that the social functions of a relationship are an important determinant of trust (van der Werff et al., 2019) something that is not currently accounted for in our empirical measures. Second, current operationalizations of cognition-based trust do not reflect the full range of cognitions about another party that may be relevant to trust (e.g., Dietz and Den Hartog, 2006). Either researchers need to more accurately capture the full range of cognitions (so to retain the label cognition-based trust) or consider a renaming of the base as person-based trust. Finally, if we accept that the current affect-based trust measures capture relationship-based trust, then we currently do not yet capture the highly relevant role of *affect* in trust. We expand on the importance of this oversight in the discussion.

DISCUSSION

Our primary aim in conducting this review has been to critically examine the theoretical and empirical basis for the distinction between cognition and affect-based trust. To summarize, the items forming the affect-based trust measure offered by McAllister (1995) center around emotional bonds, and expectations of interpersonal care and concern which are in line with the definition provided. Both the definition and items however, for the most part, lack actual affective content or explicit reference to emotions. The conclusion here cannot simply be that we now move on to using these measures and conceptualizations with a new naming convention – e.g., person-based versus relationship-based trust. Such a new interpretation would require a reconsidering of the conceptualizations of the concepts as well as of their measurement – and as per the high intercorrelations between measures found in our meta-analysis as well as the unclear focus of the items demonstrated in our review of the measures, there

are real issues here. Hence, we suggest this is not the solution. The field also requires a rethinking of the conceptualization and measurement of the affective basis of trust. The combined conclusion of these sections is that the field of trust research can be better advanced by accepting the conclusion that current theory and measurement of cognition and affect-based trust are restricting the development of our understanding of these concepts. Our advice would be to not continue using the current measures for these constructs and to rather go back to the conceptual and measurement 'drawing board'. Most worryingly perhaps our review shows current measures do not capture affect-based trust as trust based on affect – that is feelings, moods and emotions. We thus know very little about affect-based trust if we follow our definition of this as being trust informed by emotions and moods. Given that emotions and moods are highly likely to affect the willingness to be vulnerable (i.e., trust), this clearly needs much more theorizing and research. In the following section, we offer avenues for future research which could look to more accurately capture these processes of trust.

Bases or Dimensions of Trust?

Our review of the empirical literature suggests that the predominant multidimensional conceptualization of trust is beset by considerable issues around the distinctiveness of the dimensions themselves as well as their antecedents and consequences. This view was supported by the findings of the meta-analysis. Further, the literature remains unclear on whether trust is best viewed as multidimensional or whether the (somewhat) different cognitions involved in cognition-based and affect-based trust are better viewed as proximal antecedents of trust. Looking at the conceptual argumentation as well as empirical findings, we strongly support the view of trust as unidimensional, closely linked to multidimensional antecedents of trust that (among other things) have cognitive and affective content. We suggest that the literature would benefit from unifying around the view of trust as a unidimensional construct characterized by the willingness to be vulnerable, which can be informed by both affective and cognitive influences. Thus, we advocate for moving away from the view of trust itself as being multidimensional.

In line with this, we propose that future research in this field discusses the *bases* rather than the *dimensions* of trust. The use of the term *base* implies that the trust is unidimensional but can have different foundations. In contrast, the use of the term *dimension* implies that the nature of trust itself can vary. Early conceptualizations of cognition-based and affect-based trust have described a concept consistent with the term *base* but have not clearly differentiated (or operationalized) these bases as distinct from trust as a willingness to be vulnerable. Consistent with the work of Mayer et al. (1995), we believe that trust bases should be considered proximal antecedents of (unidimensional) trust although we urge future researchers to consider a broader range of bases than those portrayed in rational choice models of trust. We also encourage future researchers to more deeply consider the volitional elements associated with this willingness and consider how trust moves us past a rational consideration of trust cues to consider the aspects of that willingness which entail choice, commitment and motivation (Li, 2007; van der Werff et al., 2019) as well as of how affect can play a role.

Our discussion of whether cognition and affect-based trust should be described as bases or dimensions is not simply a matter of semantics. If cognition and affect form different bases of trust, and trust is unidimensional, there is no expectation that different bases of trust would lead to different outcomes other than in terms of their influence on trust. For example, if affective influences have a stronger effect on trust then they would have a stronger effect on the outcomes of trust, as mediated by trust. That is, any differences in relationships with outcomes for cognitive and affective bases of trust would be a matter of degree and would not reflect qualitative differences. In contrast, if these are different dimensions of trust, and trust based on cognition is different from trust based on affect, there could be a case for qualitative differences in effects (e.g., cognitive trust consistently predicting some outcomes that affective trust would not predict and vice versa). We, however, did not find evidence for this.

The Interplay of Cognitive and Affective Bases of Trust

The view that affect-based trust takes longer to develop than that of cognition-based trust is popular. As discussed however, there is limited empirical support relating to the interacting nature of the bases as proposed by McAllister (1995) and other prominent trust models (e.g., Lewicki and Bunker, 1996; Rousseau et al., 1998). Given that the conceptualization of affect-based trust is better interpreted as cognition about the relationship, it is not surprising that it is informed by cognitions about the person or that trust based on this information should typically take longer to develop as most of that limited evidence suggests.

We propose however that a shift in research focus to examine antecedents of trust which are driven by actual affect, such as moods and discrete emotions, is likely to contradict the assertion that cognitive influences would precede affective. Indeed, affect research has actually argued for the ‘primacy of affect’ (Zajonc, 1984) in which affect is understood to exert its influences much faster than cognition (Damasio, 1994). Rather than seeing what was called affect-based trust (i.e., relationship-based trust) as slower to develop than trust based on cognition, we suggest there is a case to study temporal dynamics with the *reverse* prediction: affective influences on trust should act faster than cognitive influences on trust. Theoretical constructs (e.g., Kramer, 1999; Kramer and Lewicki, 2010) and empirical evidence (e.g., Willis and Todorov, 2006) that suggest trust can arise in a really short period of time may then capture affective influences more than cognitive influences. Preliminary support for this can be seen in a qualitative study of a Chinese entrepreneurial network where early relationships appeared to rely more heavily on affective than cognitive bases of trust (Wang et al., 2019).

Consistent with these observations, a small number of theorists have argued that the interplay between affect and cognition in trust is a more pervasive and ongoing process relevant to all relationships at all stages. For instance, Jones and George (1998) contend that emotion and trust influence subsequent cognitive trust judgments by providing information on which they can be based, biasing the processing of other available information, and providing signals that trust levels need to be updated. Williams (2001) critiques the traditional ‘stage models’ of trust for neglecting the possibility that trust is influenced by affective processes

in immature or shallow relationships as much as in deeper relationships. She proposes an affective-cognitive model of trust in dissimilar social groups that positions affect as a key antecedent of cognitive elements of trust.

Further theoretical development is needed to fully explore the interplay between cognitive and affective influences on trust. This can be guided by developments in related fields where existing theories can provide a framework for understanding how cognition and affect-based trust might interact over time. For instance, research has increasingly recognized the importance of affective processes such as emotion and mood in influencing judgment and decision making (Healey and Hodgkinson, 2017). Thus, mood and emotion are also likely to affect the cognitive judgments made about another person that affect the willingness to be vulnerable to them. Similarly, in the study of information processing rational, controlled processing is often conceptualized as running simultaneously with emotional and heuristic processing with evidence for crossover between the two systems (Evans, 2008). Dual process perspectives on trust have highlighted the potential for trust decisions to be influenced by cues that would not be considered as part of a rational, systematic decision-making process (e.g., Baer et al., 2018). Indeed, Li (2015) argues that rational 'System 2' trust decisions are predominantly cognitive and likely to result in weaker trust than those which involve 'System 1' heuristics and affective cues. In summary, we propose that the processes through which affective and cognitive bases of trust interact are likely to be far less straightforward than current conceptualizations suggest. We explore some of these ideas in more detail in our section below on reconsidering the role of affect.

Reconsidering the Role of Cognition and its Influence on Trust

If we accept that there is value in the distinction between a cognitive and an affective basis for trust and that the current literature does not sufficiently capture this distinction, how can we proceed to understand more about these bases? A first important conclusion here is that research should reconsider the use of the current scales to measure cognition and affect-based trust in the face of the conceptual, empirical, and content-analytical considerations identified in this review. As noted, we suggest not moving forward with these measures. Our conceptual consideration regarding the role of affect in trust also suggests, however, that it may not be realistic to develop measures of affect-based trust and cognition-based trust as distinct forms of trust. Rather research efforts may be more effective if we were to look at more nuanced ways to consider both of these bases of trust and their interplay.

To fully understand cognitive antecedents to trust, a far broader range of cognitions need to be considered. A body of research exists examining trustworthiness assessments as a primary predictor of trust (Baer and Colquitt, 2018); however, there are likely to be a wider range of cognitions relevant which extend beyond a consideration of the trustee and their actions and intent. For example, the cognitions of the trustor in terms of the function a relationship fulfills for them may serve as important predictors of subsequent trust (van der Werff et al., 2019). These theoretical predictions are in line with an increasing recognition in more macro, impersonal trust research that interactions with other parties are influenced by motivation and enjoyment (Bundy et al., 2018; Venkatesh et al., 2012). Motivational drivers can also be extrinsic such as the consideration of how much one stands to gain from a relationship (e.g., van der

Werff et al., 2019). Although cognitions about the relationship are covered to an extent within the current affect-based trust measure, motivational drivers of trust have been largely overlooked in the interpersonal trust literature.

Similarly, cognitions about the wider context have been considered predominantly in the study of early trust relationships (e.g., Kramer and Lewicki, 2010) but far less in their role in established relationships, despite a general consensus that context plays a critical role in influencing organizational behaviour (Johns, 2017; Rousseau and Fried, 2001). Recent theoretical developments propose that changes in the external environment are likely to be influential in motivating trustors to reevaluate their willingness to be vulnerable (van der Werff et al., 2019) and this is likely to be a fruitful avenue for future empirical research.

Reconsidering the Role of Affect and Its Influence on Trust

In terms of affect, research needs to fully engage with the role emotions and moods themselves play in determining trust. Researchers in other fields have made great strides in understanding the role emotions play in influencing behaviour, attitudes, cognitions and decisions in the work context and beyond (Ashkanasy and Dorris, 2017; Lerner et al., 2015). Emotion researchers have argued that emotion is an interpersonal phenomenon (e.g., Elfenbein, 2007) but, perhaps influenced by the issues inherent in the dominant conceptualisation of affect-based trust, trust researchers have yet to integrate emotion and affect into the mainstream trust literature. Affective antecedents of trust might operate through multiple pathways. Here, we draw on the work of Lerner et al. (2015) to highlight five ways in which affect is likely to influence trust and, as such, open new avenues for future theorising and empirical work on this much neglected topic. The pathways we propose also highlight the need for a more dynamic approach in addressing how affect and cognition jointly affect trust, rather than the currently mostly static empirical consideration of cognition and affect based trust.

The first two pathways through which affect might act as a basis for trust are relatively straightforward and operate through the influence of integral and incidental emotions. Incidental emotions are those which exert an influence despite being unconnected to the decision itself and have typically carried over from another situation (Keltner and Lerner, 2010). For example, I am happy, so I feel I can trust you. That is, how we feel influences our judgments and decisions even when our feelings are not specifically related to the judgment (Forgas, 1995). The role of incidental affect in trust has received experimental support (Dunn and Schweitzer, 2005; Gino and Schweitzer, 2008; Lount Jr, 2010). In contrast, integral emotions arise specifically from decisions (Damasio, 1994) and in the case of trust this affect likely arises from how the referent of trust makes us feel. For example, you make me feel happy, so I feel I can trust you. In essence, work relationships that create positive emotions for us (e.g., happiness, gratitude) are ones in which we are more likely to willingly accept vulnerability and to trust. This idea is in line research that demonstrates the importance of emotion in processes related to affiliation and cooperation (Frederickson, 1998; Keltner et al., 2006). In summary, theory for both incidental and integral affect

suggests a relatively straightforward expectation that more positive moods and emotions would be associated with higher trust, especially when the mood or emotion is associated with the trustee.

In the remaining pathways we highlight we move beyond the current trust literature and the concept of affect-congruent trust judgments and draw on theory regarding how affect influences judgment and decision making more generally (for a review see Lerner et al., 2015). Specifically, the third avenue for exploring the role of affect in trust relates to how affect shapes the content of our thoughts. Over the last few decades, developments in the affect literature show the need to move beyond over simplified categorizations of affect as being positive or negative and to more fully consider the role of discrete emotion and ways in which emotions differ beyond simple valence (Lerner and Keltner, 2000; Mellers et al., 1998; Methot et al., 2017). Lerner and Keltner (2000) suggest that specific emotions can be classified according to dimensions of appraisals including certainty, pleasantness, attentional activity, anticipated effort, control and responsibility (Lerner and Keltner, 2000). In line with this, affective experiences like anger or gratitude would be classified differently according to pleasantness but both would involve high levels of other's responsibility that would likely bias attributions of events to causes intrinsic to the trustee and thus influence trust related judgments.

The implications of this are particularly interesting in the context of trust repair and the fluctuations in trust that characterize ongoing professional relationships. Trust repair theory has started to consider the role of integral emotions as a response to the causal attributions arising from trust violation (e.g., Tomlinson and Mayer, 2009). In particular, experiences of anger can be expected when the attributions made for a trust violation are stable and controllable while unstable causes lead to reactions like fear (Tomlinson and Mayer, 2009). However, affective experiences preceding the violation are also likely to act as a lens through which trust breaches are interpreted. Affect and emotion influence processes like interpersonal trusting by focusing the trustor on a 'partial field of evidence' (Jones, 1996, p. 11). As such, relationships between causal attributions of trustee behaviour and affect are likely to be reciprocal. Building on this, we argue that certain emotions have a protective effect preserving trust in the face of threat (Gustaffson et al., 2021), while other emotions may act to exacerbate the impact of breaches. The pattern of effects we might expect is likely to be nuanced in line with the totality of appraisals that emotions evoke and extend beyond whether they are positive or negative (Lerner et al., 2015). For example, emotions such as pride are thought to induce a focus on long term benefits and an increased acceptance of short-term costs (DeSteno, 2009), which would influence the calculative processes often theorized to underlie trust in early stage or shallow relationships (Lewicki and Bunker, 1996). Interestingly, in transformational models of trust development, calculus-based trust is typically portrayed as the earliest and most rational stage of trust development (Lewicki et al., 2006; Rousseau et al., 1998). We challenge this assumption and propose that emotion is likely to shape the content of trust cognitions at all stages of relationship development.

The fourth pathway through which affect is likely to play a role in trust processes is by shaping the depth of our information processing with regard to trust related cues. One of the key functions of affect is as an adaptive tool that signals when a situation or decision requires vigilance and attention (Lerner et al., 2015). While emotions high on certainty,

such as happiness and anger, signal safety and are associated with more heuristic processing, uncertain emotions such as fear or surprise signal threat and motivate a switch to more effortful, systematic processing (Tiedens and Linton, 2001). Empirical evidence suggests that situational normality is a powerful predictor of trust in organizations (Baer et al., 2018) and as such we expect that affective experiences high on certainty which induce this feeling will be influential in the processing and interpretation of trust related information. In addition to influencing the processing of trust related information the impact of affect appraisals related to certainty are likely to play a role in the impact of trust itself. A growing body of literature has recognized the potential for trust to act as a heuristic that reduces complexity in our interactions with others (McEvily, 2011; Lewicki and Brinsfield, 2011). The broader literature on the role of emotion in decision making suggests that the extent to which this is likely to be the case may differ depending on the affective experiences of the trustor at that time. For instance, trust might be more likely to be used as a heuristic for guiding interpersonal interaction in situations where trustors feel happy or angry than in situations where they feel anxious or afraid.

Finally, affect influences trust and interpersonal decision making more generally by providing us with social information that is information about the other party's motivations and character. Perception of the trustee's emotion can act as a direct antecedent of decisions through emotion contagion processes that elicit congruent or non-congruent emotions in the trustor. Emotions as Social Information (EASI; van Kleef, 2014) theory labels this process an affective reaction to another's emotion. In general, this process is portrayed by EASI as being more heuristic with the potential to influence decisions through affective infusion (Forgas, 1985) or selective priming of positive or negative person perceptions (Bower, 1981; van Kleef, 2014). Recent qualitative research supports this view with evidence that in high dependency contexts when trust is socially embedded and based on affective drivers, trustors may actively avoid cognitive calculations of trustworthiness in an effort to protect relationships (Hamill et al., 2019).

In contrast, the second process specified by EASI suggests that perception of a trustee's emotion provides the trustor with inferential cognitive information about the intentions (Fridlund, 1994) and affiliative orientation (Hess et al., 2000) of the trustee. As such, this is likely to provide information about dimensions of trustworthiness, which as noted forms a cognitive precursor to trust (Mayer et al., 1995). Indeed, there is evidence that the emotions someone displays influence observers' perceptions of that person's competence (Melwani et al., 2012). Furthermore, Shao (2019) provides tentative support for leader emotional displays acting as a cue for subordinate perceptions of integrity in a similar way to the provision of verbal feedback. The issue thus is not just the influence of one's own affect, but also the influence of others' affect, and affect may influence the trustor not only via a process of affect-congruent judgment, but also via a process of cognitive interpretation (van Knippenberg and Van Kleef, 2016).

Taken together the variety of pathways through which affect can influence trust processes not only underscores the potential for the study of affective influences on trust, but also shows that the issue is more complex than a distinction between affect and cognition. Affect may influence trust through an affective route, but also via a cognitive route (e.g., Melwani et al., 2012). It may be more appropriate then, to think of the intertwined role of affect and cognition as influencing trust, and to abandon the goal to clearly delineate affect-based and

cognition-based trust (e.g., if affect leads to competence judgments that influence trust, is this affect-based or cognition-based trust?). Trust research is yet to fully engage with these issues, but the processes we outline here highlight clear avenues for exploration and a promise for the development of our understanding of affective influences on trust.

Improvements in Study Design

While our review shows that the way in which cognition-based and affect-based trust is currently conceptualized and measured is problematic, we argue that advancing our understanding of affective trust processes and their cognitive counterparts is not solely an issue of revisiting our theories or developing new measures. The definitional and operational issues we have discussed are confounded by a number of additional methodological issues which, while not exclusive to the study of trust, have significantly hampered our ability to understand these concepts. Importantly, more accurate and rigorous measures may still fail to detect important nuances in the distinction between these constructs if researchers are not mindful of the importance of study design in advancing our understanding in the field.

Every study of cognition-based and affect-based trust within our sample was concerned with evaluating causal effects. However of the 184 studies, 146 relied on cross-sectional designs and a further 26 studies utilized time-lagged data. Only two studies used longitudinal methods and four were qualitative. The remaining 12 studies were experimental. Thus, the majority of studies of cognition and affect-based trust hinge on research designs which are not able to demonstrate causal linkages between variables. This is clearly problematic, given that the impact of both cognitions and affect on trust involve a dynamic process as highlighted above. As we understand little about the role of affect yet, qualitative research might help develop this insight. Also, the robustness of quantitative field studies of cognitive and affective influences on trust can be improved through the use of experimental as well as longitudinal, repeated measures designs and the identification of instrumental variables to control for endogenous variance. Endogeneity can occur when a variable that has been omitted from measurement may predict both the independent and dependent variable in a given model (see Antonakis et al., 2010). For example, trust does not vary randomly in organizations. It depends on some factors that may stem from the leader, the follower, and the organization, which may correlate with a supposed outcome of trust. If such factors are omitted from research models, and if they predict the outcome in addition to trust, then the effects of trust on the outcome cannot be correctly estimated. In our sample, we found only four studies that used cross-lagged designs to explore the effects of cognition and affect-based trust (e.g., Kaltiainen et al., 2017) and none used the instrumental variable approach.

CONCLUSION

Our field has made considerable strides since the seminal trust theory of the mid 1990s. In its time, this work provided important leaps forward in our understanding of trust and its proximal antecedents; however, the limitations of this theory have been restrictive in narrowing the focus and ambitions of trust researchers. While the impetus for understanding the bases of trust and their differential impacts is clear, we argue that

current conceptualisations of cognition and affect-based trust are problematic both theoretically and empirically. Scholarly work which builds on these shaky foundations does not do justice to the constructs. Our critical review and meta-analysis demonstrates that researchers seeking to study affect-based trust should not use the McAllister (1995) definitions or scales as they do not adequately capture a distinction between cognitive and affective bases for trust. There is little doubt that affect is important to trust processes. If however we truly want to understand more about the role of affect, we need to move away from traditional conceptualizations of cognition and affect-based trust and see this field as wide open for contribution and new theorizing. As such, our paper is intended to provide a rallying call to trust researchers to embrace this opportunity and study the role of affect – moods and emotions – in trusting processes. Theory on affect and trust is far more nascent than it may initially seem and we call on the field to invest in theory building and empirical work using a range of methodological approaches so that we can begin to understand the role that affect plays in trust judgments.

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APPENDIX A

Cognitive evaluations are based on thoughts and beliefs about a person. These statements reflect values and attributes assigned to that person. They include beliefs about the person, characteristics of the person, and relationships between the person and other people (including self). Examples of a cognitive evaluation would be: 'This person is intelligent' or 'I am satisfied with the way this person acts at work'.

Affective evaluations express the degree of liking or disliking attached to a person. These statements should express like or dislike, feelings, and emotional and physiological reactions to a person. Examples of affective evaluations would be: 'I feel happy when I am with this person' or 'Working with this person is frustrating'.

APPENDIX B

List of Articles Included in Empirical Review. References Marked with an Asterisk Indicate Studies Included in the Meta-Analysis.

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