

# **A neuroscientific perspective on trust and distrust in buyer-seller dyads**

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## **Abstract**

**Within the sales literature, trust is seen as a key mediating variable between attributes of the seller and the sales outcomes. Trust creates commitment and pushes the buyers' purchase decision into a favourable outcome for the seller. By reviewing all studies on trust in the context of the buyer-seller dyad published in JPSSM, this paper presents the status quo on the topic of trust within the sales discipline and identifies some lacunas. The contribution of this paper lies in the nourishment of the current knowledge by findings from the field of neuroscience, in order to make suggestions for future research.**

**Keywords: Trust, distrust, neuroscience, buyer-seller relationship**

Trust forms the foundation of every economic transaction; a distrusted sales agent will not sell its wares. Basically, trust forms the foundation of every social interaction. One has to trust its spouse, teacher, political leader or neighbour. Trust is therefore by nature a concept that is studied by many academic disciplines. However, scholars studying trust tend to build on the acquired knowledge within their own or closely related disciplines. This paper explores the contribution that the field of neuroscience can have on the field of personal selling, regarding the concept of trust.

This paper starts with a literature review on the concept of trust. All articles on trust in the context of the buyer-seller relationship published in the Journal of Personal Selling and Sales Management (JPSSM) are addressed. This is followed by an overview of neuroscientific research on the concept of trust, to investigate the possible contribution of neuroscience to the existing sales literature. Furthermore the application of neuroscientific research techniques in the sales discipline will be addressed, and suggestions are made for a future research program.

## **1 Trust from a sales perspective**

The bibliographic database Scopus identifies 31 articles on the concept of trust which are published in JPSSM (search terms: 'trust', 'distrust', 'trustworthy' and 'trustworthiness'). Since trust is a variable that operates in the context of a relationship, these articles can be divided in two groups. There are twenty articles on the buyer-seller relationship, which forms the focus of this paper. Eleven articles are studying the role of trust within an intra-organizational relationship, such as the trust of sales persons in their sales managers. In the 35 years of existence of the JPSSM (1981-2015) there was no article on distrust, which is the first

lacuna in the current sales literature. An inquiry into the bibliographies of the twenty articles on trust within the buyer-seller relationship reveals that journal citations from the business domain are complemented by citations from the fields of psychology and sociology, but hardly by citations from the natural sciences, like neuroscience or biology. This results in a second lacuna, i.e. the sureness with which one can state that all elements of the construct 'trust' are captured. The status quo on the topic of trust within the sales discipline is described below.

*'Trust facilitates an exchange relationship while mistrust hinders it'* (Swan and Nolan 1985, p. 39). Trust is a crucial element in the buyers' decision making process, since this process is always to some degree subject to risk and uncertainty. In the purchase of durable goods, the trustworthiness of the salesperson was found to be the most important attribute of the salesperson from the perspective of the consumer (Hawes, Rao et al. 1993). Interestingly, customers' trust in the salesperson was found to be of greater influence for low-importance purchase decisions than for high-importance purchase decisions, probably because low-importance purchase decisions are made quick and relatively effortless and therefore customers use the availability heuristic (Belonax Jr, Newell et al. 2007). Trust reduces uncertainty which pays off for the selling agency: where lower performing salespeople place greater emphasis on the potential clients' product knowledge, higher performing salespeople place greater emphasis on relationship building and especially on establishing trust (MacIntosh, Anglin et al. 1992). In line with this reasoning, Batemen and Valentine (2015) find that a relational selling approach can create more trust in the salespeople than a functional or transactional selling approach. Furthermore, the existence of trust within the buyer-seller relationship reduces the vulnerability of the supplier to alternative suppliers through commitment of the buyer (Friend, Hamwi et al. 2011). The relationship between trust and commitment is well established in the marketing and sales literature (Morgan and Hunt 1994). Jelinek (2014) warns that not everything in the garden is rosy: there might be situations in which the buyer is trusting the seller, but still does not use the service provided by the seller. In general, the importance of trust, as being the key mediating variable between selling behaviour and sales outcomes, is widely accepted in the sales literature (Chakrabarty, Brown et al. 2013).

Trust has multiple dimensions. The most well-known dimensions in the marketing and sales literature are credibility and benevolence (Doney and Cannon 1997). Earlier, Swan and Nolan (1985) identified dimensions that take place within the trusting individual (the buyer), such as a feeling of trust and the belief that the other can be trusted, and dimensions that manifest themselves through intentions and actual behaviour, i.e. a commitment towards the salesperson. Since the latter is the goal of the salesperson, it is of commercial relevance to have a deep understanding of the processes that take place within the trusting individual and to know how these processes can be affected.

Trust is affected by a diverse set of characteristics of the salesperson and by his behaviour. Some characteristics, like race and gender, have an immediate effect on the first impression on someone's trustworthiness: *'upon meeting a person for the first time, an individual can seldom escape formulating affective reactions. Additionally, these reactions are formulated almost instantaneously and effortlessly, many times utilizing only minimal information'* (Henthorne, Latour et al. 1992, p. 57). When a salesperson is perceived as likeable, competent and dependable, this enhances a feeling of trust, but the value of these attributes is overestimated (Hawes, Mast et al. 1989). Ethical behaviour of the salesperson has an impact on trust (Lagace, Dahlstrom et al. 1991; Hansen and Riggle 2009), as well as the quantity and quality of the communication of the salesperson (Hamwi, Rutherford et al. 2013). To affect the trust building process, multiple programs have been suggested in the sales literature: a trust-transference persuasion technique (Milliman and Fugate 1988), an Insight Coaching approach (Doyle and

Roth 1992), neurolinguistic programming (Wood 2006), a sociolinguistic approach (Campbell, Davis et al. 2006) and the adoption of e-collaborative networks (Hollenbeck, Zinkhan et al. 2009).

To study the impact of trust, trust must be empirically measured. Within the sales literature a trust components approach to the measurement of trust has been suggested, in which the multiple dimensions of trust are measured by using Likert scale statements (Swan, Fred Trawick et al. 1988). By the usage of an item-level meta-analysis Wood et al (2008) conclude that the *overall* evaluation of a sellers' trustworthiness has the greatest impact on trust. This overall evaluation is initiated by a perceptual cue, which fosters the assessment of the individual into a categorization of the seller '*as either a member or a non-member of the trustworthy group*' (Wood, Boles et al. 2008, p. 279). This conclusion is in line with insights from neuroscience, as described below.

## **2 Trust from a neuroscientific perspective**

For the evaluation of a salespersons' trustworthiness, customers make quick first impressions. Neuroscientific investigations of the temporal dynamics of trustworthiness perception have shown that just 100 milliseconds are sufficient to create a first impression of someone's trustworthiness and that additional time probably only increases confidence in the first judgments made (Willis and Todorov 2006; Dzhelyova, Perrett et al. 2012). This first impression is based on only a few peripheral cues that create an immediate emotional reaction within an individual in which the Amygdala, associated with the processing of socially relevant stimuli, plays a crucial mediating role (Murphy and Zajonc 1993; Adolphs 2002; Winston, Strange et al. 2002; Dimoka 2010; Yang, Qi et al. 2011). This quick emotional reaction is of instinctive nature and makes sense from an evolutionary perspective; a rapid trustworthiness evaluation is crucial for modulating behaviour towards strangers (Bzdok, Langner et al. 2011). Therefore, especially distrust creates intense emotional responses. Within the brain, distrust corresponds with increased activation in the Insula, a brain area that is associated with the fear of loss, and the Amygdala, which together form the basis of 'gut feelings' (Winston, Strange et al. 2002; Dimoka 2010). Neuroscientific research reveals a distinction in the neural processing of trust versus distrust. An fMRI study found that trust corresponds with increased activation of brain areas that are associated with the prediction of rewards and of how others will act, and with a decreased activation of a brain area that is associated with the calculation of uncertainty (Dimoka 2010). Based on these neural correlates one could say that trust of the buyer in the seller is reflected by a *mentalizing* process in which the buyer tries to predict the situation to assess the possible experience of reward (Krueger, McCabe et al. 2007; Bzdok, Langner et al. 2011). Dimoka (2010) furthermore tested the dimensions of trust as distinguished by Doney and Cannon (1997), i.e. credibility and benevolence, and found that they cannot completely be separated, since in the brain they both involve the same areas. A rough distinction can be made, in which credibility is associated with the brain areas that are associated with cognitive processes and benevolence with the brain areas that are associated with emotional processes.

Figure 1 visualises the neuroscientific perspective on (dis)trust and the trust-building process. Where the automatic evaluation of a trustee is an instinctive response to limited perceptual information with which human beings are born and which is fed by experiences during lifetime (Davidson and Fox 1989; Yang, Qi et al. 2011), the second-stage cognitive response is based on a broader scope for which also information from memory is assessed (Rudoy and Paller 2009). The building of a trust relationship itself is a process of learning; one must learn that one can depend on the other. In this learning process individuals differ in their trust strategies. Some individuals hold on to a conditional trust strategy in which one assumes that the other is self-interested. A conditional trust strategy activates brain areas that are associated with the

evaluation of expected and realized reward. An individual can also apply an unconditional trust strategy, in which one assumes that the other is trustworthy, which is linked to increased activity in the brain area that is associated with social attachment behaviour or committing oneself to the other (Krueger, McCabe et al. 2007).

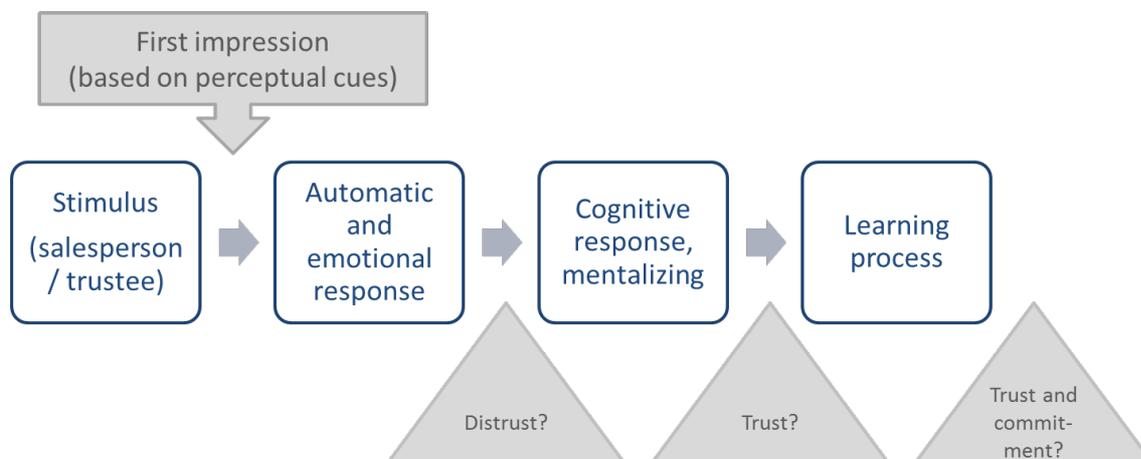


Figure 1 Neuroscientific perspective on (dis)trust and the trust-building process

### 3 The application of neuroscientific techniques in sales research

The usage of neuroscientific research techniques is rare within the sales domain. The bibliographic database Scopus does not identify a single study within JPSSM in which neuroscientific research techniques, like EEG or fMRI, are applied. These techniques are applied more and more in the marketing domain, also called neuromarketing, because they are able to shed a light on the processes within an individual of which he is unaware. Of course the application of neuroscientific techniques is not without pitfalls. It is difficult to relate the physical activity to a clear psychological construct (see Wang and Minor 2008 for a clear overview of all the neuroscientific techniques).

Where fMRI, because of its high spatial resolution, is applicable for mapping the brain areas associated with trust and distrust, EEG, characterized by a high temporal resolution, is applicable for the analysis of temporal dynamics in the brain and for the measurement of approach- or withdrawal-related behaviour. The concepts of trust and distrust are likely to be directly related to approach- and withdrawal-related behaviour (Chen and Bargh 1999; Kosfeld, Heinrichs et al. 2005; Todorov 2008; Bzdok, Langner et al. 2011). The difference between the approach system and the withdrawal system is stressed by the Davidson-model (1993; 2004), and it can be measured by asymmetries in EEG activity over the frontal cortex. The general rule of the Davidson-model is that greater left-sided frontal asymmetry is associated with approach-related behaviour (trust) and greater right-sided frontal asymmetry with withdrawal- or avoidance-related behaviour (distrust). This relationship between neural activity and behavioural intention is of specific interest for the sales domain.

### 4 Future research directions

Future researchers may want to investigate the economic consequences of distrust. With the absence of specific attention to the concept of distrust, it appears that within the sales literature trust and distrust are seen as opposites on the same continuum. Neuroscience reveals that this is actually not the case. In the brain trust and distrust are distinct concepts with different brain areas involved. Where trust is associated with a feeling of reward, distrust is a mental warning signal to keep away. Studies on distrust have already led to remarkable findings. For example,

within an online context it is shown that trust and distrust have different impacts on the behaviour of customers, and that for instance competence of the retailer does not increase trust, but in fact decreases distrust (Cho 2006). Furthermore, a neuroscientific study showed that the neural correlates of distrust are stronger predictors of price premiums than those of trust (Dimoka 2010).

For the assessment of someone's trustworthiness the first impression appears to be of crucial influence. People build up their impression from basic peripheral cues. For future research it is suggested to investigate what the main peripheral cues are, at both personal and organizational level, and to analyse how the assessment of trustworthiness by the potential customers can be altered by changing the cues. There are for example indications that people sooner regard male faces as untrustworthy than female faces (Dzhelyova, Perrett et al. 2012), but this gender bias needs further investigation in a retail context. Also the 'sticking power' of the first impression should be further investigated: neuroscientific literature gives the impression that first impressions are rather sticky and that the conscious mind predominantly is giving post-rationalizations for 'gut-feelings' developed in the unconscious mind, but this needs further research within a professional sales context. Furthermore the already developed trust-building programs should be tested on both conscious and unconscious reactions by the potential customer and it should be investigated whether a 'bad' first impression could be recovered by a structured, well-developed trust-building program or that such programs only enhance trust. It might be the case that there are international differences in the natural level of trust (Zak and Fakhar 2006), and that trust-building programs have different effects in different nations; another aspect that needs to be investigated.

Furthermore, neuroscience reveals that trust and distrust involve both cognitive and emotional processes within the individual. By measuring trust by the usage of Likert scale statements one could argue that the cognitive processes are overrepresented in the measurement of trust (Andersen and Kumar 2006). The application of neuroscientific techniques in sales research could, in combination with the well-developed verbal measurement techniques, contribute to a more balanced and complete picture of trust and distrust within the buyer-seller dyads, and in doing so improve the construct validity.

A multidisciplinary research topic like trust deserves a multidisciplinary approach, in which multiple techniques and insights from a broad diversity of disciplines are combined. Biology could, besides neuroscience, be an alternative discipline from which insights could enrich future sales research on trust. For example, biologists have pointed towards the role of the neuropeptide Oxytocin for trusting other people (Kosfeld, Heinrichs et al. 2005; Baumgartner, Heinrichs et al. 2008; Merolla, Burnett et al. 2013) and for increasing generosity (Zak, Stanton et al. 2007). It might even be that cultural differences in trust are related to variations in the intake of Oxytocin due to biological, social and environmental factors (Zak and Fakhar 2006). The hormone Testosterone might have an inhibiting effect on trust, perhaps due to the competitive behaviour that Testosterone is causing (Boksem, Mehta et al. 2013), and men respond to distrust with increased levels of Testosterone, suggesting that distrust fosters aggression (Zak, Borja et al. 2005). While it seems farfetched to include every insight on trust from every discipline, a more multidisciplinary approach could enrich the sales literature. By integrating neuroscientific insights, this paper showed that trust and distrust are not the opposites on the same continuum, that trust and distrust are created through instinctive, emotional and cognitive processes, and that the first impression effect is highly important for the total evaluation. Because the individual is unaware of his quick instinctive and emotional response, the usage of neuroscientific research techniques within sales research on trust is recommended.

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