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Qualitative Meta-analysis of Propensity to trust measurement

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In a rapidly changing and dynamic world, individuals' propensity to trust is likely to become an increasingly important facet for understanding human behaviour, yet its measurement has mostly been unexplored. We undertake the first systematic qualitative survey of propensity to trust scales using qualitative meta-analysis methodology to review the literature (1966 - 2018) and identify 26 measures and their applications in 179 studies. Using content analysis, we thematically organise these scales into six thematic areas and discuss the emerging implications. We find that while most of these scales reflect propensity to trust in terms of a positive belief in human nature, other themes include general trust, role expectations, institutional trust, cautiousness and other personality attributes. We reveal significant methodological concerns regarding several scales and argue for more considered selection of scales for use in research. We examine the case for multidimensionality in measures of propensity to trust used within organisational research. Rather than treating a lack of generalisability of findings in existing organisational studies as purely a problem of measurement design, we instead outline an agenda for further conceptual and empirical study.

Introduction

Why do some people trust more readily than others? The escalating dynamism for organisations coupled with wide-ranging impacts of change for modern workers, make it increasingly important to understand individual difference dimension to trust (Frazier, Johnson, & Fainshmidt, 2013; McKnight, Cummings, & Chervany, 1998). Indeed, extant research reveals disposition to trust as more influential within organisational contexts at critical stages in individuals' relationships with others, such as at the start of new and unfamiliar relationships (McKnight et al., 1998), during organisational entry (Klotz, Motta Veiga, Buckley, & Gavin, 2013; Searle & Billsberry, 2011), or in settings requiring rapid establishment of cooperative practices (e.g., virtual teams: Jarvenpaa, Knoll, & Leidner, 1998). Further, dispositional aspects of trust can be of value in understanding intra-group relations, shedding light on the unintended and detrimental consequences of breakdowns in trust for organisational dynamics (Ferguson & Peterson, 2015). Despite such clear significance, there has been a surprising lack of attention to understand why and how some individuals trust more readily than others (Colquitt, Scott, & LePine, 2007; Dietz, 2011).

Trust is commonly defined as a confident expectation about a situation leading to willingness to accept vulnerabilities that arise from situational uncertainty and risk (Dietz, 2011). Such expectations have dispositional antecedents which influence other process dimensions (Dietz & Den Hartog, 2006; Mayer, Davis, & Schoorman, 1995). The idea of trust as a dispositional construct is usually attributed to Rotter (1967), who used the term 'generalised trust' to describe the tendency to believe that others can generally be trusted. Disposition to trust is defined as 'the extent to which one displays a consistent tendency to be willing to depend on others in general across a broad spectrum of situations and persons' (McKnight & Chervany, 2001, p. 45). While there are a variety of terms used to describe this concept, more recently it has become referred to as 'propensity to trust' (P2T). Currently,

P2T provides the dominant individual-based conceptualisation as to why some people trust others more readily (Dietz & Den Hartog, 2006; Mayer et al., 1995).

While P2T has been considered highly relevant to research into trust in organisations, there has been little critical interrogation of the quality of a growing body of the scales used to measure this construct. Indeed, several authors have expressed concern about the lack of reliable measures, to support their development of new measures (Ashleigh, Higgs, & Dulewicz, 2012; Frazier et al., 2013; Schoorman, Mayer, & Davis, 2007). In the absence of focused reviews on P2T measurement, the aims of this paper are: 1. to provide a synoptic examination of currently used P2T scales and qualitatively map their construct space using qualitative meta-analysis; 2. to identify the conceptual and methodological implications of the different facets present within these scales; and 3. to outline the implication for the development of trust research, making recommendations to improve the quality of scales used in research. To achieve these aims, our paper critically evaluates the topic of P2T measurement, examining the content of P2T measures, their characteristics and use in trust research. Through this process we make three contributions: First, a comprehensive review of published P2T measures within the literature (1966-2018); Second, examination of the conceptual and methodological assumptions underpinning P2T measurement, focussing on scale characteristics, their content, validation, and applications; Finally, identification and discussion of the empirical and conceptual implications relating to organisational and management research, including an agenda to advance the field.

Our paper commences with a short review of the conceptual origins and definitions of P2T and the methodological context of P2T as situated within trust research, providing a rationale for our qualitative meta-analysis of scales for this construct. Finally, the findings and implications of our meta-analytic survey are discussed in light of research and theory.

Theoretical origins and conceptual definitions

P2T originated in psychology in the 1950s, when the idea developed that trusting others is driven by aspects of personality and beliefs. For example, Erikson (1950) viewed an adult's ability to trust as dependent on the resolution of the earliest formative developmental stage (basic trust versus basic mistrust), which provides the foundation for a healthy personality system. From this perspective, trust is synonymous with confidence, the absence of which produces anxiety and has clear origins in the childhood development of personality.

Early personality theorists interested in trust departed from therapeutic notions and developmental assumptions about trust to adopt a more modern psychological conceptualisation. For example, Rotter (1967) defined a person's capacity for trust as based on '… an expectancy held by an individual or a group that the word or promise, verbal or written statement of another individual or group can be relied upon' (p. 651). Similarly, Wrightsman (1964) was interested in attitudes about other people's behaviour as part of a system of beliefs about human nature, defining trust attitudes as '…the extent to which people are seen as honest, moral and reliable.' (p. 744). There have since been a variety of other definitions (see Table 1).

[Table 1 near here]

Mayer et al. (1995) defined P2T as a general willingness to trust. Others, for example, Connell and colleagues paraphrased Kramer (1999) to describe propensity to trust as 'an individual's inclination to believe that others will be prepared to act in the trustor's best interests' (Connell, Ferres, & Travaglione, 2003, p. 609). Chen & Barnes (2007) summarise a variety of conceptions of P2T as follows: 'a general tendency or inclination in which people show faith or belief in humanity and adopt a trusting stance toward others' (p. 24). As a general tendency, P2T is conceptually distinct from particularised trust, which is the

propensity to place high trust in relationships that are closely tied and familiar, rather than more generalised (Uslaner, 2002).

Definitions of P2T differ in their implicit theoretical assumptions and emphases, for example, P2T origins (genetic, trait, beliefs) and the extent to which P2T is dependent on, and an expression of context, social exchange, and social relationships. These disparities reflect researchers' different theoretical and thematic preoccupations. However, they also reveal a source for definitional confusion in the absence of a unified theoretical and conceptual definition, which has also contributed to the systemic definitional problems affecting trust research since its inception.

To some extent, definitions of P2T align with two of the three requirements for trust. The first requirement, dependence, arises from the tendency in social exchange for trust to be reciprocal in which both trustor and trustees have relative degrees of dependency on each other (Blau, 1964). The second requirement, vulnerability (Rousseau, Sitkin, Burt, & Camerer, 1998) arises from the potential impact of losses that can result from said dependency between the trustor and trustee. In most instances, this is generally implied rather than being made definitionally explicit. Finally, uncertainty (Lewis & Weigert, 1985), appears not to be captured in definitions of P2T. This omission is noteworthy because a general tendency to rely on others only makes sense if reliance occurs in the presence of both losses *and* outcome uncertainty, which together produce risk (Yates & Stone, 1992). None of the shorter definitions we found included uncertainty, although it was often mentioned in the more detailed accounts of trust in which P2T is being contextualised (see, for example, Colquitt et al., 2007; Mayer et al., 1995; McKnight & Chervany, 2001). One possibility is that the concept of risk is often presumed to include uncertainty, but potentially then it confounds the harm caused by risk with its probability or chance (Ale, 2009; Yates & Stone, 1992) which is why we draw attention to its separation.

Depending on the focus applied, P2T is concerned with a general readiness for accepting vulnerability, based on general beliefs about people and trust situations (Stack, 1978), that precede people's judgements of other people's trustworthiness and their specific expectations about a situation (Mayer et al., 1995). While there are specific aspects to any trust situation, often these are not known at the beginning of a relationship. In the absence of such information P2T serves to provide individuals with a basis for coping with a situation, even when they have little or no prior experience of that setting or the people within it (cf. Rotter, 1980, p. 2).

When positioned as an aspect of personality, P2T has been considered as a stable characteristic, rather than situation-specific (Mayer et al., 1995). The predominant view is that P2T acts as a unidimensional personality trait which influences a person's general willingness to trust and take risks (Farris, Senner, & Butterfield, 1973; Gillespie, 2003), although this is not universally accepted (Ashleigh et al., 2012). Evans & Revelle (2008) report evidence that trust is associated with extraversion, neuroticism, agreeableness and conscientiousness, suggesting a slightly more complex view of P2T and trait theory that raises the possibility that P2T may comprise multiple dimensions which reflect underlying personality traits. A further conceptual distinction between traits and states leads one to consider whether a willingness to render oneself vulnerable reflects a variable state (Boon & Holmes, 1991; Das & Teng, 2001; Jones & George, 1998) within the traits activated in a given situation.

There is consistent support for the idea proposed by Mayer et al. (1995) that P2T operates as an antecedent in trust situations, generating trustworthiness perceptions (Colquitt et al., 2007; Gill, Boies, Finegan, & McNally, 2005). Furthermore, P2T appears to act directly and independently of trustworthiness information on trust outcomes analogous to an information filter (Govier, 1994; Searle, Weibel, & Den Hartog, 2011); thus, those higher in

P2T filter out negative, counter-indicative information and thereby become more resilient to breaches in trust. This filtering explains why some individuals seem to be less affected by unfavourable trustee cues, less likely to become sceptical, regardless of the amount of contrary information, and therefore can make the cognitive leap required for trust based on little else than their general tendency to trust (Searle et al., 2011).

In summary, defining P2T is difficult, as it has similarly slippery tendencies as definitions of trust (Nooteboom, 2000). In practice, the definitions used in research may well reflect differences in emphasis rather than fundamental distinctions in articulating P2T within theoretical models. While noting these definitional variations, our review of conceptual definitions and ideas concerning its role in social exchange adopts the following broad conceptual definition for P2T: *A more or less stable tendency to rely on others, expecting them to be generally trustworthy and reliable unless proven otherwise, independent of person, context or lifetime.*

Is the measurement of P2T flawed?

A variety of measures are associated with P2T, although to our knowledge there has been no systematic review of their quality or application, nor the extent to which they *actually* assess the construct described in the previous section.

Gillespie's (2012) work on the measurement of trust notes that trust research is often reliant on flawed, and poorly validated instruments. She attributes this to several causes: (1) fragmented and idiosyncratic use of measures resulting from the proliferation of new measures including those developed from earlier measures; (2) lack of evidence to support construct validity; (3) and misalignment between conceptualisation and measurement.

Flawed measurement is an argument that has also been made for P2T, although not as strongly as for trust measures. Schoorman et al. (2007) called for the development of better

P2T measures following an evaluation of two measures, Schoorman, Mayer, and Davis (1996) and Rotter (1967), which they argue have poor psychometric characteristics. However, systematic review shows more than two scales in operation (our review highlights 26, most of which were available in 2007). As a result, attention towards devising new measurement tools may have failed to capitalise on the strengths of existing psychometrically robust measures. A further unintended consequence of calls for new scales is fragmentation, making comparison across studies using different measures difficult. Furthermore, the creation of new scales often involves use of legacy scale items inadvertently duplicating existing flaws. Thus, rather than solving a measurement problem, new P2T scales may proliferate existing problems that have already marred measurement in trust research in general (McEvily & Tortoriello, 2011).

Further scrutiny of measures reveals a misalignment between P2T's conceptualisation and its subsequent operationalisation in research. Problems with alignment appear most acute in trust studies of institutional contexts (Li, 2013). Lack of attention to unresolved construct validation and conceptual alignment merely replicates limitations of established scales. Therefore, while concerns about measurement quality have been noted, in contrast with measures of organisational trust (see for example Dietz and Den Hartog, 2006), to date no comprehensive investigation has been undertaken of the underlying scale content and quality of P2T scales. To provide such critical insight and to extend conceptual work on trust measurement, this paper systematically surveys individual P2T scales used in contemporary trust research.

Method

Qualitative meta-analysis of P2T scales

The methodologies used to identify and evaluate P2T scales and their items in this paper were

derived from qualitative meta-analysis. This approach emerged in qualitative social sciences as a means of summating qualitative findings (Timulak, 2013). However, it has also been shown to have application in the thematic analysis of research in fields usually dominated by quantitative approaches (Nienaber, Romeike, Searle, & Schewe, 2015). Such work suggests that the technique is adaptable to situations when a more thematic summarisation (in this case a summary of the scales used in the literature) is required. Indeed, quantitative and qualitative meta-analyses often ask similar research questions but rather than following a cookbook approach, qualitative researchers adapt the methodology, depending on a study's research goals (Levitt, 2018). In this paper, the thematic summarisation focuses on P2T scales used in different studies, and so the term meta-analysis concerns the identification of scales and their characteristics, as well as gaining insight about their applications in research.

Our use of qualitative meta-analysis also draws on the meta-inventory approach used by Cheng and Fleischmann (2010) in their qualitative mapping and development of a meta-inventory of human values measures. Furthermore, pragmatically our methodology builds on the seminal analysis of trust measurement by Dietz and Den Hartog (2006) and their mapping of organisational trust measurement, extending this approach to map P2T. Our methodology is therefore thematic and descriptive, rather than quantitative and directed by statistical decision-making. While we recognise that P2T scales and their use are embedded within a quantitative paradigm of research methodologies, our adoption of qualitative methodologies promises fresh insights that are less likely to emerge from a more quantitative, positivist analysis. Our intent is not to dismiss quantitative approaches in trust research, but rather to extend them using qualitative methods and epistemologies as suggested by others (Isaeva, Bachmann, Bristow, & Saunders, 2015).

In assessing the quality of qualitative research, reliability and validity are conceptualised differently, and therefore, differ in their application compared with

quantitative work (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Axiological considerations drove the emergence of data and insights gained in this study as a step in a larger research project on P2T. It is for this reason that we are less concerned with a traditional psychometric discussion of scales' validity and reliability and instead, we are more concerned with reporting the development of our sense-making about P2T measures; these encompass the concepts of fidelity and utility, against which to judge methodological integrity in qualitative meta-analysis (Levitt, 2018). For this reason, we have included a final coding of the items and list of studies collected (Appendices 1 & 2) to be transparent in the outputs of our methods. While we adopt a somewhat more constructivist stance epistemologically, in this context, some discussion of psychometrics is inevitable. In addition to our treatment of quantitative technical issues in the discussion, we used inter-rater reliability analysis to guide and verify the revision of our qualitative coding frames.

Data collection & Methodology

Following qualitative meta-analysis methodologies employed by others (Nienaber et al., 2015; Oreg, Vakola, & Armenakis, 2011) we first carried out an extensive search for P2T scales and studies that have used them. Searches were performed using search engines including Web of Science (ISI), EBSCOhost and Google Scholar involving well-known scale names (e.g., 'faith in people scale' & 'interpersonal trust scale'). As inconsistent terminology has been used to denote P2T (e.g., dispositional trust, general trust), scale identification was made more problematic with searches failing to discriminate between studies using a measurement tool and those discussing the concept, or merely mentioning a scale. Therefore, to identify comprehensively those studies that had used any of the scales, we deployed snowballing and reverse snowballing (Sayers, 2008) to narrow searches including the use of items from published scales as search terms.

Guided by our conceptual definition of P2T, we focused only on scales whose content and operationalisation claimed to measure 'a tendency to be trusting' or 'believing that, in general, others could be trusted'. Because we were interested in the organisational context applications of scales, we restricted the scope of our meta-analytic review to studies with some relevance to the fields of management, leadership, organisational behaviour, marketing and online trust. Although much of the marketing online trust literature deals with trust in online services, it has relevance to organisations since typically it relates to reputation, word of mouth and other behavioural intentions. These elements are pertinent to organisational recruitment and selection processes, as well as to inter- and intraorganisational trust, which is increasingly reliant on online digital media and communication. Finally, in some cases, we allowed inclusion of studies that had an educational or health focus, or which embodied more general or social psychological topics (for example person perception, emotion regulation, economic psychology) if they had relevant applicability to behaviour in organisations and used one of the identified P2T scales.

We excluded hybrid scales which adapted items from existing instruments such as items from Rotter's (1967) interpersonal trust scale or the P2T scale developed by Schoorman et al. (1996). While the latter uses items from Rotter's scale, the popularity of their scale demanded its inclusion in our review. Also included was Valenzuela, Park, and Kee's (2008) adapted version of Rosenberg's (1956) scale for administration in Likert scale format. We excluded scales that measured particularised general trust in institutions (e.g., Kehr, Kowatsch, Wentzel, & Fleisch, 2015) or towards particular actors, such as trust in medics (e.g., Hall, Camacho, Dugan, & Balkrishnan, 2002).

Next, we carried out content analysis. Items from the identified scales were extracted and coded by both authors to capture their thematic content. An initial coding frame was derived from dimensions and discussions found in the trust and P2T literature. We built on

Hsieh & Shannon's (2005) approach complemented by a broader, and arguably more subjective thematic content analysis (Neuendorf, 2016). This thematic orientation allowed themes to emerge from the wording of scale items, while also being directed by literature-derived theoretical constructs. Initial low inter-rater reliability led to category discussion and a decision to collapse several of the categories together. Inter-rater reliability of the initial and final coding frames used Kappa analysis (Cohen's κ). In the final reporting, we organised the resultant themes following McKnight, Choudhury, and Kacmar's (2002) scale content tabulation approach.

Results

The extensive literature search identified 179 relevant studies, comprising 26 P2T scales (see Table 2; a list of references is provided in Appendix 2).

[Table 2 near here]

Most of the original scale validations and studies using P2T measures in our sample reported scale reliabilities. However, as some original validation studies did not report reliabilities, a composite average was calculated from those reported elsewhere. Average reported alpha reliability across all scales and studies was .78, ranging from .40 to .97.

In contrast with the assertion of Schoorman et al. (2007) that no unidimensional P2T measures produce consistently high alphas, 12 of the 26 measures revealed average reliabilities above .80 (The reliability coefficients and other pertinent characteristics of each of the scales are elaborated further below in table 5 and in the discussion). In several of the validation studies of P2T scales, factor analysis was reported, rather than criterion-related validation. Studies varied widely in their approach to and depth of the validation strategy, with several using factor analysis, and only more recent validations extending beyond simple principal components analysis (e.g., McKnight et al., 2002).

Almost all the studies identified in our meta-analytic literature review used a conceptual definition of P2T as either a generalised/general tendency to trust, or as dispositional trust to justify the use of specific scales. Those studies referring to the origins of P2T measures mostly attributed the concept to Rotter (1967), or, occasionally, depending on the scale, to Schoorman et al. (1995). More detailed examination of their application reveals that different fields of study favour different scales. For example, consumer and online trust applications almost exclusively use several scales (e.g., Gefen, 2000; Lee & Turban, 2001; McKnight et al., 2002; Valenzuela et al., 2008) that are rarely found in organisational and managerial studies of trust.

In our sample of studies, P2T measures were commonly used as predictor variables of social or organisational processes/behaviour (e.g., Gill et al., 2005), or as moderators in the relationship between two or more variables (e.g., Hansen, Dunford, Alge, & Jackson, 2015). Over the last two decades, there has been an increasing inclusion of P2T within structural equation models (e.g., Frazier, Gooty, Little, & Nelson, 2015; Ridings, Gefen, & Arinze, 2002;1 3% of our studies). Within experimental designs, P2T has commonly been used as a control variable (e.g., Norheim-Hansen, 2015; 10% of studies in our sample).

Analysis of scale content

Thematic content analysis of the items produced an initial 12 themes, which reduced further to a final six key themes (see Table 3).

[Table 3 near here]

Items categorised HN ('*faith in human nature*') reflected beliefs in people's honesty, sincerity, fairness, reciprocity, cooperativeness and competence as a basis for a general faith in human nature. '*Cautiousness*' (C) items expressed reasons to be cautious and concern about risks and exploitation. '*Role expectations*'(RE) referred to specific trustee categories

(e.g., salespeople, experts, politicians, students, parents) and the degree to which they could, in general, be trusted. *'Institutional trust'* (I) was similar to RE but concerned a general tendency to trust organisations as the trustee (e.g., companies, media and political institutions), rather than individuals. '*Personality attributes*' (P) comprised those items expressing self-reported personality characteristics not featured in other categories, and statements reflecting a general optimistic tendency. Finally, '*general trust*' (G) captured items which expressed a self-reported tendency to trust without further reference to other qualifiers.

Cohen's κ was calculated for a 20% random sample of scale items to assess the quality of the coding frame. The primary author and a second coder, who was an independent researcher with experience of trust research, carried out this coding. Both rated items independently using the same six-factor coding frame. Indicating substantial to almost perfect rater agreement (Landis & Koch, 1977), the inter-rater reliability was $\kappa = .83$ (95% CI, .720 to .939), $p < 0.001$. A list of all scales, their items, and final codes is provided in Appendix 1.

Frequency tallies were used to indicate how often a given code occurred in each scale. These frequencies were then converted into a percentage to indicate thematic coverage levels for each scale (See Table 4).

[Table 4 near here]

Faith in human nature (HN) was the dominant P2T item category, occurring in almost all scales, followed by *'cautiousness'* (C) and *'general trust'* (G). Themes were unevenly distributed across scales, with some scales featuring items belonging to only one or two themes. The number of themes was in part a function of the number of items, as those with more items often included more themes. None of the scales had complete thematic coverage; only two included five themes. 35% of scales only contained a single theme, most frequently G, (3 scales), followed by HN (2 scales) and RE (2 scales). The remaining two single theme

scales covered P and C, respectively. A further 30% of scales (8 scales) included two themes, HN and then either C, P, G or RE in that order of frequencies. The remaining nine scales included multiple themes (up to five). Each of these (except one) covered the human nature theme. The code I appeared in both of the five-item scales and in one of the three-item scales.

Discussion

The synoptic exploration of currently used P2T scales and qualitative mapping of the content provides insight into both conceptual and methodological limitations for the coverage of the different facets within P2T scales. To aid further discussion, we devised a table summarising the key attributes of individual scales (see Table 5).

[Table 5 near here]

Fit of themes with the conceptual definition

Referring to our conceptual definition, we expected somewhat different themes to emerge. First, the idea that P2T refers to expectations of others as generally trustworthy and reliable is met to a great extent, specifically via the HN and G, and P themes. Our themes did not reflect the conceptualisation of 'unless proven otherwise'. Only a few scales refer to this idea (e.g., Rotter, 1967; Gefen, 2000).

The presence of RE and I themes is a little more troubling for the notion that expectations are independent of person, context or lifetime. Inclusion of items that tap role expectations or institutions seems to indicate that context or roles matter in people's tendency to be trusting, rather than being independent of them. While a qualitative analysis does not make as many assumptions about what themes should or should not be contained in a scale, there is a conceptual question about what the items labelled RE and I assess, and whether they should be included in scales. To that end, items falling into the RE and I themes are problematic because they can violate the idea of P2T being a general tendency (in the case of

RE) and are about reliance on aggregates rather than individuals (in the case of I).

Alternatively, items falling under the RE headings are phrased to refer to general categories (e.g., salespeople, parents) rather than specific and particularised others (your parents, this salesperson). Even so, there may be a more fundamental issue about the relevance of such items to the contexts in which scales are applied, and the potential lack of face validity (for example items referring to students cheating at an exam, in research on team trust).

Considering further the question of 'what' P2T is (e.g. the expression of dispositional traits), it also becomes conceptually more difficult to distinguish between a direct expression of that trait, as a state, and the extent to which such judgements about trustworthiness of others are reflections of a) personal experience or b) normative beliefs about others that change over time or situations. For example, historically, trust in experts has been much higher than it is now. Public awareness of agenda-driven research (e.g. smoking, climate change), scientific fraud, and politicisation of expertise may have provided reasons for people to become generally more sceptical of experts than they were in the past (Pechar, Bernauer & Mayer, 2018). The point here is that inclusion of items that are subject to cultural or historical change are unlikely to provide stable measurement of P2T and could contribute to changes in recorded P2T that are more variable over time.

Finally, the emergence of the caution theme, which reflected mostly negatively worded items, does not neatly fit with any conceptualisation of P2T. However, considering the requirements for trust, vulnerability and uncertainty, the presence of items that tap a person's willingness to accept them would seem to be reasonable. There will be further discussion regarding dimensionality and negatively worded items below. However, rather than merely representing a potential weakness in the conceptualisation of P2T as such, we consider this emergent issue as supportive of the need to question how complete current conceptualisations of P2T are, with the view of improving future theory and research.

The case for Multiple P2T dimensions

Typically, P2T measures have been designed and operationalised as unidimensional scales. However, our thematic analysis has revealed coverage of multiple themes that raise the question to what extent P2T measures reflect a multidimensional construct. While only some scales were designed under the assumption of multiple subscales that are theoretically meaningful (e.g., Ashleigh et al., 2012; McKnight et al., 2002), other measures - although operationalised as unidimensional constructs - show multidimensionality emerging *after* initial scale validation. For example, factor analytic investigations of Rotter's (1967) unidimensional interpersonal trust scale reveal between two to four distinct dimensions (Hunt, Kohn, & Mallozzi, 1983; Wright & Tedeschi, 1975). Typically these dimensions contrast positive trust with a distrust/cautiousness factor and include less statistically robust factors of institutional trust, role expectations, and judgments of how reliable others are expected to be (Ashleigh et al., 2012; Hunt et al., 1983). Consistent with the arguments we made earlier regarding the conceptual fit of themes, scales which are assumed to be unidimensional may provide a conceptually incomplete view of P2T.

The distinction between trust and distrust in some scales aligns with the more recent consensus emerging around separate states of trust and distrust, rather than being mere opposites on a trust continuum (Saunders, Dietz, & Thornhill, 2014). Only three scales explicitly operationalise both trust and distrust items in their original versions (e.g., Ashleigh et al., 2012; Huff & Kelley, 2003; Yamagishi, 1986). While the scale developed by Schoorman et al. (1996) was initially designed as a unidimensional measure, subsequent factor analysis reveals separate trust and distrust dimensions (Murphy, 2003). Similarly, the unidimensional measure developed by MacDonald et al. (1972) shows distinctions between those who more readily endorsed trust compared to distrust, revealing men as more distrusting than women (Lagace & Rhoads, 1988). This difference in participant groups'

responses to items measuring distrust and trust highlights the importance of checking dimensionality within existing unidimensional scales of P2T.

The presence of a role expectations factor (RE) in factor analytic work supports our attention to the conceptual issues discussed in the light of our thematic analysis earlier. If P2T refers to trusting in general, the inclusion of specific categories of trustees (e.g., parents, teachers, students) potentially confounds single-score assessment of P2T with that of particularised trust. Particularised trust acts differently to P2T, for example, in the formation of strong group identity (Uslaner, 2002) and therefore confounding P2T and particularised trust has important implications for interpreting results from studies that use P2T measures which include RE items but are operationalised as unidimensional.

Items coded as role expectations could also be interpreted as related to institutional trust (I). However, while qualitative analysis could comprise a coding frame in which RE is subsumed within I, there are several arguments against collapsing these two themes: First, people may be relying on role stereotypes based on social cues performed by role incumbents, for example, nurses being warm and friendly (Kong, 2018). Second, is the sharp contrast between trust in roles and institutions, for example, trusting medical doctors versus hospitals (Oliver, 2018). Third, not all the examples of RE concern professionals, with some items referring to trusting parents and students. Therefore an RE dimension would still be required. Evidence from factor analysis of some scales suggests that institutional trust is a separate factor distinct to RE, supporting our thematic analysis. Finally, understanding how trust operates at different levels is an increasingly important focus for study (Gillespie, Fulmer, & Lewicki, forthcoming). Therefore the separation of referents by levels, such as individual role incumbents from their overarching institutional entities, may be advantageous to understand better how trust can operate at these different levels (Fulmer & Gelfand, 2012). However, this requires careful attention to how measures (in this case, P2T) are

operationalised to avoid losing information that may contribute to understanding individuals' tendencies to trust these different referents.

While we did not find any clear examples of this from our searches, unidimensional measures of P2T that include RE items may potentially result in spurious correlations between such P2T measures and some other variables depending on the context for trust. By separating dimensions in the analysis or removing such questions altogether, these conceptual considerations can be better monitored and controlled. Therefore, evaluating past studies that have used these scales should be undertaken with care to avoid over-interpretation of confounded unidimensional scale scores.

Another possible interpretation of the thematic dimensions found in our content analysis relates to nomological nets. Nomological nets here refers to the representation of the relationship between constructs by which construct validity might be inferred (Cronbach & Meehl, 1955). P2T scores of presumed unidimensional constructs are potentially dependent on the other constructs assessed within a given measure. For example, Rotter's (1967) scale assumes P2T as a unidimensional construct. Factor analytic evidence indicates up to four factors (Hunt et al., 1983; Wright & Tedeschi, 1975), while our qualitative analysis suggested five themes. Consequently, if one calculates a single score, these dimensions remain unaccounted within the nomological net. By contrast, the group of scales developed by McKnight et al. (2002) appears to work well as a nomological network. Our content analysis categorised their scales as measuring themes of human nature (HN) and general trust (G). Conceptually these scales are also closely aligned with the trust antecedent model (Mayer et al., 1995) via their reference to competence, reliability and integrity (which we grouped within HN). As separate scales and with evidence of factorial validity, the McKnight scales could be usefully employed to assess a dispositional tendency of these distinct elements, as well as a more general stance towards trusting. Such multidimensional conception of P2T

allows better modeling between human nature beliefs and general tendency to trust, including

their relationship with matching beliefs about a specific trustee's trustworthiness. Here

Moody, Galletta, and Lowry (2014) offer an excellent example of the nomological

connections that can be established using a multidimensional operationalisation of P2T, in

this case, using the McKnight et al. scales.

Methodological and conceptual issues in P2T scales

As with other self-report measures, P2T scales can be subject to systematic methodological

bias from the use of common methods (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Such bias can impact on reliability, validity and generalisability. While the emphasis on

method variance has drawn attention to the possibility of bias in surveys, what is of more

significant interest is how individual variables are affected, and why. Such attention may

reveal 'the limits of what people can and cannot self-report accurately', and 'what can and

cannot be concluded from data collected using particular designs and methods' (Brannick,

Chan, Conway, Lance, & Spector, 2010, p. 417). In this way, bias raises additional questions

about the role of context as an influence on how variables work in the field.

McLeary and Cruise (2012) provide evidence for such contextual differences. They

used Huff and Kelley's (2003) measure and demonstrated P2T measurement invariance

across some, but not all, of the same sector organisations in their study. While measurement

error could explain such findings, it nevertheless raises concerns as to why P2T does *not*

generalise well across different organisations, even when of the same type. One possibility

could be that it is an artefact of the specific P2T measure used, with different dimensions and

items more salient in one context compared to another. The separation of 'hidden'

subdimensions within unidimensional scales raises awareness and provides an impetus for

testing differential effects and contextual interactions, which to date has not been a concern

of trust research involving P2T. There are several sources of bias in P2T scales that are worthy of further consideration, next.

Item wording

A significant source of bias in trust scales is item wording, which occurs in three distinct ways. First, the inclusion of the term 'trust' can be a source of bias, with Cummings and Bromiley (1996) arguing for restraint in its use in trust measures. Further, Dietz and Den Hartog (2006) contend that the emotive nature of whether one trusts others may distort responses when the word 'trust' is used. While the word 'trust' is included in several of our reviewed scales (see Table 5), it has typically not been acknowledged or explored in studies' methodological discussions. Further, its inclusion may inflate the internal consistency of P2T scales, contributing to an artificial increase in intercorrelations the more frequently the term is used relative to the length of the scale. However, every time the term is used in an item, it makes a contribution to the score but adds little new information about what the score is meant to represent, a case of a so-called bloated specific (Cattell, 1978).

Ambiguously-worded items are a second limiting factor that should ideally be omitted from scales to reduce the effects of scale inflation in subsequent empirical analysis and so avoid adding unnecessary further bias (Podsakoff et al., 2003). Ambiguity in P2T scales can arise from multi-referent wording; for example: 'It is easy for me to trust a person/thing' (Lee & Turban, 2001). While such wording does not appear to be widespread among P2T scales, it can have a more significant impact in short scales. In the preceding example, the ambiguity regarding the object of trust can reduce discriminating power (Broen, 1960), increasing response latency, response acquiescence, item difficulty and the proportion of nonrespondents (Goldberg, 1963). Consequently, ambiguous items impact on the type of response elicited, and also limit subsequent interpretability.

A final, and long-standing concern in psychometrics, arises from the conceptual and methodological problems of *negatively worded* items (Cordery & Sevastos, 1993). Previous P2T factor analyses have shown that in some cases, factors are entirely composed of negatively worded P2T items (e.g., Ashleigh et al., 2012; Hunt et al., 1983). Further, it may be simplistic and erroneous to assume that negatively worded items are synonymous with distrust (Ferres, Connell, & Travaglione, 2004), yet this approach appears to have been adopted by some developers in their operationalisation of propensity to trust as distinct from propensity to distrust (e.g., Huff & Kelley, 2005). Conversely, Dietz and Den Hartog (2006) argue that rather than tapping into low trust, negatively worded items relate to distrust. A further argument supporting Dietz and Den Hartog is that if one were to write items that measure propensity to distrust (P2D), an operationalisation without recourse to negatives would be challenging to achieve since P2D is by its nature a conceptually negative construct.

Negatively worded items may also relate to constructs that are nomologically connected with P2T and P2D, including cynicism and risk. For example, evidence suggests that cynicism and trust correlate in times of organisational change (Pugh, Skarlicki, & Passell, 2003), and trust and risk may operate as mirror images of each other (Das & Teng, 2004). However, until a nomological model specifying the relationships between these similar concepts has been developed, the inclusion of negatively worded cynicism items in P2T scales potentially confounds the measurement of P2T and P2D. Some have advocated excluding negatively worded items from trust measures (Ferres et al., 2004), instead favouring the creation of shorter scales without confounding items. However, it is also conceivable that negatively worded items reflect other constructs, rather than P2D. It is here that a clear conceptual separation of trust and distrust and other constructs would be helpful, enabling separate treatment of positively and negatively worded items.

Statistical implications

Method biases reduce reliability, except in the case of items that include the term 'trust'. The inclusion of 'trust' has the opposite effect making items more similar to each other, artificially increasing item-intercorrelations, thus inflating reliability estimates. Statistical techniques have been used to manage the effects of differences in P2T on other variables (e.g., Ferres et al., 2004). While corrections are available to remedy inflated reliabilities (Pascual-Ferrá & Beatty, 2015), we are yet to see their explicit use in P2T studies to correct for inflated scale reliabilities. However, when P2T measures are used to control the effect of an independent (predictor) variable, or in mediational and moderator analysis, low reliability can produce complex impacts on the power of statistical analysis, even with further correction (Cohen, Cohen, West, & Aiken, 2013).

Benchmarks for reliability coefficients in research are often misunderstood (Lance, Butts, & Michels, 2006), leading to the acceptance of low power scales in research. For example, Nunnally and Bernstein (1978) advise on a .8 scale reliability benchmark for basic research rather than the more commonly utilised .7 and argue for an even higher desirable alpha of >.95 in applied research contexts where decisions about people are made on the basis a score. However, in practice, attainment of such high levels of reliability is difficult, particularly in studies using multiple scales. A pragmatic response is to reduce the threshold for acceptable scale reliabilities to be lower than the Nunnally and Bernstein gold standard, although this does not necessarily condone the inclusion of measures known to vary widely in their reported reliabilities. Surprisingly, the two most commonly used scales in managerial research, Schoorman et al. (1996) and Rotter (1967) instruments and their variants, frequently result in reliability well below the .7 threshold and vary widely in their ranges. Table 5 highlights the rank order of scales by their reliabilities to aid researchers in selecting more robust scales.

Meta-analytic considerations

To our knowledge, there have been few meta-analyses that include P2T in their list of variables. While the use of statistical corrections in meta-analysis is contended to overcome some limitations of low measurement reliability, it may not necessarily be an adequate remedy for low-quality measures. For example, in their meta-analysis, Colquitt et al. (2007) include P2T scales with low and unreported reliabilities. Following good practice conventions, they corrected for attenuation to control for measurement unreliability, reporting both corrected and uncorrected coefficients, plus the standard deviation for corrected coefficients. However, the use of techniques such as imputing mean weighted reliabilities for studies with missing coefficients is itself problematic, as it assumes data are missing at random (Higgins, White, & Wood, 2008), as well as producing biased estimates (Enders, 2010).

The case for suggesting that reliabilities are not missing at random is that there is some evidence that unreported coefficients may be artefacts of publication pressures, with a tendency of researchers to attempt to obscure lack of significance (Chan & Altman, 2005). Similarly, the omission of coefficient alpha data might be a strategy that reduces attention to low reliability and underpowered designs. Generally, contemporary editors will favour reporting of relevant benchmarks, and so this is likely to be more of an issue affecting older papers from journals with less robust statistical publication standards. However, under the scenario of nonrandom missingness of reliabilities, the imputation of weighted mean reliability could potentially give a higher estimate than the missing reliability it imputes. As a consequence, subsequent statistical attenuation correction of effect sizes in a meta-analysis using mean imputed values may produce biased effect sizes if they are based on corrections that use over-estimated reliability estimates.

While low reliability appears to be a more significant concern for earlier studies, there are however also more recent examples of omitted coefficient alpha results in work on P2T (e.g., Chaudhuri, Li, & Paichayontvijit, 2016; Ishiguro & Okamoto, 2013; Jansson & Eriksson, 2015; Wingreen, Mazey, Baglione, & Storholm, 2018). Reliability concerns are generally widely established in psychology, management science and elsewhere, and so such omissions may reflect editorial policies and practices within research networks. This is an issue that extends beyond P2T measurement and trust research, and as such, requires a continued effort to ensure adequate reporting of scale reliability information in quantitative research.

Scale application considerations

While our paper aims to provide analysis of P2T scales rather than detailed consideration of studies that have used them, insights about scale application have conceptual relevance. More detailed examination of studies reveals that some fields of study favour different scales (see table 5). The major division here seems to be between online/consumer trust and managerial/organisational applications. Such field-specific applications reflect the dissemination and citation of scales through research networks, with scales trusted more because of researchers' familiarity with scales rather than their quality (for further elaboration of citation behaviours in scientists see also Thornley et al., 2015). Such citation bias has important implications.

First, more robust scales are relatively underutilised outside their primary field of application (e.g., McKnight et al., 2002); second, methodological developments and insights gained in different sub-disciplines may gain less traction outside that field, even when such advancements improve measurement. Third, context-dependency of scales and dimensionality imply that measures currently provide an incomplete view of P2T so that

research findings derived from using these partial measures of P2T, can at best only offer partial insights. Finally, perpetuated use of weaker scales in studies in some fields reduces statistical power and undermines the development of theory and evidence in that research subdomain. The implication of a fragmented use of scales creates significant challenges for developing more unified conceptualisations of P2T. In as much as research involving P2T occurs in methodological silos it risks incomplete conceptualisation of P2T and stagnant theorising that weaken trust research as a whole. Insights from our analysis of scales in terms of their thematic content and overall performance offer a possible solution to this problem.

Conclusions

Qualitative meta-analysis was used to identify and review 26 measures of P2T used in 179 studies and provided a qualitative mapping of the construct space for each of these scales. While we were surprised both by the number of scales found, and their frequent uncritical acceptance, our subsequent analysis revealed both conceptual and methodological limitations which have consequences for our current understanding of P2T. The number and divergence of scales challenge assertions of a paucity of measures with robust psychometric properties; instead, we found several reliable scales, yet weaker scales tended to have greater application. Mapping the content of scales, we identified coverage of scale content across six themes including beliefs in human nature (HN), cautiousness (C), general trust (G), trust in specific roles (RE), institutional trust (I), and personality attributes (P). Together with factor analytic studies, this points towards an incomplete conceptualisation of P2T as unidimensional.

Scale dimensionality is potentially the biggest threat to existing conceptualisations of P2T. Concerns about the content and dimensionality of P2T are far from trivial matters. From a measurement perspective, prior findings which ignore P2T's multidimensionality potentially confound it with other underexamined antecedent constructs. At best, this creates

a limitation, but at worst, it distorts understandings of trust processes in organisational relationships. Second, the presence of multiple dimensions suggests important psychological nuances in the antecedent stage of trust, which are currently neither conceptually nor operationally accounted. P2T may, like trust itself, be a hybrid form construct (McEvily, 2011) based on the output of a variety of other processes, such as risk aversion, optimism bias, scepticism, anxiety or other constituent personality traits all of which are relevant to organisational functioning and trust. Regardless of whether the themes we identified are elements of P2T or other constructs, the validity of P2T measurement is a concern when these elements are confounded within measures and subsequently used without identifying and accounting for their effects. Because many current scales include items that tap related constructs that are not synonymous with P2T, such scales may produce scores that blend these additional constructs with P2T. The question of what P2T scales assess is rarely considered or clarified and instead depends mainly on the measure being used.

One of the most critical insights for us regarding P2T is its role as a placeholder or proxy for a series of processes involved in trusting that may be social, cognitive or developmental, but which are not well-defined conceptually. It is beyond this paper to make specific recommendations for what all these processes might be in a nomological net sense. However, in the challenge to more traditional conceptualisations of P2T as dispositional and unidimensional an alternative conceptualisation is possible that can help to drive theorising of P2Ts role in trust at a deeper theoretical level. In light of this review, we revised our original conceptual definition:

P2T is the tendency to become willing to accept risks in relationships under the generalised expectation, shaped by constituent processes of personality, belief and experience, that others can be relied on.

As there was considerable evidence from our own as well as other studies, we devised a separate conceptualisation of P2D:

P2D is the tendency to become unwilling to accept risks in relationships under the generalised expectation, shaped by constituent processes of personality, belief and experience, that others cannot be relied on.

Limitations

Although we provide a comprehensive identification of P2T scales, our analysis did not consider how individual scales impacted on findings reported, such as on effect sizes, correlations or other indexes of influence. As a result, future studies could examine these influences. We aimed to examine methodological and thematic aspects of specific P2T scales likely to impact on the interpretation of observed relationships between P2T measures and outcome variables. In that sense the themes produced by our content analysis are not P2T 'factors' in a factor analytic sense; instead they are a manifestation of item content which may indeed refer to dimensions of P2T or they may alternatively reflect other constructs as we imply in our revised conceptual definition above. While one would not be generalising to populations based on our themes, our findings nevertheless draw attention to the risk of confounding P2T scores with dimensions that are present in P2T scales, but which are usually unaccounted. Although qualitative analysis does not offer the statistical benchmarks or generalisability afforded by a quantitative meta-analysis, they permit a more conceptual exploration of scales and their applications providing conceptual support for subsequent quantitative studies.

Recommendations & further work

To advance research further, those studying P2T in action should consider more carefully what 'flavour' of P2T is relevant to *their* study before selecting suitable scales. The

identification, mapping and discussion of existing P2T scales into six thematic areas and our summary tables offer researchers not only insights to discern robust measures but also a taxonomy to aid identification of thematic coverage relevant for their purpose.

We strongly advocate further interrogation of scale dimensionality as P2T effects do not always seem to generalise across organisations of the same type, possibly resulting from dimensionality rendering scales more context-sensitive. Our scale review has highlighted problems in generalisability and interpretation of P2T scales. We advocate that instead of dismissing unusual findings as measurement problems, researchers adopt a more constructive approach by asking under what circumstances a general tendency to trust (and its sub-dimensions) might become activated in organisational settings. Thus, rather than merely controlling for P2T effects on organisational process studies, complementary control of organisationally- and culturally-relevant variables (such as employee relations, intensity of relations, recent organisational history) may be useful in advancing our understanding of how and why P2T and its subdomains operate in each context, and why they may differ between contexts. A further point relating to conceptual definitions also highlights the need to account for possible generalised constituent processes that give rise to a general willingness to trust. More specifically, where measures tap into these processes, they may reveal dynamic interactions with contextual variables (for example, cynicism in the context of redundancy).

Based on our scale evaluation we recommend researchers consider using: a) reliable P2T scales; b) scales whose content does not include the term 'trust'; c) scales which do not confound distrust and trust (achievable through statistically separating positive and negative items); and d) ones that avoid reference to role expectations and institutions. As discussed, for conceptual reasons, scales which include role expectations and institution items are potentially problematic. Where such measurement is required, new measures could be developed to focus on a general tendency to trust different roles and institutions.

Alternatively, where such items are already included in a scale that captures these aspects (e.g., Rotter, 1967), removing them or treating them as separate constructs would also be possible strategies. Further consideration of the item space via factor analysis could assist in deciding whether to utilise a 'propensity to distrust' construct in the analysis, which would allow the separate control of variables. Alternatively, where there is neither evidence nor theoretical requirement for utilising P2D dimensions, negatively worded items should be dropped from the analysis to avoid confounding measurement of P2T.

We were alerted by one of our reviewers to the needs of different types of audiences reading our paper. We identify two groups: those focused on researching theoretical aspects of trust and P2T, and a larger group of researchers interested in a broader set of research questions for whom trust or P2T may be a secondary concern. The former group may be particularly interested in the possible roles of dimensions in a range of direct or indirect effects (e.g., mediation/moderation) in trust contexts. Furthermore, they will require scales with good psychometric properties that are conceptually strong and appropriate for theory building; the second group will seek reliable, shorter scales that can be used to control the effects of P2T on variables in their research designs.

Our content map highlights that no scales meet all four criteria for P2T scale selection as well as satisfy the needs of different groups of researchers. The four highly reliable short scales produced by McKnight et al. (2002) are noteworthy because they show less evidence of confounding factors, with three subscales also avoiding the term 'trust' (see Table 5). The trusting stance scale is a short, three-item scale for measuring general trust and thus supports designs in which P2T is used to control effects on other variables or in other situations when a short measure of P2T is required. The similarity of items might lead to the scale's reliability being artificially inflated, although it is not difficult to argue that someone who agrees with all three items would be a person with a high level of trusting tendency. An additional feature

of the McKnight et al. subscales is their alignment with the Mayer et al. (1995) trustworthiness conceptualisation. Such alignment makes it attractive to trust scholars as using these sub-scales allows operationalisation of theoretically strong and nomologically connected constructs, enhancing study of P2T effects in organisations. Prior work using these scales also has produced variants that mirror the content of the P2T in separate P2D scales (McKnight, Kacmar, & Choudhury, 2004; Moody et al., 2014). Indeed, the approach of specifying separate variables for each of these theoretically aligned P2T variants in both trust and distrust versions has the potential to disentangle these concepts further empirically.

The main shortcoming of the McKnight et al. scales lies in their infrequent use with few published applications. A further limitation is their 'Faith in Human nature – competence' scale, which includes statements about professionals as the trust referent raising issues of contextual relevance. However, the inclusion of this role expectation theme in the competence scale could be highly relevant to organisational contexts in which professionals, as a general category of people, are found. Given the earlier arguments concerning the RE factor, the impact of this expression of RE could easily be controlled within this scale rather than invalidating scores from the competence scale altogether. Instead, it offers scope for further exploration of people's tendency to trust based on generalised beliefs about other people's competence, signalled in this case by their professional status.

The growing multi-referent, multi-level and dynamic study of trust (Fulmer & Gelfand, 2012, 2013; Gillespie et al., forthcoming) requires measures that can provide the necessary insights into the antecedent processes that activate at different levels, with different referents. Examples of such referents and levels include employee trust in managers, trust between negotiation partners from different organisations, as well as aggregates such as departments, boards, partner organisations with each having distinct accompanying situational elements (Goto, 1996) that provide a basis for trusting. Selection of appropriate

P2T scales and other antecedents should, therefore, be guided by a consideration of scale content and its predicted relationship with the context in which they are used. Where there is an absence of appropriate scales, one solution may be to devise new scales in response, as seen in the growing trend for context-dependent models of trust, including context-adapted P2T scales (e.g., Jarvenpaa et al., 1998; van der Werff & Buckley, 2014), multi-dimensional scales (e.g.Ashleigh et al., 2012) and domain-specific scales (Wong & Williams, 2016). While new scales risk adding to the proliferation problem in trust research, a parallel effort to drive theoretical development underpinning measures should involve researchers adopting a more critical stance to scale selection and development and the retirement of conceptually and methodologically redundant measures.

A final area for critical examination and refinement of P2T theory and measurement lies in studying variability in person-centred antecedents of trust, and how such diversity influences trust in organisations. To date, there has been little attention to how situational, and more general dimensions of P2T interact. Considerations of P2T's nomological network and its antecedent and parallel constituents may provide the necessary conceptual starting point for disentangling these aspects. Such work could provide the nuanced insights necessary to understand better how trust operates in different contexts and to explain why P2T plays a significant role in some organisational contexts, but not others. More research is also needed to address the different impacts such dimensions might have on the competing psychological processes driving trusting. We have identified the need to tighten conceptual definitions of P2T, taking account of the underlying processes influencing people's tendency to trust. Discerning the complex pathways operating in trust situations and help progress trust research in future, would provide a more solid bedrock for improved theorising and the advancement of research across different fields.

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Table 1. Summary of conceptual definitions of P2T

Source	Definition	Conceptual assumptions
Rotter (1967)	"Expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon" (p.651)	Expectancy Social exchange Interdependence
Mayer, Davis, and Schoorman (1995)	"…a stable within-party factor that will affect the likelihood the party will trust" (p.715) "General willingness to trust" (p.715)	Stable Trait General state of willingness
Lee and Turban (2001)	"Propensity to trust is a personality trait that moderates the effect of trustworthiness attributes on the formation of trust" (p.82)	Personality trait influencing Social perceptions
McKnight and Chervany (2001)	"…the extent to which one displays a consistent tendency to be willing to depend on others in general across a broad spectrum of situations and persons" (p.45)	General and stable tendency
Connell, Ferres, and Travaglione (2003)	"…an individual's inclination to believe that others will be prepared to act in the trustor's best interests" (p.609)	Belief about others
McKnight, Kacmar, and Choudhury (2004)	"Disposition to trust is a propensity or tendency to believe in the positive attributes of others in general" (p.36)	General belief in others
Mooradian, Renzl, and Matzler (2006)	"…a generalized and enduring predisposition that is neither focused on specific others nor dependent on specific contexts, and which may be related to lifetime experiences but also to temperament, and thereby to genetics and biophysiological structure" (p.525)	General, inherited, stable Trait Disposition
Pennanen, Tiainen, and Luomala (2007)	"Dispositional trust means individuals' ability to show trust in general, and is based on that individual's belief that other people are well-meaning and reliable" (p.30)	Disposition Ability to trust generally Belief in others
Chen and Barnes (2007)	"…a general tendency or inclination in which people show faith or belief in humanity and adopt a trusting stance toward others" (p.24)	General beliefs in others
Colquitt, Scott, and LePine (2007)	"…a dispositional willingness to rely on others" (p.909)	Disposition Interdependence
Frazier, Johnson, and Fainshmidt (2013)	"…a general willingness to trust others, regardless of social and relationship-specific information" (p.80)	General state

Table 2. Summary of P2T scales

Source	Scale/subscale names	No of items	Response scale
Rosenberg (1956)	Faith in people	5	Mixed, dichotomous
Wrightsman (1964)	Trustworthiness	14	6 point agreement
Rotter (1967)	Interpersonal trust	25	5 point agreement
MacDonald, Kessel, and Fuller (1972)	Self-report trust	10	Mixed 4 point scales
Schuessler (1982)	Doubt about trustworthiness of people	8	Binary agreement
Costa and McCrae (1985)	Trust (NEO)	8	5 point agreement
Yamagishi (1986)	General level of trust	5	5 point agreement
Schoorman, Mayer, and Davis (1996)	Trust propensity	8	5 point agreement
Jarvenpaa, Knoll, and Leidner (1998)	Propensity to trust	7	5 point extent
Goldberg (1999)	Trust Neo A1 (IPIP)	10	5 point accuracy
Gefen (2000)	Disposition to trust	5	7 point agreement
Lee and Turban (2001)	Consumer trust propensity	4	7 point agreement
McKnight et al. (2002)	Dispositional trust		
	Faith in Humanity (Benevolence)	3	7 point agreement
	Faith in Humanity (Integrity)	3	7 point agreement
	Faith in Humanity (Competence)	3	7 point agreement
	Trusting stance	3	7 point agreement
Huff and Kelley (2003)	Propensity to trust/distrust		
	Propensity to trust	5	7 point agreement
	Propensity to distrust	8	7 point agreement
Valenzuela, Park, and Kee (2008)	Social trust	6	5 point frequency
Evans and Revelle (2008)	Propensity to trust		
	Propensity to trust (Trust)	7	6 point accuracy
	Propensity to trust (Trustworthiness)	14	6 point accuracy
Kantsperger and Kunz (2010)	Propensity to trust	4	7 point agreement
Ashleigh et al. (2012)	Propensity to trust		
	Factor 1 trusting others	9	7 point agreement
	Factor 2 reliability and integrity	7	7 point agreement
	Factor 3 risk aversion	4	7 point agreement
Frazier, Johnson, and Fainshmidt (2013)	Propensity to trust	4	5 point agreement

Table 3. Content analysis of P2T scales - initial and final themes and codes

Initial theme	Descriptions of theme	Example items	Definition	Final theme (short code)
Human nature	Beliefs about human nature (both positive and negative); general reliability and being able to count on people's nature	"I believe that most people are basically well-intentioned."	Items in this category refer to beliefs about human nature, people's general reliability and being able to count on others. Items in this category may refer to people's tendency, in general, to be sincere, honest or fair. Alternately items in this category may refer to a belief that people are generally competent and cooperative, or express the belief that trust would be reciprocated.	Faith in human nature (HN)
Belief in sincerity, honesty	Beliefs in people's tendency, in general, to be sincere, honest or fair	"Most people are basically honest."		
Beliefs in reciprocity	Beliefs in the reciprocity of trust	"If you act in good faith with people, almost all of them will reciprocate with fairness towards you."		
Beliefs about people's cooperativeness	Beliefs in people's cooperativeness	"Human nature is fundamentally co-operative."		
Belief in competence/ reliability	Beliefs in other people's general competency	"Most adults are competent at their jobs. "		
General	Self-reported, general tendency to trust	"I generally trust other people."	Items in this category referred to a self-reported, general tendency to trust.	General trust (G)
Caution	Need to be alert, or cautious about others	"It is better to be safe than sorry."	Items refer to the need to be generally alert or cautious, to reduce the risk of exploitation and others taking advantage.	Cautiousness (C)
Exploitation	Beliefs regarding risks of exploitation and being taken advantage	"In these competitive times, I have to be alert; otherwise, others will take advantage of me."		
Personalistic	Self-reports of specific personality traits (not featuring in any of the other categories)	"Return extra change when a cashier makes a mistake."	Items are framed as self-reports describing specific personality traits (not featuring in any of the other categories).	Personality attributes (P)
Optimism/Pessimism	Self-reports of a generally optimistic or pessimistic tendency	"The future seems very promising."		
Institutional trust	Beliefs about political institutions, society level or other aggregate level parties in which to trust	"In their advertising and promotions, most businesses purposely mislead customers."	Items express beliefs about trusting political institutions, society level or other aggregate level parties.	Institutional trust (I)
Beliefs about specific role expectation	Beliefs about specific groups of people (e.g. salespeople, parents, experts, students and others)	"Most salesmen are honest in describing products."	Items in this category refer to beliefs and expectations about trusting specific groups of people and their trustworthiness.	Role expectations (RE)

Table 4. Coverage & saturation of six thematic dimensions for 26 P2T scales

Source	Scale	HN	C	G	I	P	RE
Rosenberg (1956)	Faith in people	60.00%	40.00%	.00%	.00%	.00%	0.00%
Wrightsman (1964)	Trustworthiness	85.71%	.00%	.00%	.00%	.00%	14.29%
Rotter (1967)	Interpersonal trust	24.00%	8.00%	.00%	32.00%	4.00%	32.00%
MacDonald et al (1972)	Self-report trust	50.00%	10.00%	20.00%	.00%	10.00%	10.00%
Schuessler (1982)	Trustworthiness of people	12.50%	37.50%	50.00%	.00%	.00%	.00%
Costa & McCrae (1985)	Trust subscale (NEO)	50.00%	37.50%	12.50%	.00%	.00%	.00%
Yamagishi (1986)	General level of trust	80.00%	20.00%	.00%	.00%	.00%	.00%
Schoorman et al. (1996)	Trust propensity	25.00%	25.00%	.00%	.00%	.00%	50.00%
Jarvenpaa et al. (1998)	P2T	.00%	.00%	.00%	.00%	.00%	100.00%
Goldberg (1999)	IPIP scale - NEO A1	40.00%	20.00%	30.00%	.00%	10.00%	.00%
Gefen (2000)	Disposition to trust	60.00%	.00%	40.00%	.00%	.00%	.00%
Lee & Turban (2001)	Consumer trust propensity	.00%	.00%	100%	.00%	.00%	.00%
McKnight & Chervanny (2002)	FiH - Benevolence	100.00%	.00%	.00%	.00%	.00%	.00%
McKnight & Chervanny (2002)	FiH - Integrity	100.00%	.00%	.00%	.00%	.00%	.00%
McKnight & Chervanny (2002)	FiH - Competence	.00%	.00%	.00%	.00%	.00%	100.00%
McKnight & Chervanny (2002)	Trusting stance	.00%	.00%	100.00%	.00%	.00%	0.00%
Huff & Kelley (2003)	P2T	20.00%	.00%	20.00%	20.00%	20.00%	20.00%
Huff & Kelley (2003)	P2D	.00%	37.50%	.00%	25.00%	.00%	37.50%
Valenzuela et al. 2008)	Social trust scale	50.00%	33.33%	16.67%	.00%	.00%	.00%
Evans & Revelle (2008)	P2T - Trustworthiness scale	7.14%	.00%	.00%	.00%	92.86%	.00%
Evans & Revelle (2008)	P2T - Trust scale	28.57%	.00%	.00%	.00%	71.42%	.00%
Kantsperger & Kunz (2010)	P2T	.00%	.00%	.00%	.00%	100.00%	.00%
Ashleigh et al. (2012)	F1 - Trusting others	88.89%	11.11%	.00%	.00%	.00%	.00%
Ashleigh et al. (2012)	F2 - Others' reliability & integrity	57.14%	.00%	.00%	.00%	.00%	42.86%
Ashleigh et al. (2012)	F3 - Risk aversion	.00%	100.00%	.00%	.00%	.00%	.00%
Frazier et al. (2013)	P2T	.00%	.00%	100.00%	.00%	.00%	.00%

HN: Faith in Human nature; C: Cautiousness; G: General trust; I: Institutional trust; P: Personality attributes; RE: Role expectations.

Table 5: Summary table of scale characteristics (ordered by average reliability)

Scale	No of factors[a]	No of studies	Alpha whole scale[c]	subscale	'Trust' in items	RE in items	Positive polarity	Negative polarity	Areas of application
Gefen (2000)		14	.87		Y	N	5	0	Online/consumer trust
McKnight et al. (2002)	4	5	.86						Online/consumer trust
FiH Benevolence				.85	N	N	3	0	
FiH Integrity				.82	N	N	3	0	
FiH Competence				.84	N	Y	3	0	
Trusting stance				.91	Y	N	3	0	
Lee and Turban (2001)		13	.85		Y	N	4	0	Online/consumer trust
Frazier et al. (2013)		3	.85		Y	N	4	0	Cross-cultural education settings
Costa and McCrae (1985)		20	.81		Y	N	5	3	Mixed, frequent organisational behaviour
Goldberg (1999)		5	.80		Y	N	6	4	Mixed, organisational behaviour
Rosenberg (1956)		10	.79		Y	N	3	2	Mixed
Huff and Kelley (2003)	2	4	.79						Organisational behaviour
P2D				.78	N	Y	0	8	
P2T				.80	Y	Y	5	0	
Ashleigh et al. (2012)	3	3	.79						Occupational health
F1 Trusting others				.87	N	N	0	9	
F2 Reliability and integrity				.77	N	Y	7	0	
F3 Risk aversion				.72	N	N	0	4	
Jarvenpaa et al. (1998)		5	.78		N	N	4	0	Organisational behaviour
Yamagishi (1986)		17	.76		N	N	1	4	Mixed, social, consumer and economic psychology
Valenzuela et al. (2008)		3	.76		Y	N	3	3	Online/consumer trust
Evans and Revelle (2008)	2	3	.76						social perceptions, psychometrics, human factors
Trust				.71	N	N	0	7	
Trustworthiness				.80	N	N	14	0	
MacDonald et al. (1972)		6	.76		Y	Y	5	5	Organisational behaviour, psychometrics
Rotter (1967)	2-4[b]	36	.74		Y	Y	13	12	Mixed, frequent organisational behaviour
Wrightsman (1964)		4	.74		N	Y	7	7	Organisational behaviour
Schuessler (1982)		6	.72		Y	N	3	5	Mixed, organisational behaviour, social and health
Schoorman et al. (1996)	2[b]	19	.65		N	Y	6	2	Mixed, frequent organisational behaviour
Kantsperger and Kunz (2010)		2	.60		N	N	2	2	Online/consumer trust

[a]Where applicable [b]Established after original validation [c]Average reliability across studies and subscales (where applicable)

Appendix 1- P2T scales, items and coding

<u>Key:</u>
HN - Faith in Human nature
C - Cautiousness
G - General trust
I - Institutional trust
P - Personality attributes
RE - Role expectations

Faith in people (Rosenberg, 1956)

1. Some people say that most people can be trusted. Others say you can't be too careful in your dealings with people. How do you feel about it?   C
   Most people can be trusted
   You can't be too careful

2. Would you say that most people are more inclined to help others or more inclined to look out for themselves?   HN
   To help others
   To look out for themselves

3. If you don't watch yourself, people will take advantage of you.   C
   Agree
   Disagree

4. No one is going to care much what happens to you, when you get right down to it.   HN
   Agree
   Disagree

5. Human nature is fundamentally co-operative.   HN
   Agree
   Disagree

Trustworthiness scale (Wrightsman, 1964)

1. Most students will tell the instructor when he or she had made mistake in adding up their score, even if the instructor had given them more points than they deserved.   RE

2. If you give the average person a job to do and leave him or her to do it, the person will finish it successfully.   HN

3. People usually tell the truth, even when they know they would be better off lying.   HN

4. Most students do not cheat when taking exams.   RE

5. Most people are basically honest.   HN

6. If you act in good faith with people, almost all of them will reciprocate with fairness towards you.   HN

7. Most people lead clean, decent lives.   HN

8. People claim they have ethical standards regarding honesty and morality but, few people stick to them when the chips are down.   HN

9. If you want people to do a job right, you should explain things to them in great detail and supervise them closely.   HN

10. If most people could get into a movie without paying and be sure they were not seen, they would do it.   HN

11. Most people are not really honest for a desirable reason; they're afraid of getting caught. HN
12. Most people would tell a lie if they could gain by it. HN
13. Most people would cheat on their income tax, if they had the chance. HN
14. Nowadays people commit a lot of crimes and sins that no one else ever hears about. HN

Interpersonal trust scale (Rotter, 1967)

1. Hypocrisy is on the increase in our society. I
2. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy. C
3. This country has a dark future unless we can attract better people into politics. I
4. Fear and social disgrace or punishment rather than conscience prevents most people from breaking the law. HN
5. Using the honour system of not having a teacher present during exams would probably result in increased cheating. HN
6. Parents usually can be relied on to keep their promises. RE
7. The United Nations will never be an effective force in keeping world peace. I
8. The judiciary is a place where we can all get unbiased treatment. I
9. Most people would be horrified if they knew how much news that the public hears and sees is distorted. I
10. It is safe to believe that in spite of what people say most people are primarily interested in their own welfare. HN
11. Even though we have reports in newspapers, radio and TV, it is hard to get objective accounts of public events. I
12. The future seems very promising. P
13. If we really knew what was going on in international politics, the public would have reason to be more frightened than they now seem to be. I
14. Most elected officials are really sincere in their campaign promises. RE
15. Many major national sports contests are fixed in one way or the other. I
16. Most experts can be relied upon to tell the truth about the limits of their knowledge. RE
17. Most parents can be relied upon to carry out their threats of punishment. RE
18. Most people can be counted on to do what they say they will do. HN
19. In these competitive times one has to be alert or someone is likely to take advantage of you. C
20. Most idealists are sincere and usually practice what they preach. RE
21. Most salesmen are honest in describing products. RE
22. Most students in school would not cheat even if they were sure of getting away with it. RE
23. Most repairmen will not overcharge even if they think you are ignorant of their specialty. RE
24. A large share of accident claims filed against insurance companies are phony. HN
25. Most people answer public opinion polls honestly. HN

Self-report trust scale (MacDonald, Kessel & Fuller, 1972)
1. I expect other people to be honest and open.   HN
2. I am less trusting than the average person   G
3. I am more trusting than the average college student.   G
4. I am suspicious of other people's intentions.   C
5. I am less trusting than the average student in my major area.   RE
6. I have faith in human nature.   HN
7. I feel that other people can be relied upon to do what they say they will do.   HN
8. I feel that other people are out to get as much as they can for themselves.   HN
9. I have faith in the promises or statements of other people.   HN
10. I am cynical (pessimistic).   P

Trustworthiness of people (Schuessler, 1982)
1. It's hard to figure out who you can really trust these days.   G
2. There are a few people in this world you can trust, when you get right down to it.   G
3. Most people can be trusted.   G
4. Strangers can generally be trusted.   G
5. Most people are fair in their dealings with others.   HN
6. Most people don't really care what happens to the next fellow.   C
7. Too many people in our society are just out for themselves.   C
8. Many people are friendly only because they want something from you.   C

General level of trust scale (Yamagishi, 1986)
1. Most people tell a lie when they can benefit by doing so.   HN
2. Those devoted to unselfish causes are often exploited by others.   C
3. Some people do not cooperate because they pursue only their own short-term self-interest. Thus, things that can be done well if people cooperate often fail because of these people.   HN
4. Most people are basically honest.   HN
5. There will be more people who will not work if the social security system is developed further.   HN

Trust propensity scale (Schoorman, Mayer, & Davis, 1996)
1. One should be very cautious with strangers.   C
2. Most experts tell the truth about the limits of their knowledge.   RE
3. Most people can be counted on to do what they say they will do.   HN
4. These days, you must be alert or someone is likely to take advantage of you.   C
5. Most salespeople are honest in describing their products.   RE
6. Most repair people will not overcharge people who are ignorant of their speciality.   RE
7. Most people answer public opinion polls honestly.   HN
8. Most adults are competent at their jobs.   RE

Propensity to trust (Jarvenpaa et al., 1998)

1. One should be very cautious when working with foreign students.   RE
2. Most foreign students tell the truth about the limits of their knowledge.   RE
3. Most foreign students can be counted on to do what they say they will do.   RE
4. If possible, it is best to avoid working with foreign students on projects.   RE
5. Most foreign students answer personal questions honestly.   RE
6. Most foreign students are very competent in terms of their studies.   RE
7. Most foreign students are honest in describing their experiences and abilities.   RE

(Note: In studies that have used this scale the term 'foreign student' is replaced by targets that are more appropriate to the respective context)

NEO A1 - IPIP scale (International Personality Item Pool, 2001; Goldberg, 1999)
Please use the rating scale next to each phrase to describe how accurately each statement describes you.

1. Trust others.   G
2. Believe that others have good intentions.   HN
3. Trust what people say.   G
4. Believe that people are basically moral.   HN
5. Believe in human goodness.   HN
6. Think that all will be well.   P
7. Distrust people.   G
8. Suspect hidden motives in others.   C
9. Am wary of others.   C
10. Believe that people are essentially evil.   HN

Disposition to trust (Gefen, 2000)

1. I generally trust other people.   G
2. I tend to count upon other people.   HN
3. I generally have faith in humanity.   HN
4. I feel that people are generally reliable.   HN
5. I generally trust other people unless they give me reason not to.   G

Consumer trust propensity (Lee & Turban, 2001)

1. It is easy for me to trust a person/thing.   G
2. My tendency to trust a person/thing is high.   G
3. I tend to trust a person/thing, even though I have little knowledge of it.   G
4. Trusting someone or something is not difficult.   G

Dispositional Trust (McKnight, 2002)

Benevolence (DB)
1. In general, people really do care about the well-being of others.   HN
2. The typical person is sincerely concerned about the problems of others.   HN
3. Most of the time, people care enough to try to be helpful, rather than just looking out for themselves.   HN

Integrity (DI)
1. In general, most folks keep their promises.   HN
2. I think people generally try to back up their words with their actions.   HN
3. Most people are honest in their dealings with others.   HN

Competence (DC)
1. I believe that most professional people do a very good job at their work.   RE
2. Most professionals are very knowledgeable in their chosen field.   RE
3. A large majority of professional people are competent in their area of expertise.   RE

Trusting Stance (ST)
1. I usually trust people until they give me a reason not to trust them.   G
2. I generally give people the benefit of the doubt when I first meet them.   G
3. My typical approach is to trust new acquaintances until they prove I should not trust   G

Propensity to trust/distrust (Huff & Kelley, 2003)

P2T
1. When I order something I've never seen through the mail or telephone, I am confident that the product will arrive as promised.   P
2. I believe that people usually keep their promises.   HN
3. Most companies genuinely care about their customers.   I
4. Most salespeople are honest.   RE
5. Most people can be trusted.   G

P2D
1. Most employees don't like to work and will avoid it if they can.   RE
2. In their advertising and promotions, most businesses purposely mislead customers.   I
3. Despite what they may say, managers really don't care if employees lose their jobs.   RE
4. It is best not to share concerns or complaints with co-workers because they will probably use this information to harm you.   C
5. I feel nervous about a business deal unless both parties sign a formal written agreement.   C
6. Society needs tough laws and regulations because businesses cannot otherwise be trusted to do what is good for society.   I
7. Employees will not work hard or do quality work unless managers closely monitor their work.   RE
8. I am usually suspicious of people until I have had plenty of time to get to know them and know they can be trusted.   C

Valenzuela, Park, and Kee (2008)
1. Generally speaking, would you say that people can be trusted   G
2. People try to take advantage of you if they got the chance   C
3. People try to be fair.   HN
4. You can't be too careful in dealing with people.   C
5. People try to be helpful.   HN
6. People are just looking out for themselves.   HN

Propensity to trust (Evans & Revelle, 2008)
Participants were asked to rate the extent that each item describes them.
Trust
1. Retreat from others   P
2. Am filled with doubts about things   P
3. Feel short-changed in life   P
4. Avoid contacts with others   P
5. Believe that most people would lie to get ahead   HN
6. Find it hard to forgive others   P
7. Believe that people seldom tell you the whole story   HN
Trustworthy
1. Listen to my conscience   P
2. Anticipate the needs of others   P
3. Respect others   P
4. Can get along with most people   P
5. Have always been completely fair to others   P
6. Stick to the rules   P
7. Believe that laws should be strictly enforced   P
8. Have a good word for everyone   P
9. Value cooperation over competition   P
6. Return extra change when a cashier makes a mistake   P
11. Would never cheat on my taxes   P
12. Follow through with my plans   P
13. Believe that people are basically moral   HN
14. Finish what I start   P

Propensity to trust (Kantsperger & Kunz, 2010)
1. When I'm depressed, I look for friends who can prop me up.   P
2. I keep my problems in.   P
3. I'm interested in the opinion of other people about my problems.   P
4. It's difficult for me to take a decision without getting advice.   P

Propensity to trust (Ashleigh et al., 2012)

Factor 1 – trusting others

1. Other people are out to get as much as they can for themselves.   HN
2. Other people cannot be relied upon.   HN
3. I have little faith in other people's promises.   HN
4. Other people are primarily interested in their own welfare despite what they say.   HN
5. In these competitive times, I have to be alert; otherwise, others will take
   advantage of me.   C
6. Other people who act in a friendly way towards me are disloyal behind my bac   HN
7. Other people lie to get ahead.   HN
8. Other people are only concerned with their own well-being.   HN
9. Other people let you down.   HN

Factor 2 – others' reliability and integrity

1. Other people can be relied upon to do what they say they will do.   HN
2. Those in authority are likely to say what they really believe.   RE
3. Other people answer public opinion polls honestly.   HN
4. Experts can be relied upon to tell the truth about the limits of their knowledge.   RE
5. Witnesses tell the truth in all circumstances.   RE
6. Other people do what they say they will do.   HN
7. Other people live by the idea that honesty is the best policy.   HN

Factor 3 – risk aversion

1. It is important to 'save for a rainy day'.   C
2. I prefer a modest but safe return on my savings rather than a higher return that is
   uncertain.   C
3. "It is better to be safe than sorry".   C
4. If I had money to invest, I would look for security rather than spectacular
   returns.   C

Propensity to trust (Frazier et al., 2013)

1. I usually trust people until they give me a reason not to trust them.   G
2. Trusting another person is not difficult for me.   G
3. My typical approach is to trust new acquaintances until they prove I should not
   trust them.   G
4. My tendency to trust others is high.   G

Trust subscale, NEO personality inventory (Costa & McCrae, 1985)
Please note: The NEO personality item is copyrighted and therefore the subscale
cannot be reproduced. A copy of the items for the trust scale can however be viewed in
the paper by Diriwächter, Valsiner & Sauck (2005). The matching codes for the items
are included here for reference. 1. C; 2. HN; 3. C; 4. HN; 5. C; 6. G; 7. HN; 8. HN

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Appendix 2 – References for studies using P2T scales

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