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# The Psychology of Trust

*Edited by Martha Peaslee Levine*





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Published in London, United Kingdom

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<http://dx.doi.org/10.5772/intechopen.94638>

Edited by Martha Peaslee Levine

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First published in London, United Kingdom, 2022 by IntechOpen

IntechOpen is the global imprint of INTECHOPEN LIMITED, registered in England and Wales, registration number: 11086078, 5 Princes Gate Court, London, SW7 2QJ, United Kingdom  
Printed in Croatia

### British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Additional hard and PDF copies can be obtained from [orders@intechopen.com](mailto:orders@intechopen.com)

### The Psychology of Trust

Edited by Martha Peaslee Levine

p. cm.

Print ISBN 978-1-83969-872-9

Online ISBN 978-1-83969-873-6

eBook (PDF) ISBN 978-1-83969-874-3

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# Meet the editor



writing on health.

Dr. Martha Peaslee Levine is the Director of the Office for Professional Mental Health at Penn State College of Medicine. Dr. Levine attended Tulane Medical School and completed her psychiatric training at NYU in New York City. As a psychiatrist, she is constantly considering aspects of trust. In addition to her work as a psychiatrist, Dr. Levine is a prolific writer of children's books. She has also spoken and written widely on the impact of



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# Preface

“Trust me, I’m a doctor.”

That statement has been the title of a song, a book, a TV show and used in the advertising of Dr. Pepper. It has made it into modern culture and embodies the belief that we should and do trust doctors.

I am a doctor. In my professional life, I want my patients to trust me. I also hope that readers will put their trust in the experience and knowledge of the authors of this book. However, I never want my patients to blindly trust me. I want them to ask questions or offer their observations and experiences. In that same way, I don’t want you as the reader to blindly trust these chapters. I hope that you will use them as a jumping-off point. I want you to contemplate the ideas that we offer but bring your own questions to the discussions. Perhaps you will be inspired to consider a new aspect of trust.

This book offers a variety of thoughts about trust. Trust has always been complicated. How do we know when to trust another person? How do we know how to trust ourselves? I often work with patients who are very critical of themselves. We work in therapy to recognize that our thoughts are not always the truth. So how do we trust and know what is real?

Trust has become more complicated with the advent of the internet. We can now connect with more ideas and individuals. Yet, is the person who communicates back with us real? Is it someone with a fake account or maybe not even a person at all, but a robot? Even though trust is complicated and we can sometimes be taken advantage of, we still need to find ways to trust others in our lives. Trust allows us to develop a community. We have always needed the community to be safe, both physically and emotionally.

Once, in group therapy, the patients and I discussed how we know if we can trust someone. Some of the guidelines included whether they told the truth to the best of their ability. We looked at reliability. We discussed the need for someone to be compassionate and not emotionally or physically abusive. How can we trust someone if they are hurting us or taking advantage of us? We discussed ways to re-establish trust—allowing someone in bit by bit. Trust can be a process of development. Yes, it takes a final leap of faith but one that is built on evidence that the person has done what they promised, has been there for us, and will continue to honor and respect our values.

We value you as a reader and hope that you will find that we have completed what we promised to do - provide a look at the psychology of trust.

**Martha Peaslee Levine, MD**  
Penn State College of Medicine,  
Hershey, PA, USA





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## Section 1

# Theories of Trust

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# Trust Management: A Cooperative Approach Using Game Theory

*Ujwala Ravale, Anita Patil and Gautam M. Borkar*

## Abstract

Trust, defined as the willingness to accept risk and vulnerability based upon positive expectations of the intentions or behaviours of another. The qualities or behaviours of one person that create good expectations in another are referred to as trustworthiness. Because of its perceived link to cooperative behaviour, many social scientists regard trust as the backbone of effective social structures. With the advancement in technology, through these online social media people can explore various products, services and facilities. Through these networks the end users want to communicate are usually physically unknown with each other, the evaluation of their trustworthiness is mandatory. Mathematical methods and computational procedures do not easily define trust. Psychological and sociological factors can influence trust. End users are vulnerable to a variety of risks. The need to define trust is expanding as businesses try to establish effective marketing strategies through their social media activities, and as a result, they must obtain consumer trust. Game theory is a theoretical framework for analysing strategic interactions between two or more individuals, in the terminology of game theory, called players. Thus, a conceptual framework for trust evaluation can be designed using a game theory approach that can indicate the conditions under which trustworthy behaviour can be determined.

**Keywords:** trust, cooperative behaviour, game theory, sociological factors, vulnerable

## 1. Introduction

Trust is a subjective, multi-faceted, and abstract notion. In addition to computer technology, many researchers worked on trust for a variety of fields, including business, philosophy, and social science. Analysts from diverse domains concur with the basic definition of trust, i.e., it is measurement of the trustworthiness of a person or any living things. Trust is regularly inferred from certain input appraisals through aggregation of trust.

Trust has been classified as a black-box, or undifferentiated variable, in the massive number of studies, and has rarely been investigated in depth. Even if it appears in predictable ways, trust is not a one-dimensional or homogeneous idea. Trust is viewed as a multi-faceted notion that can be interpreted differently depending on the context. In addition to computer technology, trust has been

studied in a variety of fields, including economics, psychology, and social studies. Researchers from several fields agree on the basic definition of trust, that is trust characterises an individual's level of anticipation and trustworthiness, also shows cooperative relation between inter organisational entities. Trust is derived from specific feedback evaluation and mechanism. It has been discovered that trust reduces disagreement and uncertainty by fostering goodwill that strengthens relationships while also increasing satisfaction and partners' willingness to trade.

Trust management encompasses trust as an identification and communication establishment of the elements with different techniques for computation, transmission, consolidation, and information storage, consumption models and enhancement in service provisioning of trust. Certain trust functionality can be implemented and supported using distributed computing. Decentralised trust management refers to the administration of trust in fully decentralised computer systems as well as hybrid centralised-decentralised computing systems.

Trust management has infiltrated a wide range of collaborative networked computing systems, including peer-to-peer and eCommerce, social networks and online communities, cloud and edge computing, mobile ad hoc networks and wireless sensor networks, community sourcing, multi-agent systems, and the Internet of things [1].

### **1.1 Different trust management models**

- **Community trust:** community trust is a term that refers to the trust that people have for one another. In the context of decentralised network and application, trust management in one-to-one systems. Low incentive systems for providing ratings, bias toward positive feedback, unauthenticated participants, fake or illegal feedback rating from malicious individuals, altering authentications, etc. are some of the primary difficulties in developing and using trust.
- **Multi-agent trust:** trust is defined to promote collaboration/cooperativeness among several independent entities in order to complete a task. The autonomy, inferential capability, responsiveness, and social behaviour of an agent were characterised by Balaji and Srinivasan [2]. Granatyr et al. [3] examined multi-agent system trust models by examining a number of trust terminologies: semantics, preference, delegation, risk measure, incentive, feedback, open environment, hard security threats, and requirements. These all terminologies are with types of interaction such as alliance, logical reasoning, compromise, and prerequisite. Pinyol et al. [4] evaluated trust in cognition, method, and generality in Pinyol and Sabater-Mir [4]. From a game theoretic standpoint, trust features are evaluated as a use of numerous input sources, the use of cheating assumptions, and the providing of procedural and intellectual ideas.
- **Social networks:** Sherchan et al. [5] looked at reactive, non-transferable features, interaction behaviours, and past experiences as well as other important aspects of social trust. Jiang et al. [6] classified graph-based theory uses to define evaluation approaches for online social networks into two categories: graph simplification-based and analogy-based approaches.
- **Trust in wireless ad-hoc network:** in mobile and wireless sensor networks, trust is a prominent approach use to secure routing with QoS [7]. In WAN, trust metrics into the routing protocols provides decision making, correctness, optimal path finding. A number of trust frameworks for dealing with the bad-mouthing and double-face attacks. Loop attacks, worm-hole, blackhole, grey

hole, DoS, data modification/insertion attacks, sinkhole, contradictory behaviour attacks, and so on are examples of potential assaults.

- **Trust in cloud computing:** in cloud computing, trust management defines the following types: (i) policies or rules; (ii) recommendations; (iii) reputations; and (iv) predictions. Ahmed et al. [8] proposed a survey to evaluate trust as a link between customer and service provider. It was stated that the general requirements for trust evaluation consist of general guidelines and cooperative behaviour of the stakeholders.
- **Trust in cryptography:** Kerrache et al. [9] analyse an existential threat on trustworthiness and cryptography for mobile adhoc networks. The reply attack, masquerading attack, privacy assault, security communication attacks, DoS attacks, etc. are considered to define the need for a trust mechanism for application safety. In addition to standard attacks like masquerade and impersonation, Sybil attack, and location trapping, the infotainment application largely featured retransmission message assault and illusion attack.
- **Trust in multi-disciplinary research:** from a multidisciplinary standpoint, trust has been a recurring subject. Cho et al. [10] analysed the hybrid trust by computing various parameters such as communication, data exchange, cooperative work, etc. and covered different domains like artificial intelligence, human machine interaction, database, machine learning, computer networks, information security, etc.

## 2. Related study

All of our social interactions are built on the foundation of trust. Trust is a complex human habit that has evolved over time. Trust has many various interpretations, and as a result, many alternative representations and management principles, depending on the circumstances and applications. It has been a research issue in many domains, including psychology, sociology, IT systems, and so on. For example, trust is utilised in trade systems like eBay and automatic Peer-to-Peer systems like file and resource sharing, where trust is built by algorithms based on prior events, which provide either good or negative evidence or feedback.

In online systems, there are two sorts of trust: direct trust, which is based on a person's direct connection with others, and recommendation trust, which is based on the experiences of other individuals in a social network and grows in a sense based on the propagative feature of trust. Different trust management models are discussed in below section.

Wang et al. [11] developed a game theory-based trust evaluation model for social networks. As a result, when modelling a trust relationship, various factors must be taken into account. The trust value is calculated by considering three factors mainly: feedback efficacy, service reliability and suggestion credibility. In social networks, service transactions are based on node-to-node trust links. Building a trust relationship, on the other hand, is a long and winding process impacted by previous contacts, trust recommendations, and trust management, among other things.

Jian et al. [12] proposed a trust model basically for online social networks using evidence theory techniques. Evidence theory is mostly used for target identification, decision making and to analyse online social networks. The proposed model mainly contains three steps i.e. to achieve individual trust evaluation, determine the relevance of features with respect to each user, which is used for decision making.

Trust evidence approach is to show the probability of trust and distrust among the stakeholder. This approach achieves an error rate which is minimal and highest accuracy in the dataset Epinions.

Chen et al. [13] provided a trust evaluation model using a machine learning algorithm that takes into account a wide range of trust-related user attributes and criteria to enhance human decision-making. User features are classified into four categories based on the empirical analysis: link-based features, profile-based features, feedback-based features, behaviour-based features. Then a lightweight attribute selection technique based on users' online information to analyse the efficiency of each feature and identify the ideal combination of features using users' online information in the form of records. Results are conducted on real-world dataset to show the overall performance which is better as compared to other traditional approaches.

In the current era, Online Social networks have an essential role in practically every aspect of life, and their presence can be seen in all aspects of daily life. Metaheuristic search algorithms are used in social networks due to the property of dynamic nature which it exhibits.

Peng et al. [14] proposed a feature fusion technique in conjunction with an artificial bee colony (ABC) for community identification task to improve performance in terms of accuracy in trust-based community detection using an artificial bee colony (TCDABCF). This strategy takes into account not only an individual's social qualities, as well as in a community the relationship of trust that exists between users is also considered. As a result, the proposed technique may result in the finding of more appropriate clusters of similar users, each with significant individuals at the centre. Proposed technique makes use of an artificial bee colony (ABC) to accurately identify influential persons and their supporters. For simulation purposes, the Facebook dataset is used and the proposed method has obtained 0.9662 and 0.9533 Normalised mutual Information (NMI) and accuracy, respectively.

Reputation and trust prediction are "soft security" solutions that allow the user to evaluate another user without knowing their identity. The trustworthiness of users in social networks is calculated using the reputation level of other users. A new probabilistic reputation feature is more efficient than raw reputation features. Various machine learning algorithms and 10-fold cross validation proposed by Liu et al. [15] is used for simulation. The witness trustor users' trust values are used to determine the trustee's reputation qualities. Raw and probabilistic reputation features, which are two different types of characteristics, were compared. Three datasets namely wiki, Epinions and Slashdot are used for simulation purposes. SMOTE boost algorithm is used to balance the dataset to improve prediction performance of prediction. In online social networks, this trust prediction algorithm can be used to strengthen social relationships and identify trustworthy users.

The recommended approach proposed by Mohammadi et al. [16] took into account users' attitudes toward one another on a social network as the basis of their trust. The mostly textual contents shared on social networks were analysed to determine how people felt about one another. In this Sense trust model, initially analysis of hidden sentiments between the texts exchanged between two social network users are taken into consideration. Then Hidden Markova Model is used to evaluate trust between users on social networks. Statements exchanged; Hidden Markov Model (HMM) is utilised. Both RNTN and HMM are trained with emails extracted from Enron Corporation undergoing crowdsourcing and labelling.

A trust framework by Hansi et al. [17] introduced the proposed methodology to determine the node trust values for social network users using reinforcement



Study	Technique	Parameters used	Limitations/future work
Wang et al. [11]	Game theory approach	Service reliability, feedback effectiveness, and recommendation credibility. Resolves free riding problem	More specific trust relationships between nodes, for example, family, best friends, and classmates.
Jiang et al. [6]	Using evidence theory	Weight set is the importance degree of each user features and scope set is a set of value range to generate trust evidence	Weight determination can be implemented for trust evidence.
Chen et al. [13]	Lightweight feature selection approach using machine learning	User features are divided as profile-based features, behaviour-based features, feedback-based features, and link-based features.	To analyse the temporal features of trust to build a dynamic trust framework
Peng et al. [14]	Artificial bee colony by feature fusion	Social Features of users, but also their relationship of trust between users in a community	Multi-objective artificial bee colony algorithms can be proposed.
Mohammadi et al. [16]	Hidden Markova Model (HMM)	Statements exchanged among users & level of sentiments in statements are identified.	Other interactions by users like audio, video sharing and other interactions such as like and dislike can be considered.
Hansi et al. [17]	Trust Evaluation using Reinforcement Learning	set of neighbour nodes, Similarity and difference between neighbour nodes	Prevention of information from an untrusted user will make the social network secure and private.

**Table 1.**  
*Comparison of trust management methods.*

learning. On social media trust between two nodes is evaluated based on the features i.e. number of neighbour nodes, relationship among the nodes and number of common neighbour nodes. After selecting features if there is a edge among two nodes, the trust value is denoted as 1 otherwise 0. Second, the node trust will be determined using a training model value. After that, a recommendation algorithm will be used to determine the results. Finally, the simulation is used to analyse the effectiveness of the suggested strategy For the purpose of simulation data from an adaptable social network will be used.

To address the trust evaluation problem in trust social networks, Liu et al. [18] presented NeuralWalk, a machine learning-based approach. Unlike traditional methods, NeuralWalk models singlehop trust propagation and trust combining using a neural network architecture called WalkNet. When the NeuralWalk method is used, WalkNet is trained. Advogato dataset is used to evaluate the accuracy of algorithm. TheNeuralWalk algorithm, in collaboration with WalkNet, does a BFS multi-hop trust assessment across TSNs (**Table 1**).

### 3. Trust-building mechanisms

- Mutual trust
- Proven experience and reputations
- Awareness of the hazards associated with opportunistic behaviours

Web applications	Stakeholder	Trust mechanism scheme
Facebook	End user	User profiles with social networking services
Linked In	End user, different Organisations	User profiles with social networking services
e-commerce web sites (e.g. Flipkart)	Consumer and business	Feedback mechanism
eTransport (e.g. Uber)	Driver and passenger	Rating and driver performance
OYO	Restaurant holder and customer	Customer rating and service review comments

**Table 2.**  
*Trust mechanisms in online social networks.*

- Legal agreement
- Changing processes

An online platform's trust mechanism is a method for overcoming knowledge gaps between market players and facilitating transactions. Many different types of trust mechanisms exist that are listed below (**Table 2**):

To develop trust among users in a social network is critical. It is critical to study in depth all possible ties between users in the social network and to appropriately evaluate those relations in order to determine who-trusts-whom and integrate that knowledge in the social recommender.

To estimate trust some models use a behavioural pattern of user interaction. Few parameters which are consider to calculate trust are as follows:

- Measures such as number/sequence of reviews, number/sequence of rates, and average of number/length of comments posted, among others, are used to categorise user actions in terms of information shared such as reviews, comments posted, ratings, and so on.
- Categorising binary interactions for interactions/relations between two individuals, such as author and rater, author and author, and rater and rater.
- Interactions or flows between users.
- The type of flow between agents or the nature of interactions (for example intimate or not).
- The neighbourhood structure of the nodes (for example many mutual friends) etc.

#### 4. Techniques for trust evaluation

Different trust evaluation techniques are classified as Statistical and machine learning approaches, heuristics-based techniques, and behaviour-based techniques. Statistical and machine learning techniques aim to provide a mathematical model for trust management that is sound.

The goal of heuristic-based strategies is to define a feasible model for constructing reliable trust systems. User behaviour in the community is the focus of behaviour-based models.

## 5. Trust evaluation methods

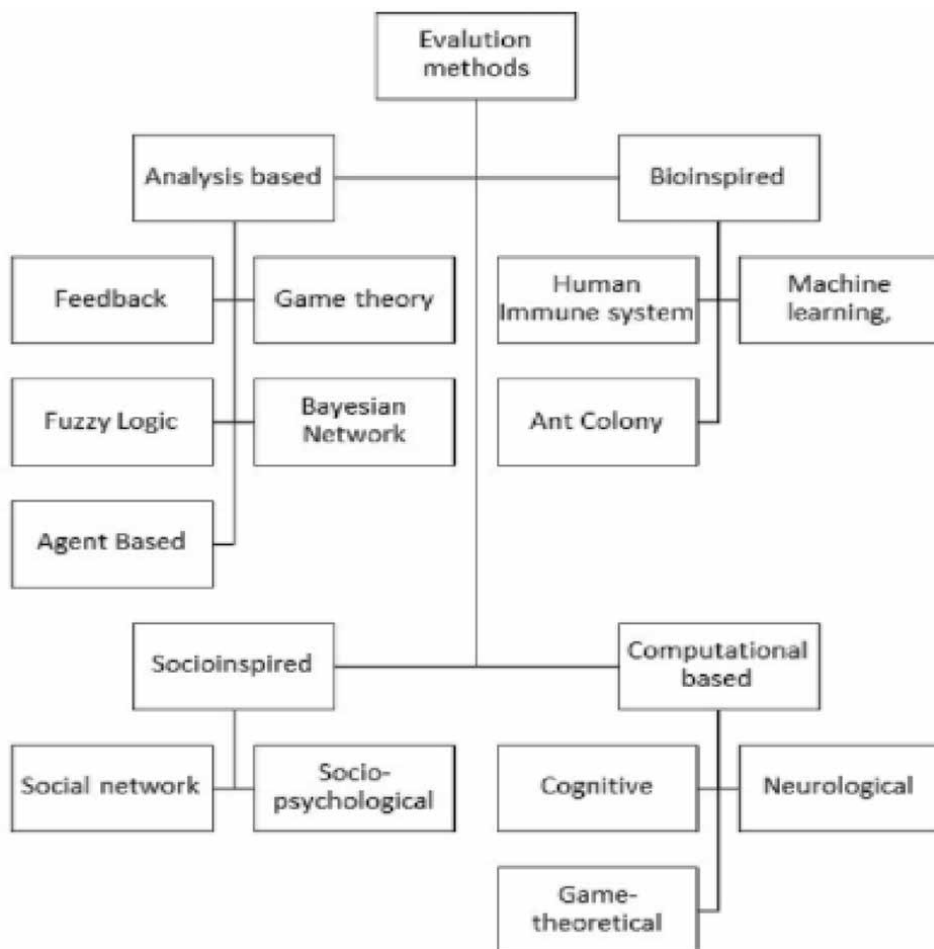
See Figure 1.

### 5.1 Analysis of trust evaluation methods

The practise of assessing trust using attributes that influence trust is known as trust evaluation. It is confronted with a number of serious challenges, including a shortage of critical assessment data, a requirement for data processing, and a request for a straightforward participant statement to decision making. Analysis of trust is achieved by using following methods:

#### 5.1.1 Fuzzy logic approach

Trust evaluation model using fuzzy logic in various IOT applications considers the parameters like device physical security, device security level and device ownership trust [19]. Cloud computing plays a very important role on the internet to provide various useful services. In cloud environments trustworthiness of nodes is determined by performance in terms of response time and workload is considered.



**Figure 1.**  
 Different trust evaluation methods.

Another parameter which is used is known as elasticity in terms of scalability, security, usability and availability [20]. In Wireless Sensor Network fuzzy based trust prediction model trust is calculated in intra cluster and inter cluster level. Trust computation is performed using direct trust and indirect trust interaction among the nodes [21].

#### *5.1.2 Game theory approach*

In Online social network trust degree is calculated using three parameters like feedback effectiveness, service reliability and recommendation credibility. In wireless sensor network game theory approach is used to mitigate security attacks. In WSN it mainly calculates parameters like cooperation, reputation and security level from the information collected from the network. In a cloud computing environment trust is evaluated for both user and server providers.

#### *5.1.3 Bayesian network*

Users in a virtual world, such as an e-commerce marketplace, are unable to physically inspect the quality of trade products before purchasing them, nor can they secure the security of personal data, resulting in uncertainty and mistrust among network actors. In wireless sensor networks direct trust values are calculated using Bayesian theory and when there is uncertainty in direct trust, indirect trust values are calculated using entropy concept.

#### *5.1.4 Feedback approach*

Trustworthiness is achieved by participants' behaviour and feedback. In the network many Quality-of-Service parameters are considered for evaluating behavioural trust value. In Cloud computing, service level agreement parameters are assumed to maintain the feedback and compute the feedback trust value of the cloud service provider [22]. Feedback proves the genuineness of participants.

#### *5.1.5 Agent based Approach*

In wireless sensor networks, mobile nodes are used as a router to transfer packet and communication established between nodes. So, every node or agent that is required to be trusted to each other [23]. If a malicious node enters the communication channel, then the network will disturb. So, trust model gives proper security and provides support for decision making.

### **5.2 Bio-inspired trust and reputation model**

A trust model and reputation model mainly consist of components like collecting information, performing ranking, entity selection, transaction and finally reward points. To select the most trustworthy node, it is based on a bio-inspired ant colony algorithm. To select the most trustworthy node, comparison of average phenomenon is done with predefined threshold value, if it is larger than node is trustworthy.

Machine Learning based Trust Evaluation Model: Trust evaluation model based on machine learning can overcome the problems like cold start and zero knowledge which is a disadvantage of traditional trust evaluation models. Machine learning algorithms like logistic regression, K Means, DBscan, SVM, Artificial Neural Network and Decision Tree algorithms are used to determine direct trust value based on trust related attributes.

**Ant Colony optimization for Trust Evaluation:** Ant Colony Optimization (ACO) is a metaheuristic approach which is used to solve problems of existing models. In wireless sensor networks ACO finds shortest path for packet transmission in a network and accordingly updating of trust value is performed. In online social networks trust value is calculated by activities performed between users.

**Human Immune System:** Artificial immune system is inspired from Human immune system to provide solution against security attacks in IoT, Wireless sensor network. Which builds the secure environment among the sensor network and evaluates trust between nodes. Different security algorithms and techniques are evaluated based on the immune system such as the IDS system.

### **5.3 Socio-inspired method**

The socio-inspired class of methods draws its inspiration from human psychology shown during historical and psychological relationships. Mankind has natural and inherent competitive inclinations, as well as the ability to collaborate, work together, and interact socially and culturally. This natural behaviour is used to build trust among them. All of these natural behaviours assist an individual in learning and imitating the actions of other humans, allowing them to adapt and enhance their own behaviours throughout time [24]. Individuals tend to adapt and evolve faster through interactions in their social setup than through biological evolution based on inheritance, which gives rise to this family of trust evaluation methods.

**Social network:** Social networks have grown in popularity as a means of sharing information and connecting people with similar interests. Enterprises and governments stand to benefit greatly from the public accessibility of such networks, as well as the capacity to share opinions, thoughts, information, and experience [5]. Social trust defines with three parameter such as trusted information gathering, evaluation of trust value, and trust dissemination. In social networks, trust evaluation model categories as sociological trust like emotions, behavioural activities of users and computational trust evaluated from sociological trust value.

**Socio-physiological:** Because the media has such a large influence on public consciousness in today's environment, the question of trust is important. People create firm opinions on many issues based on what they have heard in the news or read on the Internet [25]. As a result, a person gets exposed to several aspects of media such as television, newspapers, and broadcast media at the same time. Most people believe that the information they receive is the only one that is right, which leads to the establishment of false beliefs that have nothing to do with the truth.

### **5.4 Computational methods**

Trust is an important entity for successful finance and social networks. If trust factor is disabled then the entire system will collapse so mathematical modelling is built to define trust value in such applications [26]. Computational trust is measured using game theory approach, cognitive approach and neurological approach.

## **6. Game theory approach for social media**

Game theory approach used in different fields for decision making such as cloud computing, mobile adhoc network, etc. In cloud computing, Nash equilibrium (NE) enhances the trust evaluation at boot load level for service provider and end user or participant [27]. It also prohibits service provider and customer to breach service level agreement. The mathematical study of cooperation and conflict is known as

game theory. It offers a unique and interdisciplinary approach to the study of human behaviour that may be used to any circumstance in which each player's choice effects the utility of other participants, and in which players take this mutual influence into account while making decisions. This type of strategic interaction is often utilised in the study of human-centered systems, such as economics, sociology, politics, and anthropology. Game theory is a powerful conceptual and procedural tool for studying social interaction, including game rules, informational structure of interactions, and payoffs associated with certain user decisions. Game theory may be used to all behavioural fields in a unified approach. Game theory is a powerful conceptual and procedural tool for studying social interaction, including game rules, informational structure, and payoffs associated with specific user decisions.

A game will be defined in the framework of Game Theory as a conflict between two agents: G—a trustworthy agent that receives data, and U—an agent that transmits data. There are two strategies available to players. For agent G, there are two options: trust the agent U or do not trust the agent U. For agent U, the first approach is to send proper data, whereas the second strategy is to send false data. Payments when players win/lose can be designed in order to consider the game in its usual form and express it through the payment matrix.

Because agent G cannot check or dispute the data at the time of receipt, the danger of losing reliable data must be considered. This involves the introduction of the concept of data value. Consider INFO<sub>i</sub> belongs pre-exist information in the system. so  $\exists v(\text{INFO}_i): v(\text{INFO}_i) \neq v(\text{INFO}_j), i \neq j$  is means maximum information  $i$  is transmitted. Assume that value of data or information decreases with time. So  $\exists t_f: 0 < t_f \leq t$  is receiving information at time  $t$ , then  $\exists v(\text{INFO}_i, t_f, t): v(\text{INFO}_i, t_f, t) \leq v(\text{INFO}_i)$  is the value of the data  $i$  at the time  $t$ . It can be calculated by the equation:

$$v(\text{INFO}_i, t_f, t) = v(\text{INFO}_i) \times k_{\text{INFO}_i}(t_f, t), \quad (1)$$

where  $k_{\text{INFO}_i}(t_f, t)$  is the function of relevance of the information  $i$  at time  $t$ . We consider  $k(t_f, t) \neq 0$  as long as the agent cannot disapprove the information, so, let an exponential function of the form  $E_x$  represented in equation to calculate actual data on social network:

$$k_{\text{INFO}_i}(t_f, t) = (E_x \text{ INFO}_i) t - t_f \quad (2)$$

Payoff function (G) of the agent is presented as can be described by the equation

$$f_G(x, y) = \begin{cases} v(\text{INFO}_i) & x = 1, y = 1 \\ 0 & x = 1, y = 2 \\ v(\text{INFO}_i, t_f, t) & x = 2, y = 1 \\ v(\text{INFO}_i, t_f, t) & x = 2, y = 2 \end{cases} \quad (3)$$

where  $x, y$  is the number strategies of the agent G and U. For the agent U, the biggest gain will be the value  $\text{Truth}(\text{INFO}_i) = 1$  of the agent G, in the case when the agent U lied, and minimal - when the agent G has trust to U, and U provided him with correct data. To denote the wins of the agent U, we introduce the payoff function, presented in following equation.

$$f_U(x, y) = \begin{cases} -1, & x = 1, y = 1 \\ 1, & x = 1, y = 2 \\ 0, & x = 2, y = 1 \\ 0, & x = 2, y = 2. \end{cases} \quad (4)$$



where  $x, y$  is the number of agent G and U strategies.

User behaviour in social networks is a type of dynamic interaction that evolves continuously throughout the development process. The main characteristics of social networks are reflected in user engagement behaviours. Identify node attributes, investigate social network secret nodes, identify viral marketing influencers, and investigate node centrality. Exploring secret nodes is crucial in complicated social networks because it can help detect terrorists sooner, recommend certain things to potential buyers, and uncover origins of misinformation.

## 7. Conclusion

This work gives a survey on the existing psychology of trust mechanisms. Describe the trust and trustworthiness with respect to various domains such as social networks, computerised systems, economics, etc. Review the various trust management techniques in cloud computing, cryptography and machine learning. Also discussed the trust evaluation methods that are categorised as bioinspired, socio-inspired, computational and analysis-based trust. Particularly, this study categorised the existing trust evaluation methods into sub categories-based functions of different trust level calculation techniques like game theory approach, machine learning. Evaluation criteria focused on advantages and disadvantages of different trust evaluation techniques. Article focused on issues and challenges in trust management in various fields to enhance the research work.

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# Interpersonal Trust within Social Media Applications: A Conceptual Literature Review

*Kevin Koidl and Kristina Kapanova*

## Abstract

Interpersonal trust within social media applications is a highly discussed topic. The debate ranges from trusting the application, related to security and privacy, to trusting content and the underlying content delivery algorithms. Several trust-related phenomena have surfaced in recent years, known as filter bubbles, echo chambers and fake news. Addressing these phenomena is often pushed to either the regulator or directly to the provider of the social media application. Interpersonal trust within social media applications is a more complex topic and not limited to the application or the content, but has to include the behaviour of the user. To broaden the debate beyond the prevalent focus on the application and content this paper presents a conceptual literature review studying interpersonal trust within social media with the goal to deepen the understanding of the complex interplay between user behaviour in relation to interpersonal trust. Based on this review modalities of interpersonal trust are identified and presented. To extend on these findings an information-dense word embedding based analysis is presented by using unsupervised machine learning techniques.

**Keywords:** social media, trust, truth, literature review, machine learning

## 1. Introduction

Social media is an important part of interpersonal communication and essential for building and maintaining lasting and meaningful relationships. Recently, social media has been challenged by policymakers to promote and spread content that is not truthful, often referred to as fake news, and with that, has led to a *crisis of trust* [1]. In addition the global pandemic has moved several physical interactions online with several technical developments, such as remote work and online learning, being conducted online with a significant impact on trust based interpersonal interactions.

At the core of this crisis lies the question of responsibility. Technology providers tend to push responsibility to the users by claiming that the application only facilitates the transaction and cannot be responsible for the nature or purpose of the content. This, however, is rejected by policymakers, which tend to argue that personal information is misused and sold for content targeting. On the one hand, it

can be argued that social media providers should protect the interests of their users and ensure that their personal information is not used to target them with potentially false or harmful information. On the other hand, it can be argued, that users should become more aware of such information and not 'trust' everything they see. This includes making their own background checks and spending the time to investigate the source and intention of the message. This trust-related debate, therefore, bears the question of what responsibility the user holds in trusting information that is spread on social media applications in validating its trustworthiness. In addition to this reduced, transaction-based, point of view, between the user and the social media application. Interpersonal trust has to be investigated. The recent debate related to echo chambers and filter bubbles points to the fact that users tend to trust content from trusted peers more than from unknown users. Furthermore, users tend to focus more on what engagement their own content gleaned and not so much what other content they engage on themselves [2]. Content engagement is used to gauge trust for example via likes, shares, comments and reactions in the form of emoticons. The main assumption is, that content with high engagement, is most likely content that can be trusted [3]. However, it is easy to conclude that content engagement is not suited to assess if the content is true, false or misleading. The main reason being, that any reaction can be fabricated (e.g. by false accounts). To compound this challenge, the underlying content distribution algorithms of social media applications react strongly to content that receives increased engagement by assuming that content with a high number of engagement is interesting to more users, hence the content is spread wider and faster. This specific action can affect information diffusion and the role of the users. Indeed, social media algorithms give more visibility to contents with higher engagement by hiding the visibility of contents with less engagement (e.g. post in Facebook groups). Trust, therefore, cannot be assessed by assuming the content is trustworthy due to the level of engagement. Based on this assessment two possible viewpoints can be introduced. The first pointing to the social media applications screening content and the second pointing to the user needing to trust their own ability to judge content. Furthermore, a good trust model needs to take into account several aspects which involve the level of trustworthiness a user has towards both the content and the user sharing the content. Moreover, it can be argued that if the user does not trust their own ability to assess information they might prefer a regulator to decide. This, however, points to the challenges of censorship and how political bias within the screening teams should be handled. An addition to social media related inter person trust the recent global pandemic has led to an increased online usage with several physical social interactions moving online, specifically these are online working and online learning. However, there is to date no indication that the global pandemic and its impact on online has had a significant impact on social media based interpersonal reactions or that it has changed anything in relation to trust dynamics in social networks. Pandemic related online technologies used are mostly focused on video live and real-time conferencing without the need or usage of a social network or any related social technologies that create an social activity overlay. There are instances of trust related aspects such as companies trusting their workers less due to the lack of control and insight. This argument has led to the increased development of surveillance technology for online workers which however is not directly related to interpersonal trust covered in this article. It remains however an interesting and ongoing topic to reflect how the pandemic, once it is over, changes the dynamics of online and social media related interpersonal trust.

This article is organised as follows. First, a discussion of interpersonal trust within social media applications is provided. This is followed by a conceptual literature review resulting in the identification of modalities of trust in social media.

Finally, a rudimentary and brief information-dense word embeddings analysis is provided to illustrate how impactful the terminology around interpersonal trust within the state of the art of interpersonal trust within social media applications is. This concluding study is based on unsupervised machine learning techniques. Finally, a discussion is provided.

## **2. Interpersonal trust in social media applications**

Trust is a complex construct and often defined from different perspectives. This makes it difficult to define and to categorize conceptually. In this section, we seek to provide an overview of definitions and categories of trust with the goal to frame the conceptual literature review discussed in Section 3.

### **2.1 Trust and trustworthiness**

A common opinion is that connected people trust one another's content. However, trust is a far more complex concept which takes several aspects of the human dynamics into account. Different definitions of trust can be related to the real-world relationships of people and based on this the trust aspects of the relationship take various aspects and definitions into account.

From a general perspective, it can be argued that modern societies are becoming increasingly complex due to technologies that provide instant access to a large amount of information and services. Based on this, it can be argued that trust is a key concept that ensures all members of a complex society to deal with a high level of complexity. Only by trusting the technology to do the job right it is possible to 'give away' the control to technology. The same argument stands for non-technical processes and trust such as financial and regulatory processes in which trust is given to a central bank and/or governments. Trust hence is an essential fabric of our society without which the complexities of it would not be manageable and there existing within a complex society would not be possible.

On a more specific level trust can be defined as a derivation of the reciprocity, learned when people are in cooperation with others, like in associations and other forms of voluntary organizations [1]. In addition to this definition, trust is composed of personal values (e.g. personal happiness), but also by political and economic values.

The argument of complexity reduction, central to trust, is aligned with the concept of trusted agents. A trust agent has the purpose to complete tasks on behalf of a person. It can be a person, a governmental agency or technology. However, trusting an agent is not easy. The main reason for this is the role of risk related to trust [4, 5]. The more an individual trusts, the more risk the individual is willing to take. In this context O'Hara [6] discusses that for technology to increase the quality of life, it is necessary that technology assists in increasing trustworthiness throughout society. However, it can be argued, social media applications as one of the most used technology for social interactions within societies, specifically those relying on social interactions on content, are not designed to increase trustworthiness. They typically revert to simplified low-risk substitutes of trust, such as ratings, recommendations and engagement. The risk argument is essential however, without risk there is no trust. This argument on the flipside implies that any action that holds no risk does not require any trust. The result of risk minimization within social interactions in social media applications is a significantly decreased impact such applications have on increasing the quality of social interactions and with that the quality of life throughout societies [6]. As mentioned above, trust as a concept is complex,

due to it being based on the person's beliefs and attitudes. Therefore, it is challenging to understand what properties within social interactions increase trustworthiness and specifically how these properties can be utilized in a mostly automated social media application.

From an economic point of view, an essential view point, especially when discussing publicly trading social media companies, trust is partially a product of people's capacity to assess the trustworthiness of their potential partners. People, as *homo economicus*, often calculate the costs and projected outcomes of their decisions to trust. From a rational perspective, trusting involves expectations about interaction partners based on calculations, which weigh the cost and benefits of certain courses of action to either the trustors or the trustees [7]. In this context Weber et al. [8] notes that in some cases people display a willingness to trust people they do not know and will never meet or see. Moreover, a more technology-related view is taken by Friedman et al. [9] in which an end-user must first trust in that atmosphere—technology and human community combined—and only then the interacting partners are positioned to trust in any particular online interaction with other people. In addition, trust can depend on non-rational factors, such as love or altruism and may involve a loose confluence on diverging interests. In extreme cases, trust is even necessary when people are in desperate situations from which they cannot extricate themselves [10]. For example, two parties having an asymmetrical dependency in a trusting relation—one is dependent on the other, but not the other way around [10]. Lewis and Weigert [11] argue that trust, from a sociological perspective, should be viewed as a property of collective units (such as groups and collectives), and not of isolated individuals. As a collective attribute, trust is applicable to the relations among individuals rather than to their psychological states taken individually [11].

It is not clear however what role social media applications play in increasing or decreasing interpersonal trust and what implications this has on the overall society which can only function if trust exists. Several research studies have been proposed and they show the wide effect that social media have on the creation of the trust. However, researching trust within online interactions is a complex task and requires the replication of physical interaction with its sets of interpersonal cues in the context of online exchange may be a feasible method to promote online trust. We postulate that the infusion of social presence in websites for online transactions may increase users' trust in online organizations which is in line with Beldad et al. [10]. Thus, the problem for establishing trust online is how to do so in light of uncertainty about both the magnitude and the frequency of risk and potential harm [9]. The inclination to view trustors and trustees symmetrically under the premise that each party interprets each other's actions similarly [8].

In the context of online trust functions of ongoing image and reputation management are important to discuss. The potential partners have the burden of not only creating trust but also maintaining it and this process involves the duty of presenting themselves as trustworthy persons [12]. This corresponds to Goffman's presentation of the self-theory, which proposes that people are constantly engaged in managing and controlling the impressions they make on others to attain their goals [13]. Specifically, in interhuman relationships, trust can be viewed as a product of people's capacity to assess the trustworthiness of their potential partners. More specifically, trust, therefore, can be considered as the reflected trustworthiness of the trustees and their trustworthiness that is subjectively entertained in the judgment of the trustors [14]. A further view on trust is offered by Zand [15] by viewing trust as a concept that increases the vulnerability to others whose behaviour one cannot control. Essentially meaning that online trust is defined as an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited which can be



viewed as an argument that trust in offline settings is applicable to trust in an online environment [16]. Following the argument of increased vulnerability Zand [15] argues that trust can be viewed as the willingness of people to be vulnerable to the actions of others based on the expectation that the latter will perform a particular action important to the former, irrespective of the ability to monitor and control the latter. However, the idea of being vulnerable when trusting skews towards the realization that while uncertainties and ambiguities are abounding in all forms of exchanges and transactions, risks creep underneath. Doney et al. [17] extend this argument by arguing that the sources of risks are related to vulnerability and/or uncertainty about an outcome. Therefore, trust can be regarded as people's behavioural reliance on others on a condition of risk [18].

The connection between risk and trust has been highlighted in Rousseau et al. [19]. If considered that trust is one of the major concepts of an online/offline human social relationship, two specific aspects characterize a trust relationship between humans: the risk and the interdependence. The risk regards the intention of the other party which is not certain before, instead, the interdependence concerns the interests of the two parties which are related. These two conditions are needed to consider a human relationship as a trust relationship, and changes in these two factors may change the level of trust [19].

In relation to risk Koller [20] and Lewis and Weigert [11] ask if we trust because there are risks or do we take risks because we trust? The first question emphasizes that risks determine trust, while the second question supposes that trust is an antecedent of risk-taking behaviour in any relationship, in which the form of risk-taking, according to Mayer et al. [21]. This, however, depends on the situation and/or context. The people's level of trust in their interaction partners is positively related to the perceived risks present in the situation. This means that an increase in risk perceptions could result in the augmentation of people's degree of trust [20, 21].

There are several more specific viewpoints on what makes a person trustworthy and with that different perspective how this can be achieved online in comparison to offline. Sztompka [14] for example employs three criteria in estimating the trustworthiness of a person being reputation, performance, and appearance. Mayer et al. [21] describes that trustworthy occurs when the transactional partners (1) have the required skills, competencies, and characteristics that enable them to exert influence within a specific domain (competence criterion), (2) are believed to do good to trustors (no egocentric motive), and (3) are perceived to adhere to a set of principles that trustors consider acceptable—a definition of integrity [10].

In digital media studies, authenticity has often been discussed in relation to online identity and self-presentation [22]. Especially social media has changed the possibilities for self-presentation. The main reason for this is that users present themselves in flat spatial and temporal context [23]. This happens because social media changed the nature of the interpersonal relationship in two ways: space and time. Time because the Internet is able to reduce the barriers of time thanks to asynchronous communications. Instead, as concerns space, social information can spread to a very wide set of interested users [24].

This relates to Goffman's impression management framework addressing challenges for the separation of backstage and frontstage identity performances [10, 25] which relates to the users online and offline persona. Social media allows users to perform strategic authenticity by revealing personal information, displaying symbolic connections, and responding to their audiences immediately and regularly. This controlled selection, along with monitoring self-disclosures [23] and constant redaction of profiles [26], help users to perform authenticity for multiple audiences

by presenting themselves in different ways based on different strategic personas. Based on [4] authenticity stems from the construction of identity. Giddens explains that an authentic person is one who knows herself and is able to reveal that knowledge to the other. Based on this it can be argued that social media applications influence how individuals build and express the overarching biographical narrative upon which their authenticity claims rest [27].

A trust dimension related to authenticity is reputation which is often represented online as reviews and ratings. It can be argued that the ever-increasing popularity of review websites that feature user-generated opinions (e.g., TripAdvisor and Yelp) are increasingly gamed to increase monetary value through opinion spam (e.g. fraudulent reviews) [28]. Ratings and reviews, therefore, are a weak indicator of trust simply because it is impossible to gauge if the person who produced the rating or review have behaved with goodwill. There is furthermore no incentive for the same to do so. This is further reduced by decreasing anonymity and increase violations of privacy and undermine personal autonomy [9]. Further reasons for a reduced trust in online reputation is emotional bias and deceptive opinion spam which in both cases are highly subjective and mostly motivated based on different reasons than validating reputation. Moreover, there is a high risk of reviews and ratings being purchased and therefore false. Should a person be identifiable and therefore related to a real person the history of comments, reviews and ratings can create a collection of records which indicates the user's performance in a prior transaction which can increase trustworthiness [29].

In relation to other online applications that evolve around use cases that include social interactions video calling applications can be mentioned. In relation to trust these applications overlap slightly with social media apps specifically if the social media app is focused on short form video presentation. Within such apps several technology enhancements, such as facial filters and background filters can lead to a distortion of the persons actual look and a distortion of where the person is, such as by using different background filters. However, there are two sides to this, pandemic related surge in online social applications, which is short term (recorded) video posted on a social media platform and a live transmission for meetings are learning which is either on a social media platform via live feature or directly via a plethora of video conferencing tools that are available for free.

In relation to trust aspects of real-time or video based trust are understudied however due to the added visual effect are similar to content posted. Hence, content can be viewed widely not only as posts that contain images and text but also videos and which as argued above underly commenting, sharing, rating, etc. which are all prone to be used to validate trust. In relation to real-time video however interactions drastically change with trust being assessed based on multimodal content experiences, such as image, voice and speech in real-time [REF]. A more worrying development in relation to trust and video based content, live or recorded, has become known as deep fake [REF]. This AI empowered technology allows not only the changing of the look and feel of a individual within a video, including voice and speech, but allows for the fake replication of a person as if it is the person [REF]. Deep fake technologies will further evolve and become more easy and cheaper to produce. To ensure videos and interactions of the same, which can still be categorized under the umbrella of fake news, technologies will need to evolve in terms of validating the authenticity of content [REF].

In the following sub-section a closer view is placed on methods to measure and model interpersonal social interaction related to trust and within social media applications.

2.2 Measuring and modelling interpersonal trust in social media applications

Trust has several properties, which are usually used to define models or to measure it. As concerns social media applications [30]. The most interesting ones are dynamic, propagative, no-transitive, asymmetric, and composable. Dynamic means that trust can change. It can increase, decrease, or decay with time. There are two approaches to update the trust value: event-driven, where all trust data are updated when an event happens, and time-driven, where trust is periodically updated. From a properties point of view trust is propagative, which means that if a generic user A trusts B, and B trusts C, A can trusts C, which is the basic concept of a recommendation system. However, trust is not transitive, which means that if A trusts B, and B trusts C, this does not imply that A trusts C. The composable property mean that propagation of trust (and distrust) can follow long social chains, which allows a member A to create a trust connection with a member D that was not directly connected to the member A. When several social chains recommend different values of trust for the member D, then A needs to compose the trust information. Finally, trust is asymmetric, which means that a level of trust between the two members is not the same. Indeed, a member A may have a certain level of trust with a member B, but the level of trust from B to A can be less or more than it is trusted back. We can, therefore, note a strong correlation between trust and similarity. Indeed, users with trust relations are likely to be similar, and this similarity is called homophily. Based on these properties several models have been proposed. Usually, methods are classified by using the propagative characteristic. The techniques used take into account statistical and machine learning techniques, heuristics-based techniques, and behaviour-based techniques.

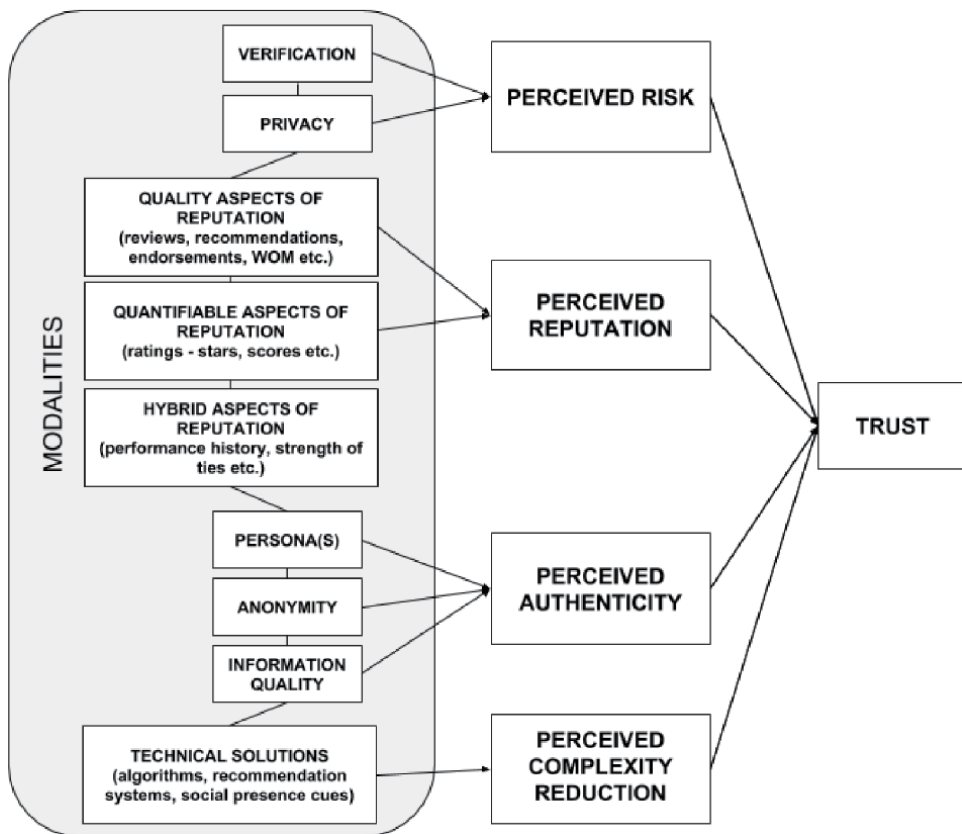
3. Conceptualization of interpersonal trust in social media

Trust in technology significantly differs from the interpersonal trust. Specifically, the technical environment is one of the building stones helping to build trust between people and can, therefore, be referred to as a socio-technical research challenge. Trustworthy environments are intertwined with social aspects and together they build trust resulting in the usage of the online application. The following overview serves as a high-level conceptualization of how trust is modelled and realized within social media applications (Figure 1). This overview has be developed based on the literature review in the table below the illustration. Its main categories are defined as modalities of trust in interpersonal interactions within social media applications. These modalities are perceived risk, perceived reputation, perceived authenticity, perceived complexity reduction. Each modality is mapped to concept derived from the literature review.

Extending this literature social-technical research related to interpersonal trust in social media applications can be found in the following table.

Perceived risk (verification, privacy)

Dwyer et al. [31]	Trust and privacy concern within social networking sites: a comparison of Facebook and MySpace	A study describing the impact of trust and Internet privacy concern on the use of social networking sites for social interactions. Comparison of Facebook and MySpace.
Fogel and Nehmad [32]	Internet social network communities: risk-taking, trust, and privacy concerns	Risk-taking, trust and privacy attitude on social networks (MySpace, Facebook) among 205 college students using scales and ANOVA.



**Figure 1.**  
*Modalities of trust in social media.*

Dhami et al. [33]	Impact of trust, security and privacy concerns in social networking: an exploratory study to understand the pattern of information revelation in Facebook	The study explores the impact of security, trust and privacy concerns on the willingness of sharing information on social networking sites. Using an online questionnaire, empirical data were collected from 250 Facebook user's of different age groups.
Paramarta et al. [34]	Impact of user awareness, trust, and privacy concerns on sharing personal information on social media: Facebook, Twitter, and Instagram	An experiment from 340 social-media users through a questionnaire-based online survey over a period of 2 months was conducted. This research shows that user awareness, trust, and privacy concerns have a positive and significant effect on sharing personal data on social media.
Sharif et al. [35]	Antecedents of self-disclosure on social networking sites (SNSs): a study of Facebook users	This study investigates how self-disclosure on social networking sites (SNSs) leads to connectedness and trust increases specifically in relationship building. The study investigates the antecedents of self-disclosure under the lens of the technology acceptance model (TAM). The research is quantitative, and the data were collected from 400 Pakistani Facebook users with a variety of demographic characteristics.
	Social media never shake the role of trust building in relieving public risk perception	This paper introduces three surveys on the perceptions covering two groups over and

	6 months and their risk perception on social media. Results show that social media information provision reshapes the risk perception by increasing self-reported knowledge, reducing trust, and making them more fearful.
Fake news detection and social media trust: a cross-cultural perspective.	This paper studies how fake news is detected by users from a perspective of risk and how it impacts the trustworthiness of the social media interaction. The cross-cultural study presented in the paper was conducted in Spain and Lebanon and uses structural equation modelling to explore these factors and presents them within a behavioural model.

### Perceived reputation (aspects of reputation)

Abdul-Rahman and Hailes [36]	Supporting trust in virtual communities	A trust model that is grounded in real-world social trust characteristics, and based on reputation mechanism, or word-of-mouth.
Matsuo and Yamamoto [37]	Community gravity: measuring bidirectional effects by trust and rating on online social networks	Effects from trust to the rating (and reputation) within the Japanese community site @cosme analyzed. A theoretical model is presented with a measure of community gravity, which measures how strongly a user might be attracted to the community.
Zacharia and Maes [38]	Trust management through reputation mechanisms	Investigation of two complementary reputation mechanisms which rely on collaborative rating and personalized evaluation of the various ratings assigned to each user.
Chen and Fong [39]	Social network collaborative filtering framework and online trust factors: a case study on Facebook	Trust discussed through relation models (weight of ties) and reputation attributes.
Rosen et al. [40]	CouchSurfing. Belonging and trust in a globally cooperative online social network	A study of engagement activities in an online resource exchange community exploring elements of belonging, connectedness, and trust and how to develop them.
Jiang and Wang [41]	Generating trusted graphs for trust evaluation in online social networks	Work presenting user-domain-based trusted acquaintance chain discovery algorithm by using the small-network characteristics of online social networks. A model calculating trust.
Ott et al. [28]	Estimating the prevalence of deception in online review communities	A generative model of deception used to explore the prevalence of deception in six popular online review communities: Expedia, Hotels.com, Orbitz, Priceline, TripAdvisor, and Yelp.
	A survey of trust in social networks	A review of existing definitions of trust and social trust in the context of social networks.

	Fake it till you make it: reputation, competition, and yelp review fraud	A study exploring the potential of fake reviews and consequences on the reputation of users.
Li et al. [42]	Static and dynamic structure characteristics of a trust network and formation of user trust in an online society	A study investigated the characteristics and formation of the online social trust network of Epinions.com, a general consumer review site. User activeness had a larger effect on trust formation in online social networks, indicating a “diminishing returns” phenomenon. This phenomenon contrasts with the Matthew effect (i.e., the more reputation a person has, the more likely he or she is to be trusted) in real-world social networks.

### Perceived authenticity (personas, anonymity, information quality)

Henderson and Gilding [43]	“I’ve never clicked this much with anyone in my life”: trust and hyperpersonal communication in online friendships	A qualitative study with 17 Internet users about foundations of trust in online friendships, drawing on Sztompka’s theoretical framework.
Duguay [44]	Dressing up Tinderella: interrogating authenticity claims on the mobile dating app Tinder	Tinder’s framing of authenticity within mobile dating, using Giddens’ conceptualization and Callon’s sociology of translation. Identifying both human and technological influences on the construction of authenticity with digital media.
McGloin and Denes [45]	Too hot to trust: examining the relationship between attractiveness, trustworthiness, and desire to date in online dating	Study examining how the enhancement of a dating profile picture influences perceptions of trustworthiness.
Djafarova and Rushworth [46]	Exploring the credibility of online celebrities’ Instagram profiles in influencing the purchase decisions of young female users	Study investigating the impact of Instagram on source credibility. Non-traditional celebrities (YouTubers, bloggers and “Instafamous” profiles) are perceived as more credible than traditional celebrities.
Amin and Khan [47]	Online reputation and stress: discovering the dark side of social media	This study provides an important perspective by studying social media user’s concern for online reputation and its relationship with stress which is moderated by social media dependency and trust issues. This study was conducted on university students in India on a sample size of 350. Using structural equation modelling, the relationship between ‘concern for online reputation’ and ‘social media stress’ was tested which revealed there is a positive relationship between the two variables. The results also suggest positive moderating role played by social media dependency in the relationship between ‘concern for

		online reputation' and 'social media stress' leading to a decrease in trust.
Ryu and Han [48]	Online reputation and stress: discovering the dark side of social media.	This study identifies the dimensions and items in the existing literature that can effectively measure a social media influencer's reputation that is verified by trust based relevance as a measure of a social media influencer's reputation. Based on in-depth interviews with 30 experts and empirical findings from 557 adults, this study identified dimensions that impact on a user's perception of a social media influencer and developed a scale. The results showed that the social media influencer's reputation scale comprises four distinctive dimensions: communication skills, influence, authenticity, and expertise.

## Perceived complexity reduction

Friedman et al. [9]	Trust online	Exploration of the nature of trust and how and where it flourishes online from the perspectives of technology and human community (interpersonal cues).
	The emergence of trust networks under uncertainty—implications for Internet interactions	An application of experimental sociological research to different types of computer-mediated social interactions, particular attention focused on "trust networks" (networks of those one views as trustworthy).
Sheldon [49]	"I'll poke you. You'll poke me!" Self-disclosure, social attraction, predictability and trust as important predictors of Facebook relationships	Self-disclosure, predictability and trust survey measured using scales; results supported by uncertainty reduction theory.
Adali et al. [50]	Measuring behavioral trust in social networks	Algorithmically quantifiable measures of trust which can be determined from the communication behaviour of the actors (behavioural trust) in social communication networks are presented and validated on the Twitter network.
Beldad et al. [10]	How shall I trust faceless and the intangible? A literature review on the antecedents of online trust	A literature review covering empirical studies on people's trust in and adoption of computer-mediated services (online and offline trust).
Lankton and McKnight [51]	Do people trust Facebook as a technology or as a "person"? Distinguishing technology trust from interpersonal trust	Two second-order factor structures that represent alternative ways to model the three interpersonal and three technology trust beliefs were tested on data collected from 362 university-student Facebook users.

Rosen et al. [40]	CouchSurfing. Belonging and trust in a globally cooperative online social network	Study of engagement activities in an online resource exchange community exploring elements of belonging, connectedness, and trust and how to develop them.
Habibi et al. [52]	The roles of brand community and community engagement in building brand trust on social media	A model depicting how consumers' relationship with the elements of a brand community based on social media influences brand trust.
Anderson and Simester [53]	Reviews without a purchase: low ratings, loyal customers, and deception	A comprehensive review of how low ratings and rating dynamics affect reputation.
Huber et al. [54]	Fostering public trust in science: the role of social media	This study leverages a 20-country survey to examine the relationship between social media news use and trust in science which is viewed as a topic to complex to understand hence requires a high level of trust. Results show a positive relationship between these variables across countries. Moreover, the between-country variation in this relationship is related to two cultural characteristics of a country, individualism/collectivism and power distance.
Mourey and Waldman [55]	Past the privacy paradox: the importance of privacy changes as a function of control and complexity	This paper introduces three studies that provide initial evidence of an alternative explanation in which one's subjective importance of trusting in privacy within social media itself varies as a function of who is in control of managing privacy and the extent to which managing privacy is perceived to be easy or difficult. When privacy is complex to manage, individuals perceive privacy to be more important when they control privacy management but less important when a social network/company controls privacy management. This changing importance predicts an individual's intentions to disclose private information and moderates established effects that risk-benefit trade-off tolerance and trust in a company's expertise (but not benevolence) have on disclosure.
Gierth and Bromme [56]	Attacking science on social media: how user comments affect perceived trustworthiness and credibility	This paper introduces two exploratory studies that were performed to investigate the effects of science-critical user comments attacking Facebook posts containing scientific claims. The claims were about one of four controversial topics (homeopathy, genetically modified organisms, refugee crime, and childhood vaccinations). The user comments attacked the claims based



on the thematic complexity, the employed research methods, the expertise, or the motivations of the researchers. The results reveal that prior attitudes determine judgments about the user comments, the attacked claims, and the source of the claim. After controlling for attitude, people agree most with thematic complexity comments, but the comments differ in their effect on perceived claim credibility only when the comments are made by experts.

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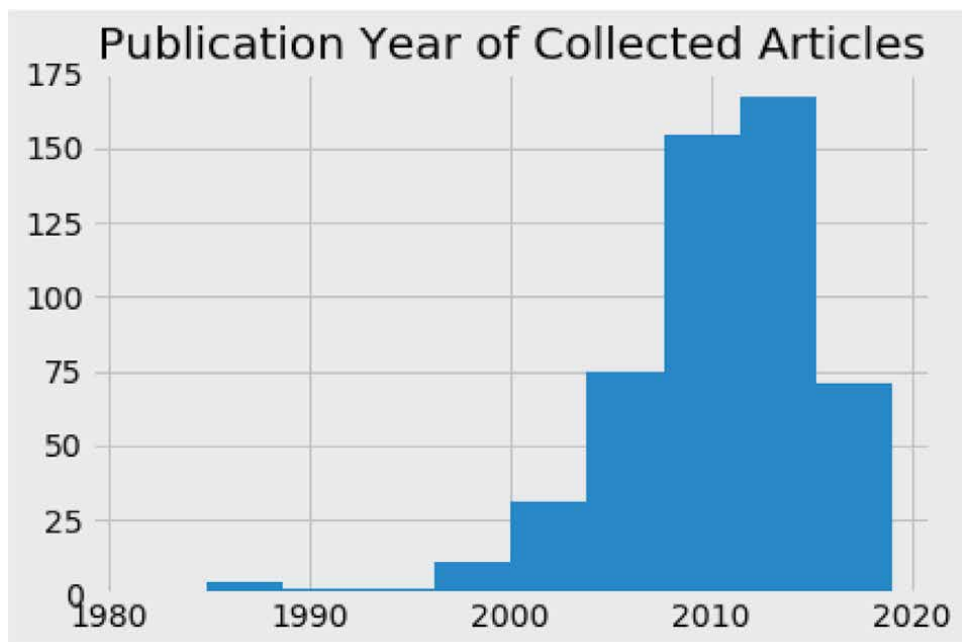
To extend the categorisation and introduction of moralities of trust in social media applications we introduce a machine learning based analysis of terminology usage in relation to the trust modalities introduced. This analysis is conducted by using word embedding within social media related publications. The main objective of the following section is to assess the popularity of trust related aspects in social media publication.

#### **4. Analysis of modalities via information-dense word embeddings with unsupervised machine learning techniques**

In order to assess the popularity of the discussed topic the following section discusses the topic of trust and social media as a topic that is becoming increasingly more important, especially with recent trust breach cases, such as Cambridge analytic. In addition the emerging field of autonomous networks and the requirement for trust valuation (e.g. ad-hoc networks) indicates the need for increased scientific production in the field of interpersonal trust in social media applications. To gain a more comprehensive overview of the debate an in-depth review of trust-related keywords is presented below. The extraction of facts, knowledge and relationships from this increasing body of literature requires a more generalized approach, such as machine learning based text mining through the collection of abstracts. To achieve this we relied on natural language processing techniques, such as doc2vec, for word embeddings performed on abstracts from scientific papers containing the keywords ‘trust’ and ‘social networks’. We focus on the abstracts since they represent a compressed view of the informational content according to Atanassova et al. [57]. The decision to analyse abstracts only was supported by a processing point of view, with abstracts typically short (usually about 300 words) and available as part of the metadata, access to them is relatively easy for analysis. The processing was conducted with publications up to 2020. The main rationale for this was to ensure discussions around the impact of the pandemic are not counted which in the view of the authors creates a distortion of the topic of this paper. Further publications, once the pandemic is over, can apply this same approach to focus and possibly compare the impact of the pandemic on the interpersonal trust related debate in social media.

##### **4.1 Data collection**

From Google Scholar we collected 560 unique articles in English, which had ‘trust’ and ‘social network’ in their keywords. This selection was focused on articles



**Figure 2.**  
The figure shows the publication year of the collected and analysed articles.

within the research field of computer science and related fields such as computational sociology. The article dates ranged from 1980 to 2020 and therefore represent exactly 20 years. Hence, this analysis can be defined as pre-pandemic. From each article we extracted and processed the article name, the publication year and the article's abstract. The following **Figure 2** shows a histogram (amount per year) of the above mentioned terms.

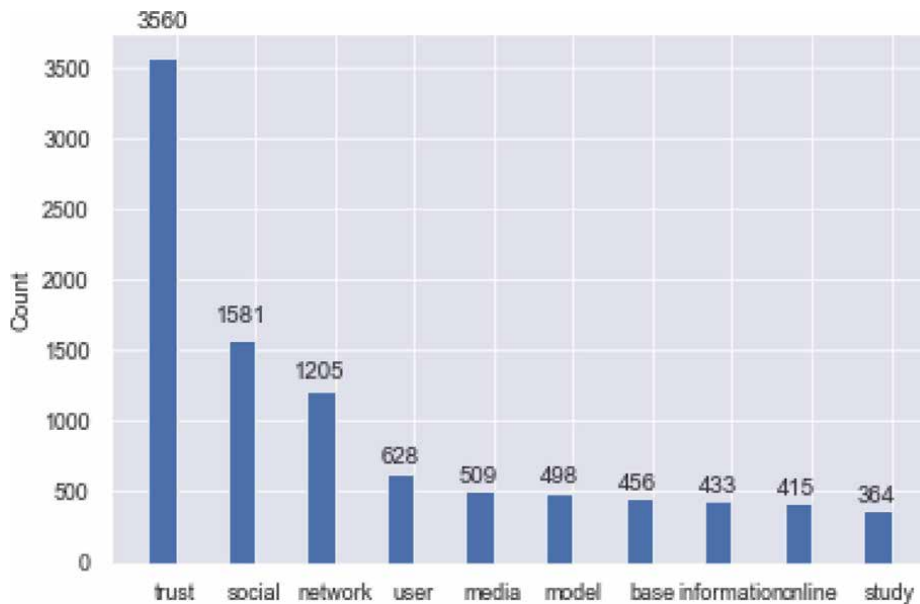
## 4.2 Preprocessing

In order to prepare the abstract texts for natural language processing we tokenized each document, therefore processing the abstract of each article as a separate document. The result of this pre-processing was a bag-of-words consisting of the token (a non-stop word, hence any term that holds meaning), a token-id and the token-count, such as 2-tuples, which together created the text corpus for further research. In a second step all tokens were normalized. This resulted in 4623 unique words representing the overall size in the processed corpus (or the size of the vocabulary) with a vector size of 300 (which was defined manually). In the following subsection we discuss the overall findings.

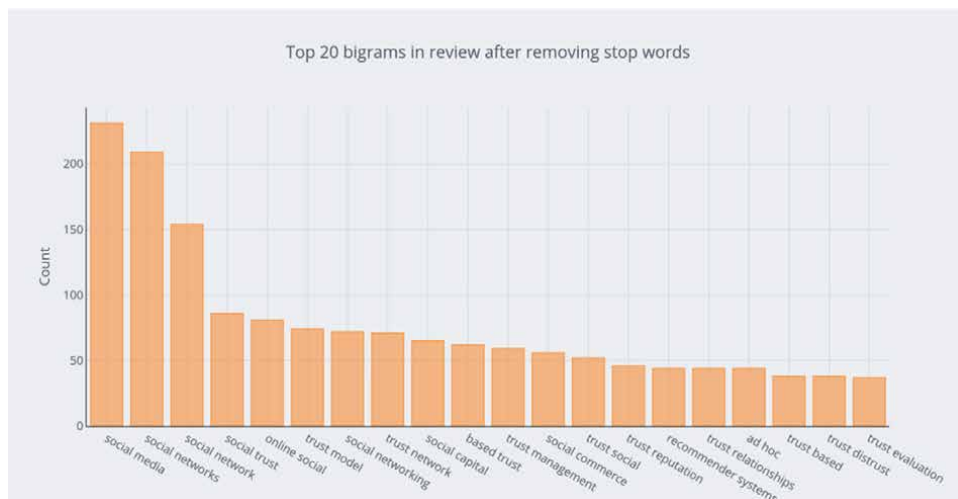
## 4.3 Findings

After the data processing stage we performed a frequency analysis of the words that were collected from the abstracts. The plot below (**Figure 3**) shows the 10 most frequent words, with 'trust', 'social', 'network', and 'user' being the most frequent.

It has to be noted that the word frequency analysis disregards important relations between the words. To mitigate this affect, we selected the 20 most

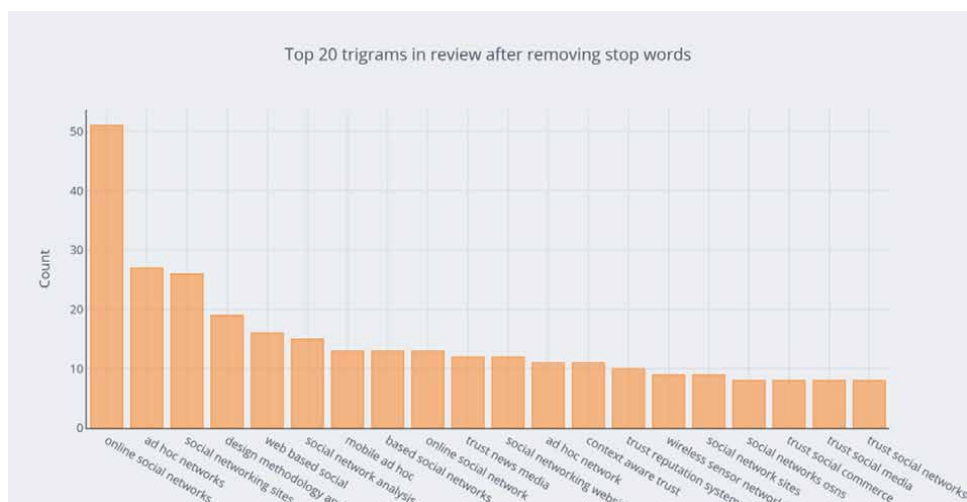


**Figure 3.**  
 Most frequent words.

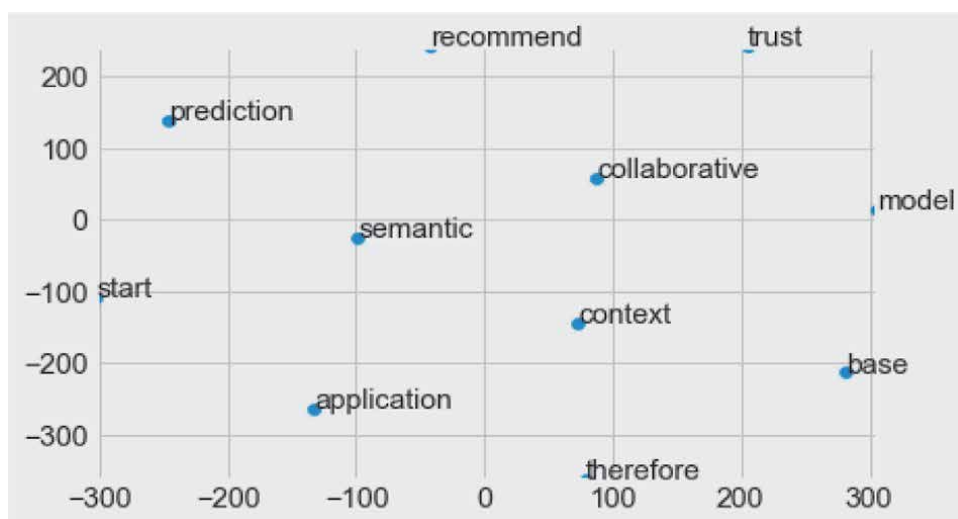


**Figure 4.**  
 Top 20 bigrams.

common bi-grams and tri-grams in the data set. In the bi-gram case (see **Figure 4**) we can see that ‘trust’ co-occurs with ‘social trust’, ‘trust model’, ‘trust network’, ‘based trust’, ‘trust management’, ‘trust social’, ‘trust reputation’, ‘trust relationships’, ‘trust-based’, ‘trust distrust’, and ‘trust evaluation’. In the case of tri-grams (see **Figure 5**), ‘trust’ interestingly appears in relation to ‘trust news media’, ‘context-aware trust’, ‘trust reputation systems’, ‘trust social commerce’, ‘trust social media’, ‘trust social networks’. In the case of ‘context-aware trust’, it is interesting to note that the notion of trust is related to the specific context a user finds himself/herself in. Therefore trust values are different depending on the context.



**Figure 5.**  
Top 20 trigrams.



**Figure 6.**  
Word vector representation based on semantically close words to “trust” from the doc2vec model.

To further analyse the relationship between words from the corpus is used for a word embedding analysis, where semantically similar words are mapped to proximate points in geometric space. As shown on **Figure 6** below, the semantically similar words to ‘trust’ are ‘application’, ‘context’, ‘prediction’, ‘recommend’, ‘collaborative’. In the case of ‘trustworthy’ the most similar words were ‘applicable’, ‘approach’, ‘exist’ and ‘relation’.

To gain a deeper understanding of the topics used in the publications we explored topic modelling to the data set. For this the latent semantic analysis (LSA) technique was applied resulting in the clusters indicated in **Figure 7** topics. The largest number of articles was clustered around the topic ‘trust social network’.

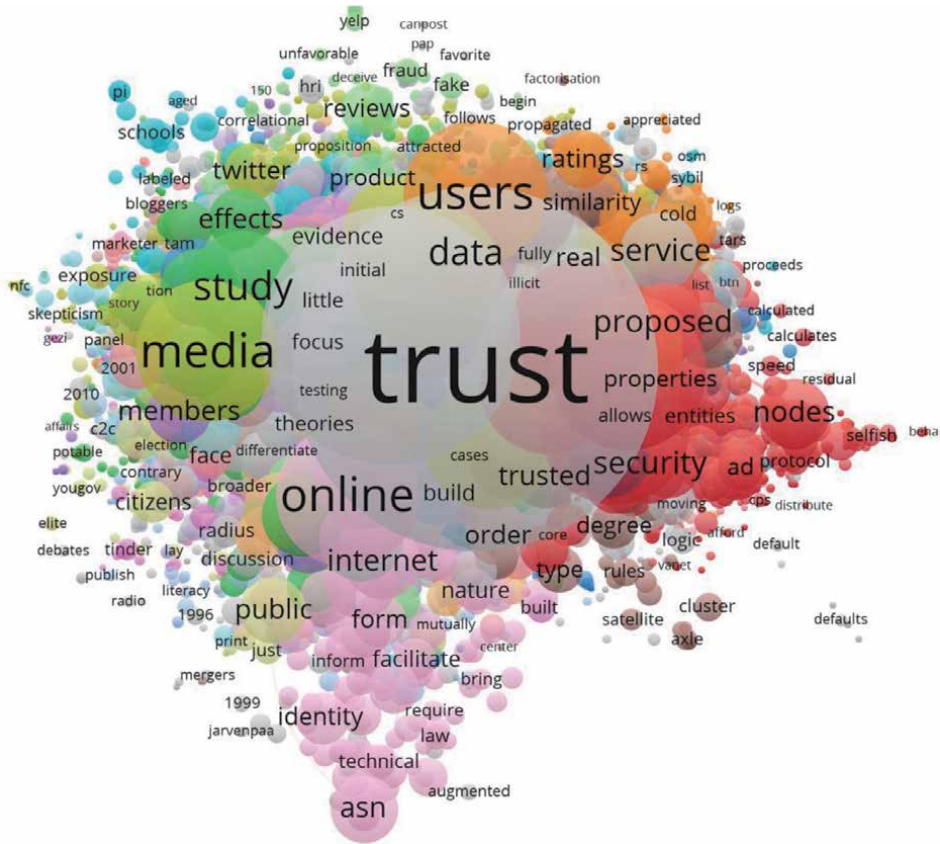
Finally, as illustrated in **Figure 8**, a topic analysis cluster was applied after normalisation resulting ‘trust’ and ‘online’ being the most used terms.



**Figure 7.**  
*t*-SNE visualization of the word clusters from the scientific abstracts. The trained model was reduced to a vector of 50, with a concatenation of context vectors and a max vocabulary size of 1000.

## 5. Conclusions and future work

Studying the implications of trust online is challenging due to the complexity of the topic. Specifically in relation to the literature review it has proven very difficult to identify publications that focus on interpersonal trust online, specifically social media. Most publications in the intersection of trust and online relate to topics of security. However, the advent and growing discussion around the topic of fake news has proven to be a good reference point in the identification of relevant papers. A further difficulty in the categorisation has been the global pandemic which has changed the dynamic of online application usage towards real-time and away from posted content based on recordings or text. During the inception of this paper the pandemic was still ongoing there a concluding pandemic related investigation into trust in online interpersonal interactions can be concluded as valuable future work. Early work in the topic of pandemic related trust implications can be found in Dwyer et al. [58]. Moreover, the advent of DeepFake, a concept that dynamically creates fake news, possibly also in live interactions, is an important topic to review in future work. Overall, it can be concluded that this work, both the literature review introducing modalities of trust and the extended review of the abstracts of research papers should provide a solid foundation for further more focused investigations and studies in the implications of trust in online interactions,



**Figure 8.**  
*Term clustering of the corpus.*

specifically related to social media and social media related online technologies. Moreover, this paper has laid the foundation of deeper and more comprehensive literature and state of the art review in interpersonal trust as a foundational dimension in addition to the current debate that focuses mostly on the application or the user behaviour. For this, the paper introduced a comprehensive overview and identified key aspects related to interpersonal trust and truthfulness.

## Acknowledgements


This work is supported by the ADAPT Centre for Digital Content Technology, which is funded under the Science Foundation Ireland Research Centres Programme (Grant 13/RC/2106) and is co-funded under the European Regional Development Fund.

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## Section 2

# Personal Aspects of Trust

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# Signaling Trustworthiness: A Self-Regulation Account

*Samantha P. Lapka and Franki Y.H. Kung*

## Abstract

Trustworthiness is generally considered a positive trait, and past research has investigated different factors that lead a person to be deemed trustworthy. As suggested in recent work, one important predictor and signal of trustworthiness is self-control. In this chapter, we offer a literature review on the social effects of self-control on trustworthiness. We first outline basic models of self-control and review empirical evidence of the interpersonal processes through which perceptions of self-control and trustworthiness are formed and connected. Then, we review evidence to identify and propose implications, both potential upsides and downsides, of self-control induced trustworthiness. We conclude by discussing understudied and novel factors that may potentially influence the associations between self-control and trust, and offer ideas for future directions.

**Keywords:** self-control, trust-signaling, social perception, mindset, goals, interpersonal processes

## 1. Introduction

Given the importance of the organizational and interpersonal benefits shown from people's ability to gain trust, it is crucial to see what influences how trustworthy a person is deemed. Past research has identified predictors of trustworthiness that include personality traits and physical attributes. Trait agreeableness and honesty-humility show positive correlations with trustworthiness [1–3]. Guilt-proneness—how guilty a person thinks they would feel about doing something wrong—was found to predict trustworthiness even better than agreeableness and other Big Five personality traits (i.e., extraversion, conscientiousness, and openness), and this relationship was mediated by interpersonal responsibility [2]. Facial expressions were also found to have a significant relationship with perceived trustworthiness [4, 5]. Although these elements are important to understand, there are additional influential factors of trust that still need more research. In this chapter, we underscore a growing body of research [6] that reveals one essential yet understudied personal trait that reliably impacts trustworthiness: self-control. Below, we review and highlight the role self-control plays in garnering trustworthiness, identifying the range of related positive and negative outcomes and questions for future research to explore.

## 2. Trust and trustworthiness

Trust and trustworthiness are critical factors in social dynamics. Trust (a.k.a. propensity to trust) is described as the amount of vulnerability a person allows

themselves in a particular situation [7]. Broadly speaking, trust occurs between two or more people, groups, or entities (e.g., romantic partners, co-workers, organizations with shared interests, an athlete and their team, and a political party and their candidate) and is characterized by feelings of confidence that the trustee will meet expectations of the trustor, which are generally positive or non-negative [8]. Trust is especially relevant in situations with no certain or guaranteed outcomes, where the trustor allows themselves to be vulnerable to the possibility that their expectations will not be met [9].

Separately, trustworthiness encompasses the perception the trustor has of the trustee's ability to meet their expectations. It is often developed from past experiences and can differ depending on the context of the expectations. Past research has identified both a 2 and 3-dimensional model to conceptualize the way we understand trustworthiness. The 2-dimensional model suggests that trustworthiness is formed by both affect-based and cognition-based trust, where affect-based-trust describes the belief or perception that the trustee will act in a manner that preserves the relationship, and cognition-based trust entails the trustee behaving in a competent and dependable manner [10]. The other model proposes three components that form perceptions of trustworthiness—benevolence, integrity, and ability [7]. A person who demonstrates that they [1] are capable of meeting an expectation, [2] without defying their accepted principles, and [3] without exploiting or taking advantage of the trustor's vulnerability, would be viewed as trustworthy. While distinct, these models appear to overlap in their theory, as noted by Ferrin [11], who suggested that perceived ability and integrity signal cognition-based trust, and perceived benevolence communicates affect-based trust. Research has since supported this belief, finding that, for cognition-based trust, ability and integrity were better predictors, while benevolence was the best predictor of affect-based trust [12]. These findings overall support the idea that cognitive and affect-based trust are distinct from each other.

Trust and trustworthiness provide benefits to a wide range of situations. Research in management and organizational psychology suggests these traits lead to more productive workplace outcomes. For instance, in management settings, increased trust and trustworthiness in co-workers promotes openness, cooperation, information sharing, the exchange of ideas, opportunities for the development of beliefs and attitudes, and the acceptance of shared ideas [13, 14]. Trust has also been positively associated with job performance and citizenship behavior, and negatively associated with counterproductive behavior [15–17]. One study [18], found that “trustworthy managers preside over more productive organizations and are better able to maintain and even increase organizational outcomes in agencies challenged by low levels of performance and perturbations in the external environment.” More trustworthy managers were also associated with greater procedural and interpersonal justice in the workplace [19], and perceptions of trustworthiness provided by coworkers have been identified as predictors of work performance, specifically through impressions of ability and integrity [20].

Trust and trustworthiness are related to beneficial outcomes in non-work relationships as well. Interpersonal trust increases the closeness, quality and communication within interpersonal relationships with intimate partners, siblings, and children and parents [21–25]. Rotter [25] found that those who are more trusting are less likely to participate in immoral behaviors such as lying, stealing or cheating, and have a decreased likelihood of being maladjusted or unhappy. Divergently, high trustors are more likely to respect the rights of others, give second chances, be desired as a friend more, and be more well liked [25]. Greater perceived trustworthiness was found to contribute to peer acceptance, school adjustment and performance [26], and was positively related to developing relations with peers



and having more friendships [26–28]. Considering the many benefits that trust and trustworthiness can produce, it is advantageous and important to understand what predicts it, and some recent research has identified self-control as a signal of trust.

### **3. Self-control**

Self-control has been vastly studied through the decades, with over 2 million related search results on Google Scholar as a testament to the topic's importance. By definition, self-control is the regulation of behaviors and thoughts to pursue a more distant and abstract goal or motive when a directly conflicting opportunity to satisfy an immediate and concrete motive or goal is present [29, 30]. In other words, self-control is demonstrated in your decision to forgo the tasty treat that is currently available to you, in order to remain committed to your diet and long-term goals of a healthy lifestyle. It is no surprise that this characteristic, and its related outcomes, have maintained the interest of psychologists for so long.

The outcomes related to self-control are as important as the trait itself. Research has identified that trait self-control is positively linked to better physical health and performance in school and work [30–32], along with greater attainment and subjective well-being [33, 34]. It has also been shown that those with greater self-control show more empathy, perspective taking, less deception, and report better behaviors in romantic relationships [21, 35, 36]. These positive associations with self-control have naturally led researchers to investigate how individuals can increase this beneficial trait. Past findings have recommended methods related to goal setting, monitoring, and implementing [37], and described various types of interventions (i.e., social skills development programs, cognitive coping strategies interventions, video tape training/role-playing interventions, immediate/delayed rewards clinical interventions, and relaxation training) that have helped increase self-control and reduce delinquency in children [38]. Practicing mindfulness and small acts of self-control, such as eating fewer sweets, has also led to improved performance on self-control tasks [39].

While having trait self-control and being seen as someone who demonstrates self-control are not necessarily the same, positive consequences have been identified based on mere perceptions of the trait. A person who is viewed as being self-controlled has better social relationships, with greater satisfaction and success [31, 40, 41]. Perceived self-control is also related to greater organizational outcomes like being viewed as more fair at work [42]. However, these perceptions have also been associated with some negative outcomes including assumptions that the work done by highly controlled individuals is less arduous and time-consuming, which can lead to the employee being overburdened with extra assignments [43]. High perceptions of self-control can also cause an individual to face negative consequences in social settings where their company may be less desired [44] or in academic settings where their peers may be less likely to offer them assistance [45].

While self-control is commonly considered an intrapersonal trait, our perceptions of other people's self-control are important signals during interpersonal settings. The amount of self-control a person demonstrates significantly impacts other perceptions we have about them, which can ultimately influence our behaviors and attitudes towards the person.

### **4. Self-control signaling trust**

As suggested by an increasing amount of recent empirical evidence [6, 21], we argue that perceptions of self-control function as a reliable signal for trustworthiness.

Below, we summarize the varied emerging evidence and elaborate on how self-control induced trustworthiness manifests across different relationship contexts.

In *romantic relationships*, because self-control is related to increased perspective taking, keeping more promises, and being more empathic and forgiving [31, 35, 46, 47], it is no wonder that greater perceptions of self-control lead to increased relationship satisfaction and success [40]. A partner who demonstrates that they have the capacity to meet long-term goals and successfully avoid or suppress temptation showcases their potential for meeting standards. This can translate to their ability to meet the expectations of others, and therefore how trustworthy they should be considered by their partner. For example, a person who refuses to respond to a flirty message from a stranger—because it could damage their long-term goal of maintaining a good relationship with their partner—would illustrate to their partner how they are capable of pursuing long-term goals over short term satisfaction. Subsequently, their partner would be more inclined to believe that the person will meet their expectations of staying faithful in the relationship, and would deem them more trustworthy. When trustworthiness is signaled, the relationship quality is better, there is more positive communication, and partners feel closer [21]. Self-control perceptions are thereby inherently critical for quality romantic relationships, for they are affiliated with trustworthiness [22].

*Close relationships* naturally reap similar benefits as romantic relationships in regard to self-control—as being more empathetic, forgiving, and having better positive communication also promotes greater friendships and family relationships [21, 35, 47]. Research has shown that non-romantic relationships benefit from self-control in other aspects as well. Fewer deceptive behaviors are observed in those with greater self-control [36], and more positive perceptions of a high self-control person are found, such as being seen as more popular [41]. These positive views towards the person carry over to promote other positive qualities, like trustworthiness, which results in increased communication and greater development in friendship quality and quantity [27, 28, 48, 49]. It has also been shown that a child's trustworthiness positively contributes to their school adjustment which is partially due to increased acceptance from their peers [26]. Overall, greater perceptions of self-control support positive perceptions of trustworthiness, which, in turn, relate to better close relationships [31].

*Organizational and work relationships* also benefit from high self-control perceptions, while in slightly different ways. In organizations, those seen as highly self-controlled are preferred as partners for work-related tasks such as proofreading an application or being part of a team [44], and supervisors who are perceived as higher in self-control are considered to be fairer by their employees [42]. These positive perceptions naturally signal trustworthiness, by supporting the notion that the high self-control person is reliable and effective, and therefore trustworthy as a co-worker or boss. For example, a supervisor who demonstrates high self-control would refrain from abusing the company expense account for pricey lunch outings—even though they crave a nice meal and break from the office—in an effort to maintain respect from other members of the company. By reserving the lunches for appropriate instances, the boss meets the expectation from subordinates that they will use the expense account responsibly. Similarly, a worker who stays late to finish a last-minute proposal—thereby missing the sports game they were planning to watch—showcases their work ethic, and increases their likelihood of being promoted, by meeting the high expectations of the project. Co-workers and associates who recognize those expectations being met will then consider the employee or boss to be trustworthy, resulting in downstream beneficial outcomes. Organizations and associates who are viewed as more trustworthy show increases in productivity, organizational outcomes, and cooperation for intergroup and interpersonal exchanges [13, 18]. In a study by Dirks and Skarlicki [20], the

perceptions of capability and integrity towards a co-worker, two components of trust [7], predicted that co-worker's performance. Additionally, trait trust within an organization positively corresponds with greater communication, openness, and cooperation [14], along with increased task performance and citizenship behavior, and less counterproductive behaviors [17]. Overall, trust and trustworthiness result in many advantageous organizational outcomes, and importantly, self-control acts as a signal of this trustworthiness, leading to positive work behaviors and ultimately a more productive workplace.

Notably, while there are many upsides of high self-control perceptions in organizational relationships, some downsides have been identified by more recent research as well. While high self-control individuals benefit by being trusted and desired more as partners in work-related settings [44], they are also relied on more, and have more expected of them by their workmates, compared to those perceived as lower in self-control [43]. Their associates also tend to think the work done by those with high self-control takes less effort and is easier [43]. High self-control people may then be asked or expected to complete more tasks because their associates trust them to meet the heightened expectations, while receiving less recognition compared to their co-workers who are lower in self-control. These beliefs can lead to high self-control individuals feeling overburdened and underappreciated, resulting in a decrease in relationship satisfaction [43].

Organizational relationships are not alone in their potential for negative consequences of high self-control perceptions. Research by Röseler [44] has found that, while those perceived as having greater self-control are preferred in settings of work, they are less preferred in social settings, such as parties, compared to people with lower levels of self-control. This may result from the belief that the high self-control person, who suppresses desires and forgoes immediate satisfaction in pursuit of long-term goals, will continue to meet that expectation as they have previously. If it is trusted that these expectations will be maintained, then the person's high self-control "may interfere with being perceived as good company during leisure time and at parties" [44].

Overall, perceptions of self-control play an important role in how trustworthy a person is considered and the ramified positive and negative outcomes. While this connection is recognized across relationship types, distinct differences remain between their contexts. Naturally, organizational and work relationships are unique from social relationships. Social relationships are less formal and usually focus on personal connection, while organizational relationships often revolve around productivity and teamwork [50, 51]. These divergent characteristics likely contribute to how self-control and trust are understood in the respective relationships, breeding the variation of outcomes across contexts.

The unique findings from past research on self-control create an interesting paradigm for its relationship with trust and their related outcomes. Diving deeper into this relationship, we ask, what else might impact self-control's signal of trustworthiness, and what would it mean?

## **5. Emerging future directions**

Thus far, we have discussed the self-control and trust relationship in a quantitative sense, examining the extent to which high self-control is associated with greater perceptions of trust. While informative, a holistic understanding beyond the intensity of the relationship remains to be studied, and it requires us to better understand how and when the relationship occurs. We propose that the less explored, qualitative differences underlying self-control may impact the dynamic of the self-control

and trust relationship, along with its potential outcomes. Here we offer our ideas and some relevant questions for future research.

### **5.1 Differences in goal content**

As discussed above, self-control is conceptualized by choosing to pursue higher-order goals over lower-order goals [29]. Considering this definition, it is important to understand *what* the higher-order goals consist of. Whereas it is possible for two people to exert the same level of self-control; the goal towards which they pursue can be different [52]. For example, common goals described in self-control situations relate to academic or professional achievement (e.g., getting good grades or promoted), health (e.g., eating healthy or working out), and financial spending (e.g., saving money each month) [53–55]. Understanding the goals that underlie self-control action may shed new light on how self-control affects trust perceptions.

One popular framework of goal content has been agentic and communal. Agentic goals are pursued in an effort to improve or satisfy oneself, while communal goals relate to the more interpersonal and connected pursuits of the person [56]. Agentic goals could include working out more to lose weight and look fit or reading more to grow your knowledge on different subjects. The person's level of success in pursuing these goals can signal their competence or ability to others. Separately, communal goals could include being more proactive in reaching out to others to be a better friend or working hard to make extra money and better support your family. These goals can signal a person's benevolence, or care and interest in others. These different types of goals serve varied functions in our lives, therefore, the content of a goal is important for the message it translates. The type of goal that is pursued can foster different perceptions of a person's self-control abilities, even if the intensity of the person's regulation is the same across the varied goals.

If someone is successful in pursuing their agentic goals it will signal high competence and ability in the person. This will subsequently act as a signal for cognition-based trust, which is partially formed from perceptions of ability, and thus cognition-based trust perceptions will increase towards the person. For example, someone that studies for an extra 5 hours during the week may be viewed as highly capable of improving their GPA, and thus more trustworthy in situations that test ability, which could lead to positive downstream outcomes like increased peer acceptance and better school adjustment [26].

In contrast, someone that is successful in pursuing their communal goals, which are based on interpersonal connection and care for others, will signal their high benevolence, promoting perceptions of affect-based trust. For example, a person that dedicates 5 hours a week to calling their family members to catch up may be seen as very caring, which would signal their affect-based trustworthiness. This would likely lead to positive outcomes for that person such as more friendships and greater acceptance from their peers [26–28].

While the promotion of cognitive-based or affect-based trust is likely beneficial to the perceived person, some recent research suggests that perceptions of high self-control can lead to negative outcomes as well, and those could be the result of a differential activation of the two kinds of trust. In one study, those viewed as high in self-control were seen as more “robot-like,” more competent, and less warm than those perceived as lower in self-control [42]. Those perceptions of high ability and competence would likely foster cognition-based but not affective-based trustworthiness in the perceived person. This asymmetry or lack of perceived benevolence (or warmth) then explains downstream negative social outcomes (e.g., reduced interest in socially connecting with the person) [45]. Additionally, this suggests a possible remedy that the presence of affect-based trust would act as a buffer to the negative

outcomes. Fostering affect-based trust through successful self-control of communal goal pursuits, in addition to the already present cognition-based trust, may eliminate the negative outcomes that can be observed from perceptions of high self-control.

Overall, we propose that the goal content (e.g., agentic or communal) has an important impact on the formation of trust perceptions due to self-control, which can potentially lead to both positive and negative outcomes for the perceived. This proposition gives rise to new questions for the study of the relationship between self-control and trust perceptions. We have suggested that the negative social outcomes identified in recent research may be corrected by the addition of affect-based trust perceptions formed from successful communal goal pursuits. Alternatively, would relationships that demonstrate high self-control through only communal goals, producing solely affect-based trust perceptions, also result in negative outcomes? If so, would these consequences be exclusively agentic, and what would they entail? Additionally, how does the ratio of agentic and communal goal success relate to the formation of trust perceptions, and does this differ based on the context of the relationship (e.g., co-workers vs. romantic partners)? Finally, how would failed agentic or communal goal pursuits affect the outcomes of trust perceptions? These questions offer interesting potential avenues for future research.

## **5.2 Self-control mindsets and trust perceptions**

An additional interesting qualitative factor to consider in the self-control and trust relationship is how differences in beliefs about self-control, in general, can impact perceptions of trustworthiness.

### *5.2.1 Limited vs. nonlimited*

Lay theories of self-control recognize views that are commonly held about a person's ability to self-regulate. Lay theories, or mindsets, are developed from our socialization and past experiences, and different types of lay theories have been identified in the self-control literature. The first relates to the belief that a person generally has a limited (slowly replenishing) or nonlimited (quickly replenishing) amount of self-control [57]. For example, if an individual successfully demonstrated their self-control abilities, someone with a limited self-control mindset would believe that the person no longer has their full capacity for implementing self-control, and that it will take time to be completely restored. Alternatively, a person with a nonlimited mindset would believe that an individual who demonstrated their self-control ability would have the same full capacity for self-control before their implementation of it, as well as quickly after.

This difference in mindset may create an important nuance for self-control's relationship with trust perceptions. If a person holds a limited mindset about self-control abilities, they would believe that once an individual exhibits successful self-control, they will be less capable of successfully implementing self-control in subsequent tasks, as they have already used up some of their resource. While this would likely increase self-control perceptions for the already completed task, it may reduce expectations for the person's future self-control abilities. In other words, the perceiver may have weaker trust perceptions because they expect the person to fail in demonstrating self-control in subsequent tasks, if there is not adequate time for their self-control abilities to replenish. An individual with a nonlimited mindset, however, would likely have greater trust perceptions, as they believe the person who just demonstrated successful self-control will have the same full capacity to do so in all subsequent self-control conflicts. This would likely lead to more positive outcomes for the perceived person.

Future research should test this idea, by investigating if those with limited self-control mindsets view others as less trustworthy after successfully demonstrating self-control. Other interesting questions remain as well, such as “How much time is needed for self-control abilities to replenish?” “Would the perceived person face negative outcomes from reduced trust perceptions?” “Do the types of goals pursued in the self-control action ‘use up’ one’s self-control reserves differently?” “Is self-control for agentic goals different from self-control for communal goals?” Lastly, “Would trustworthiness be reduced overall, or would perceptions of affect-based and cognition-based trust be impacted independently?”

### *5.2.2 Fixed vs. malleable*

The second type of mindset related to self-control focuses on the trait’s plasticity. It consists of a fixed (stable and unchanging) or malleable (varied and mutable) mindset [58]. Fixed vs. malleable mindset affects dispositional judgments [59]. Someone with a fixed mindset of self-control would believe that the amount of self-control displayed by a person in a particular situation represents their overall self-control abilities. Conversely, someone with a malleable mindset would believe that a person’s self-control abilities are susceptible to change, and therefore, a single instance that demonstrates self-control may not be indicative of the person’s abilities overall.

Similar to limited and unlimited mindset, the assumptions that a person’s capacity for self-control will, or will not, change could color perceptions of the person’s trustworthiness. For instance, dispositionism in social judgments can be a double-edged sword, depending on the valence of first impressions. Those with a fixed mindset are more likely to believe that a person holds the same amount of self-control across different conflicts, and they would likely base their self-control perceptions off their first impressions of the perceived person’s self-control abilities. Thus, if they initially view a person to have low self-control, they may then see the person as untrustworthy overall. However, if the person is initially seen as high in self-control, they may then view them as an overall trustworthy person. Hence, the timing of the self-control incidence matters, and especially so for those with a fixed mindset of self-control.

The consideration of fixed and malleable mindset in relation to self-control trust perceptions breeds additional important questions. Primarily, since self-control abilities will likely fluctuate at some point, what does this mean for those with a fixed self-control mindset? What effect does a ‘slip up’ have on previously formed perceptions of self-control and trust? In relation to agentic and communal goals, would self-control perceptions formed by one of the goal types translate to assumptions for the other goal type? And regarding those with malleable mindsets, how strong can trust perceptions be if it is understood that one’s capacity for self-control is able to change?

### *5.2.3 Willpower vs. strategy*

Another way people may conceptualize self-control is in the materialization of their self-control efforts. In the process of pursuing a higher-order and distal goal over a lower-order and proximal goal, one may choose to utilize their willpower to effortfully inhibit the desire and temptation of the proximal goal. Another route the person could take would be to use strategies that allow them to proactively reduce their exposure to, and impact of, the temptation [29]. This can be done through manipulating the situation itself, such as selecting to be in an environment where the desire is not apparent (situation selection), or modifying the situation so it is easier to overcome the temptation (situation modification). Other strategies focus on altering the responses to temptations, such as directing focus away from the

desire (attentional deployment) or manipulating the way we think about it, so it becomes less appealing (cognitive change) [60].

Research has shown that both types of strategies are used in self-control conflicts, however, there are mixed findings related to the success and prominence of these different methods [61–63]. Since both these dimensions of self-control implementation—willpower and strategies—show a range of conflicting results, it is understood that the way people demonstrate self-control can vary, and this could be due to their self-control beliefs. Some people may have a willpower-based mindset where they rely on effortful inhibition to overcome desire, while others could have a strategy-based mindset and utilize one or more strategies in their self-control efforts. The way a person thinks about self-control the method(s) of implementing it could influence how they perceive other's self-control abilities.

The consideration of willpower-based and strategy-based mindsets in relation to self-control and trust perceptions sprouts several important questions. How does demonstrating control over oneself (i.e., willpower), compared to controlling the environment (i.e., using strategies), impact how trustworthy a person is viewed? Some research has suggested a timeline for when strategies and willpower are implemented in self-control conflicts. It is suggested that situational self-control strategies (i.e., situation selection and situation modification) are used first, followed by intrapsychic strategies (i.e., attentional deployment and cognitive change) [61]. Willpower, also referred to as response modulation, offers the final opportunity to overcome the desire. Since willpower can be considered the “last line of defense” in resisting a temptation, would a person that demonstrates self-control through effortful inhibition (i.e., willpower) be considered less trustworthy, as they could only overcome the desire in their final opportunity to do so? Or, would a person that demonstrates self-control through the use of strategies be considered less trustworthy, as the opportunity to change one's environment may not always be present? Since one's environment is more susceptible to change than the person themselves, would someone that demonstrates strategy-based self-control be less reliable, and therefore less trustworthy than a person who demonstrates willpower-based self-control?

These questions are important for future research on self-control perceptions and their subsequent effects on trustworthiness. Willpower-based and strategy-based self-control mindsets may also lead to implications for the downstream outcomes of trustworthiness. Future research should examine the potential effects of willpower and strategy-based mindset, along with limited (nonlimited) and fixed (malleable) mindsets, on self-control and trust perceptions to increase insight into the relationship and its related outcomes.

## **6. Conclusion**

Research has identified that self-control is an important predictor of trustworthiness. In considering the quantitative factors between self-control and trust, the relationship is almost exclusively positive, where greater self-control perceptions lead to increased perceptions of trustworthiness, which result in positive downstream outcomes. However, when considering the less researched potential qualitative factors that can impact the relationship, such as goal content and mindset, the connection between the traits and their subsequent outcomes becomes much more nuanced. This suggests that, future research should examine the impacts of goal content and mindset on the self-control and trust relationship, as well as their (positive and negative) downstream effects in order to form a more holistic understanding of self-control's relationship with trust.

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# The Psychology of Trust from Relational Messages

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## Abstract

A fundamental underpinning of all social relationships is trust. Trust can be established through implicit forms of communication called relational messages. A multidisciplinary, multi-university, cross-cultural investigation addressed how these message themes are expressed and whether they are moderated by culture and veracity. A multi-round decision-making game with 695 international participants assessed the nonverbal and verbal behaviors that express such meanings as affection, dominance, and composure, from which people ultimately determine who can be trusted and who not. Analysis of subjective judgments showed that trust was most predicted by dominance, then affection, and lastly, composure. Behaviorally, several nonverbal and verbal behaviors associated with these message themes were combined to predict trust. Results were similar across cultures but moderated by veracity. Methodologically, automated software extracted facial features, vocal features, and linguistic metrics associated with these message themes. A new attentional computer vision method retrospectively identified specific meaningful segments where relational messages were expressed. The new software tools and attentional model hold promise for identifying nuanced, implicit meanings that together predict trust and that can, in combination, serve as proxies for trust.

**Keywords:** relational messages, dominance, affection, liking, composure, culture, deception, nonverbal communication, computational linguistics

## 1. Introduction to relational communication

In today's world, where volatile interactions abound, a critical question that arises is how trust can and should be fostered. A fundamental underpinning of all social relationships is trust, and interpersonal communication is the mechanism through which trust is often accomplished. A multidisciplinary, multi-university, cross-cultural investigation was undertaken to address this question as well as to further explore how trust is established through implicit forms of communication. Employing a decision-making game with multiple rounds and 695 international participants, the University of Arizona, University of California Santa Barbara,

Rutgers University, Stanford University, University of Maryland and Dartmouth University investigated the manner in which nonverbal relational messages, comprised of nonverbal and verbal communication, might secure trust [1]. Applying a spiral model of trust, we formulated predictions of how people utilize implicit, relational messages to define their interpersonal relationships and from those exchanges, ultimately arrive at a determination of who can be trusted and who, not. We examined how relational messages of affection, dominance and composure signal and elicit trust, either universally across cultures or not, and how those messages are moderated by deception.

### **1.1 Relational communication and trust**

An integral part of human communication is the exchange of what are called relational messages. These are implicit messages that enable people to assess how they relate to one another and how they regard their interpersonal relationship. For example, at the most basic level, people must determine who is friend and who is foe, who they like and who they dislike, and whether the relationship is superficial or one of depth. These messages more often than not are expressed through nonverbal behaviors, which are the focus of this report. Although they also can be expressed verbally, for example, telling another that you trust them and find the relationship to be a deep and abiding one, the preponderate share of relational communication is managed nonverbally. In this way, verbal and nonverbal communication accomplish a division of labor, with the verbal aspects of communication handling substantive matters and the nonverbal aspects of communication handling much of the relationship work.

For example, a discussion in a classroom devoted to the topic of the election may be transacted through words, while nonverbally the students and teacher signal what the power relationship is—whether the instructor is in charge and the students are acquiescent to her or his authority, or the instructor is intending to instill a communication environment of equality; whether the instructor and students like one another or harbor some hidden animosity; whether they are engaged in the topic or are disinterested and detached from it; and so on. These various messages combine to build a foundation of mutual trust and goodwill such that the instructor presents what he/she believes to be the most current and valid material and the students enter the exchange accepting that the instructor is knowledgeable and credible, or the students are distrustful of the instructor's motivations, material and credibility and reject it.

The topoi of relational communication are generic continua of message exchange by which we can characterize all human interactions [2]. Burgoon and Hale [3, 4], after reviewing analyses of human relationships from such disciplines as anthropology, ethology, psychology, psychiatry, sociology and communication, identified up to 12 dimensions along which communication is transacted. To the extent that these are universal, these themes should arise in all cultures, though possibly to different degrees. How they are expressed, and in particular how the central ones relate to trust, are the major objective of this current research project.

Our theory of relational communication is that relational message themes are universal, interdependent, and together, through their dynamic exchange, become the cornerstones of trust. One avenue of our work examined self-reports of the communication behaviors people use and observe. This self-report work examined how relational themes are shown in various, disparate countries; the extent to which those countries are similar or different in the emergence of relational messages; and what behaviors contribute to perceptions of trust. A second avenue of work examined macro- and micro-level kinesic, vocalic and linguistic behaviors indicative of the major relational themes of dominance, liking, and composure and ultimately,

how they contribute to trust. Three open-source software tools, OpenFace, OpenSmile, and SPLICE, were employed to investigate what nonverbal and verbal behaviors predict relational messages of dominance, composure and liking (see [5]) and whether the same behaviors could be used to develop a predictive model of trust. The nonverbal and verbal communication behaviors were also examined across six countries. A third avenue drilled deeper into the interpretive micro-level behavioral aspects of relational themes using computer vision techniques. Together the lines of investigation explored how trust spiraled dynamically over the course of group decision making and what relational message themes showed the most change.

## **1.2 Topoi of relational communication**

In human relationships, an intrinsic theme of relational communication is dominance-submission, which reflects the vertical dimension of primate relationships in social settings. People must know what the power structure is, whether there is a discernible status hierarchy, and who sits atop the pecking order and who is at the bottom. One's relative position in the hierarchy is typically negotiated through nonverbal kinesic, vocalic, proxemic, haptic, physical appearance, artifactual and chronemic signals. These signals are arrayed as continua. One can variously be highly, moderately or not at all dominant in relation to another. In dyads, groups, families, organizations and the like, people can be arrayed from most to least powerful, highest status to lowest status, most acquiescent to not at all. According to Burgoon and Dunbar [6], dominance is dynamic and situationally contingent. It is an actual action that recruits a submissive, acquiescent response from another. Whereas power may reflect a potential to act, dominance is the actual expression of that potentiality. If a dominant overture fails to elicit a submissive response, it is not dominance, but merely domineeringness. Thus, dominance requires both an action by Person A and a complementary, coupled response by Person B.

A second dimension is variously called affection-disaffection, love-hate, or liking-dislike. It reflects the valence dimension of relational communication that ranges from highly positive to highly negative. It is orthogonal to the vertical dimension. People may feel affection toward another and express it through a host of nonverbal signals. Conversely, they may dislike another and express that sentiment through nonverbal signals as well, although social mores inhibit sending highly visible or vocal expressions of dislike.

Along with dominance, affection is one of most prominent relational message themes. These two themes are central ones around which the other relational communication themes are arrayed. Three additional nonorthogonal topoi include composure-nervousness, involvement-detachment and similarity-dissimilarity. A person may express a sense of poise and composure in the presence of another or may appear nervous, anxious and uncomposed. In other words, one's demeanor is altered in relation to the other person. It does not reflect a general demeanor around others but rather, a person-specific nervousness or composure. A person may also show high or low involvement with another, that engagement being behavioral, cognitive and emotional. Yet another of the topoi is similarity-dissimilarity. Ongoing interactions with unfamiliar others require trying to assess the degree of similarity that exists between them. Such similarity is a starting place for communication. When homophily between individuals is high, communication is likely to be the most successful [7].

## **1.3 Spiral model of trust**

All of these topoi are interrelated to the theme of trust. As explained in the spiral model of trust [7], trust is an interactive and iterative process that derives from

multiple factors. It flows from, is sustained by, and modified through dynamic communication patterns. These patterns include the dominance relationships the parties bring to an interaction—such as the father being the head of a family and wife and children showing obedience to the father's strictures in a traditional paternal family structure, or the members of egalitarian LGBTQ couples showing similar degrees of dominance while negotiating decisions. The degree of positive affection that members of a social unit feel toward one another is communicated through the kinds of kinesic, vocalic and haptic patterns measured in our study. In families, for example, how loving the siblings feel toward one another and their parents dictates how they express that affection dimension through nonverbal messages. A third dimension reflected here is composure or nervousness—how at ease or tense members of the relationship feel in the presence of one another. If a person feels uneasy in the presence of others in a group, they may display that uneasiness through nonverbal messages of discomfort.

These dimensions combine to spiral into greater or lesser trust, and that spiral can change over time, becoming more intensely trustful or more suspicious and less trusting. Trust is a moving target. It is modified by the situation in which people find themselves and the relational messages they receive from others. In a group setting, for instance, members who wish to promote others' trust in themselves may attempt to temper their demeanor initially by being nondominant, but over time to bolster their persuasiveness by increasing signals of dominance. To promote liking and composure, they may send to others positively toned messages of liking and being at ease in hopes that those sentiments will be reciprocated. The important points to draw from the spiral model are that trust is the product of many different relational messages, as illustrated in **Figure 1**, and are in a state of flux, depending on the current context. The relational messages are comprised of various nonverbal and verbal signals in various strengths and combinations, the net result of which is the expression of trust and receipt of messages of trust. These messages may be communicated in similar ways across cultures, but to the extent they are communicated dissimilarly, culture must be taken into account.

The context for this study of relational communication and trust is situated within a multi-national study of cultural differences in conducting and detecting deception. In potentially adversarial situations, messages may be moderated by deception, which adds a toxic element to the exchanges. Thus, deception is also a centrally important moderator.

#### **1.4 The relationship of culture to relational communication and trust**

Trust places people in a state of vulnerability to deception by others. Trust is often equated with a truth-bias, in other words, expecting that others are truthful, not deceptive. Defined formally, truth-bias is an overestimate of another's truthfulness independent of their actual honesty [8]. Thus, to understand trust is to understand deception and vice-versa. Trust and deception are intricately interrelated. Eliciting another's trust is accomplished by showing that one is not deceptive, by conveying authentic or apparent honesty. Likewise, assessing



**Figure 1.**  
*The relationship of relational messages to trust.*



another's trustworthiness may be based on spontaneous impressions from another's nonverbal demeanor, which can lead to dangerous decisions when that demeanor is false [10].

Unfortunately, most deception research pertaining to trust has been done in a "cultural vacuum" [11]. Moreover, the vast majority of studies on verbal and nonverbal cues to deception or deception detection skill have been done in English-speaking, western cultures. The work involving culture has focused largely on whether people who are from the same culture can detect deception within an interaction episode better or worse than people who are from two different cultures (see [12] for a review). Very few studies have analyzed cultural differences in displays associated with deception or in the detection of deception (i.e., comparing norms and behaviors of people who are situated in different cultures, such as cues used during deception by people in Japan versus by people in the U.S.). This leaves questions about cultural-level variations in decision-making concerning trust of an interaction partner unanswered.

There are two main theoretical perspectives on how to detect deception across cultures and hence, whether to trust an interaction partner. The first is the universal cues hypothesis [13]. The central premise of this perspective is that due to the evolutionary benefits of successful deception and deception detection being similar for all humans, the cues emitted by deceivers are unlikely to vary from one culture or society to the next. Moreover, for the same reason, the universal cues hypothesis says detectors of deception will experience and interpret those cues similarly in all cultures. In other words, the universal cues hypothesis expects deceivers should act similarly and deception detectors should have evolved similarly to spot deceptive behavior across cultures. Supporting this view, the Global Deception Research Team's study [14] found that deception has vast similarities across 75 countries. Another investigation across 5 countries [15] proposed and supported a pan-cultural typology of 10 motives for deceiving. In sum, the universal cues hypothesis predicts minimal cultural differences in deception detection, and thus by extension, how trust decisions are formed between interaction partners.

The second view is the specific discrimination perspective [12, 16]. This perspective takes the position that people rely on learned, culturally-determined norms and expectations to guide both their behavior and sensemaking during an interaction. As such, lying is conditioned by culture because cultures differ in their nonverbal behavior norms and displays, the value attached to honesty, frequency of lying, conditions for interpersonal trust, and responses to others' lies. Consequently, the specific discrimination perspective posits that deception and its detection are specific to communication patterns that vary across cultures. This helps to explain findings that people can better identify a liar from their own culture than a liar from a different culture by noticing deviations from their own learned cultural code (e.g., [12]). Applying this perspective to the decision-making process regarding trust of an interaction partner, the same forces lead to the prediction that trust and trust decision-making should vary in different cultures.

A few studies have tested these competing hypotheses about the influence of culture in deception detection. For example, George and colleagues [17] studied deception and its detection in three countries: America, India, and Spain. Participants evaluated 32 snippets of recorded interviews involving the three cultural groups across two languages. Within each stimulus set, half of the snippets were honest and the other half were dishonest. The researchers measured the cues that judges in each country cited as important to their decision about a person's honesty. Twenty-three cues were identified (e.g., nervousness, logical structure, talk time, voice pitch, etc.). The authors found that judges across the three cultural/language groups relied on similar cues. For example, nine cues including lack of eye

contact, fidgeting, tone or pitch, pauses, stuttering, vague reply, repetitive answers, contradicting oneself, and bragging accounted for a large majority of the deception cues used by judges in all three countries. The cues included kinesic, vocalic and verbal indicators. George and colleagues concluded that their results tend to support the universal cues hypothesis (see also [12, 13, 16]). Also supporting the universal cues hypothesis, others find that the frequency, motives for lying, and skill in deception detection are also similar across cultures (see [18] for a review). One of the few investigations of actual behavior and trust, and a model for the current experiments described in this chapter, is [19].

The consistency in findings helps to offset the paucity of culture-based experiments. Nevertheless, more controlled investigations rather than anecdotal reports are needed to confirm a universal cues hypothesis. Our investigation begins to fill the void by conducting the study in multiple countries ranging across four different continents and observing actual behavior rather than relying on self-reports of behavior, thereby allowing for the potential for variability that supports the specific discrimination perspective.

### **1.5 Behavioral indicators of relational messages**

Much research looks at people's perceptions rather than actual behavior. We were interested in going beyond perceptions to look at actual behaviors people display that foster trust and that signal they trust another person. We looked at nonverbal signals from the voice (known as vocalics), the face and body (known as kinesics) and linguistic (verbal) indicators. We hypothesized that trust would be communicated by those signals associated with messages of liking, moderately high dominance and moderate composure, and that it would be a combination of these signals that would evince and elicit trust. In other words, the more a person showed that they liked another individual and felt reasonably relaxed and composed around that individual, the more they were likely to trust that person. Similarly, people would be trusted the more they showed they liked others, exhibited many of the signals associated with moderate dominance and conveyed that they were moderately relaxed, not nervous.

## **2. The experiments**

### **2.1 Sample**

Participants were recruited from nine universities in six countries: Zambia, Israel, Singapore, Fiji, Hong Kong, and the U.S. (which included three of the universities, all with a diversity of international students). Country selection was a function of finding universities with a willing local host and a federal government that would consent to the 60-page Institutional Review Board requirements. All participants were current students (mean age = 22 years). In total, 695 people participated in the experiments and 95 games were played.

### **2.2 Method**

We devised a method for analyzing trust using an interactive social game created by Don Eskridge called *The Resistance* (variations of the game are sometimes known as *Mafia* or *Werewolf*) played in groups comprised of five to eight strangers. A detailed description of the game is found in [24]. It began with an ice-breaker activity designed to establish a baseline for perceptions of dominance, liking,

nervousness and trust. During the ice-breaker, players introduced themselves to the group, told an interesting fact about themselves, and then another player probed with a question to elicit more information. We measured their perceptions of the other players on self-report scales immediately following the ice-breaker.

Following the ice-breaker, Resistance players were randomly and secretly assigned to play one of two roles: deceivers (called “Spies”), or truth-tellers (called “Villagers”). There were two to three Spies per game, depending on the size of the group, but Villagers always outnumbered the Spies. The Spies were aware of who the other Spies were, but the Villagers did not know anyone else’s role. Villagers attempted to deduce the other players’ identities within the game. The players engaged in a practice round before the game play actually began to ensure they understood their goals in the game. Spies’ purpose was to win the game by remaining hidden and infiltrating the Villagers’ groups while the Villagers’ goal was to uncover who the Spies were to avoid infiltration. So, finding out who to trust and who not to trust was especially crucial for the Villagers but important to the Spies as well.

Players completed a series of hypothetical “missions” by forming teams of five to eight members. At the beginning of each round, players elected a leader, who then chose other players for these missions based on who they thought would help them win the game. All players voted to approve or reject the team leader and then voted on the leader’s proposed team. Again, trust played an important role because players from both sides needed to trust that the leader was picking the team that would ensure they won the round. Players took both a public and private vote, thus introducing the potential for distrust when the two votes did not match. Those who were chosen by the leader to go on the mission team secretly voted for the mission to succeed or fail. Villagers won rounds by figuring out who the spies were and excluding them from the mission teams to ensure mission success. Spies won rounds by causing mission failures. The ultimate winners of the game (Spies or Villagers) were determined by which team won the most rounds (up to a maximum of 8 rounds). Additionally, players won monetary rewards by being voted as a leader or winning the game. (See [24] for more details).

## **2.3 Measures**

Following Cho and colleagues’ recommendation [20], culture was measured both at the macro level in terms of each player’s country of residence and also at the individual level in terms of self-construals on the cultural orientations of vertical and horizontal individualism and collectivism, as well as positive and negative face [20–22]. Before the game began, participants completed a set of self-report measures used by [19] to gauge individuals’ cultural orientations along dimensions of individualism–collectivism, horizontal-vertical status, and positive–negative face [22, 23]. In total, six measures were taken: vertical collectivism, vertical individualism, horizontal collectivism, horizontal individualism, positive face, and negative face.

Vertical individualists place value on independent individual achievement and tend to be competitive with others, while vertical collectivists accept inequality in the social structure, value self-sacrifice for group goals and collaborate with others. Horizontal collectivists value cooperation and caring among group members and strive for group harmony. Horizontal individualists value both equality and uniqueness in a way that respects individual decision-making. People high in positive face have a desire to protect their self-esteem by making positive impressions on others, as positive face reflects a felt need for social approval. In contrast, people high in negative face feel a need for interpersonal distance to protect their autonomy and value privacy for both self and others.

During the game and at its close, participants completed self-report measures to gauge their perceptions of liking, dominance, composure and trust of each other player in their game after an ice-breaker activity and then again after rounds 2, 4, 6, and 8, if the game lasted that many rounds. Because participants responded to these items three to five times about each of the other players, we used single items to avoid fatigue.

## **2.4 Behavioral indicators**

Many of the same behaviors were featured in the various relational messages because they were expected to be highly correlated. In [5], the verbal, kinesic, and vocalic indicators were summarized. Among those that were tested, the significant predictors of trust are noted below with an \*.

Behaviorally, we looked for the following indicators of liking:

- proximity, direct body orientation
- Backchannel cues (nods, uh-huhs)
- Postural mirroring
- Relaxed laughter
- Vocal pitch variety
- Rapid turn-switches
- First-person plurals
- Positive affect language

Dislike was expected to be signaled primarily by the opposites of these, such as indirect body orientation, lack of backchanneling and mirroring, and absence of relaxed laughter.

For dominance, we looked for these signals:

- High immediacy or nonimmediacy (combination of proximity, gaze, body orientation, forward lean, touch)
- More head movement, pitch, roll and yaw\*
- More facial expressiveness\*
- Verbal nonimmediacy
- Frequent initiation of conversation
- High visual dominance ratio (more looking while talking than looking while listening)
- Deeper and more variable pitch\*
- More interruptions

- More and longer turns at talk\*
- More first-person pronouns
- Louder amplitude\*

Nondominance or deference would be conveyed by the opposites, such as physical rigidity, passive facial expressions, and low visual dominance ratio, higher pitch, few interruptions, shorter turns at talk, and more first-person plural pronouns or third-person pronouns. More of these indicators were vocalic or verbal.

For nervousness, we looked for the following:

- Softer amplitude\*
- Higher pitch
- More nonfluencies
- Shorter and fewer turns at talk\*
- More gaze aversion
- More indirect body orientation or facing
- More facial rigidity (FAU02)\*
- More postural, head, and vocal rigidity\*

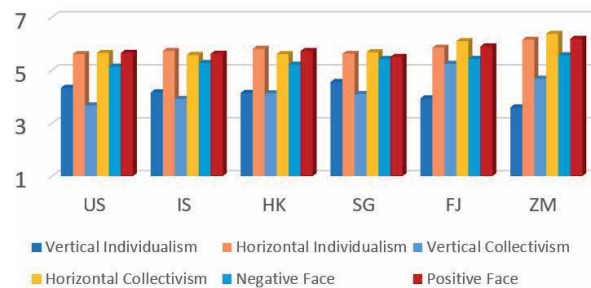
We hypothesized that trust would be communicated by those signals associated with messages of liking, moderately high dominance and moderately low nervousness, and that it would be a combination of these signals that would evince and elicit trust.

### 3. Results

#### 3.1 Descriptives

The number of participants and games played in each country was uneven but contributed to acquiring a diverse sample: U.S. (30 games, 209 players), Singapore (12 games, 84 players), Fiji (14 games, 106 players), Israel (9 games, 64 players), Zambia (15 games, 117 players), and Hong Kong (15 games, 115 players). Player cultural background was quite diverse. Players reported being from 42 different nationalities and over 60 different ethnicities. Participants self-classified as either Asian (38%), white/European (18%), black/African (17%), Fijian/Pacific Islander (15%), Latinx (3%), Middle Eastern (1%), mixed (3%), or other (5%).

Despite this diversity, and interestingly, mean scores across participants on the cultural orientations were more similar than expected. **Figure 2** shows the means for each of the cultural orientations measured, in each of the six countries. Scores in the US, Israel (IL), Hong Kong (HK), and Singapore (SP) were very similar across all of the orientations. Participants in Zambia (ZM) and Fiji (FJ) reported the highest scores on horizontal and vertical collectivism, horizontal individualism, and positive face, but the lowest scores on vertical



**Figure 2.**  
Mean scores for each cultural orientation by country.

individualism compared to participants in the other countries. We did not find individualism and collectivism to align with expectations about participants from eastern versus western cultures, nor did we find those two cultural orientations to be orthogonal as originally conceived by Hofstede [21]. Instead, most participants in all six locations reported roughly equal levels of individualism and collectivism. Others have found similar results, sparking debates about whether Hofstede's original conceptualization of the cultural differences needs updating, especially in light of greater cross-cultural communication and globalization in recent decades (e.g., [25, 26]).

Games were played in English. 39% of the sample were native English speakers. Among those who were not native speakers, their average self-reported English-speaking fluency was quite high (5.82 on a 7-point scale, with higher scores indicating greater fluency.) The average age at which the non-native speakers began to speak English was 6 years. This is not surprising because in all of the countries except Israel where data for this study were collected, English is an official language, and in Israel, English is required as a second language in schools. Thus, individuals in the sample possessed a high level of English language proficiency. Based on this, we feel confident that the results would be very similar as if all players had played the game in their primary language. Future research, however, is needed to understand if differences in the language used for communication influences both the expression and perception of trust.

Experience with similar deception-detection games varied across the locations: 50% or more of the players in Singapore, the U.S., and Hong Kong reported playing a similar game in the past. The number of rounds played within the allotted one-hour period also differed significantly by country, with the most rounds played on average in the U.S. (6.6) and the fewest in Israel (3.6) and Zambia (3.6).

### 3.2 Cultural impact

Our first analysis was whether culture makes a difference. If results differ by culture, culture must be included as a variable in other analyses or each culture should be measured separately.

Villagers in the six countries varied in their trust of other players. Zambian Villagers reported the lowest trust of all other players in their games with no differentiation between deceivers (Spies) and fellow truth-tellers; whereas Villagers in Singapore reported significantly lower trust of Spies than fellow truth-tellers. Only a little evidence was found to support a relationship between trust and the cultural orientations. Deception detectors higher on vertical individualism (i.e., who are

competitive and prefer to work alone to defeat an enemy) reported less trust of the deceivers in their games ( $r = -.11, p < .05$ ), indicating that vertical individualism sensitizes people to deception cues perhaps via the competitiveness aspect of this cultural orientation. That said, the correlation is weak and none of the other cultural orientations were significantly correlated with trust.

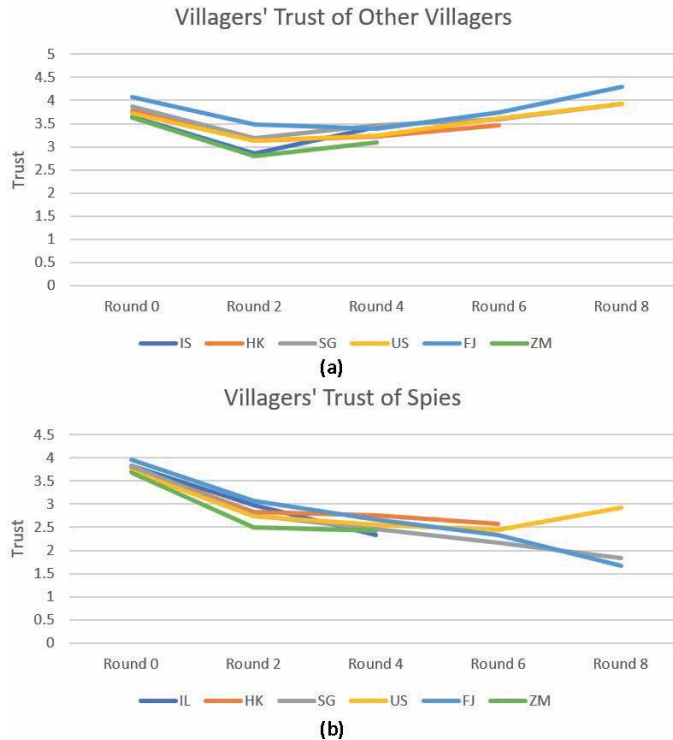
We also looked at trust dynamically over the course of the game. The same pattern was found in all countries such that villagers' trust decreased for both truth-tellers (other Villagers) and deceivers (Spies) in the early rounds of game play, but then rebounded for trust of truth-tellers (see **Figure 3a**) while continuing to decline for deceivers (see **Figure 3b**).

Despite some variability, the results in the aggregate show limited cultural differences across judgments and behavioral patterns relating to trust. The similarities better warrant a conclusion in favor of the universal cue hypothesis than the specific discrimination perspective when it comes to trust. That said, cultural differences remain a persistent point of interest that warrant continued examination in the future.

### 3.3 Subjective judgments

For subjective judgments of relational messages, we hypothesized that Spies who display more signals of liking, dominance and composure are trusted more by Villagers.

First, the rating of liking at the end of the game was highly correlated with the post-game ratings of dominance and composure. The more players expressed



**Figure 3.**  
 Trust of (a) truth-tellers and (b) deceivers over the course of the game by location.

dominance and composure, the more they were liked. In turn, as predicted by the spiral model, such players were trusted more.

A regression model showed that the Villagers' judgment of Spies' dominance was a significant predictor of trust ( $R^2 = .059$ ). This was true for all the countries sampled, especially Singapore and the U.S. The exception was Israel, where more dominance was associated with less trust, possibly because Israelis already scored high on dominance and might have found extreme dominance to be excessive and suspect.

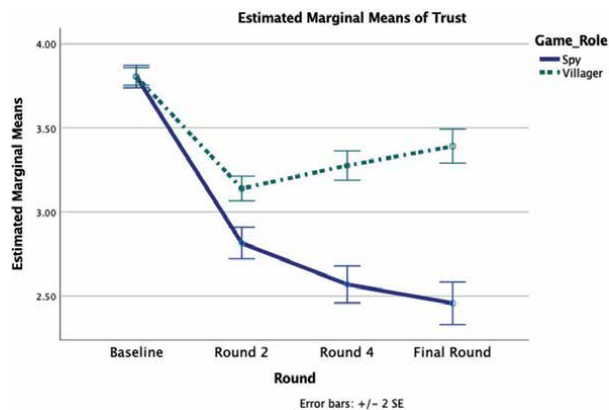
As another indicator of trust, Villagers identified who they thought were Spies among all the players in their game, and the actual spies were less often judged to be one ( $R^2 = .078$ ).

In detailed results reported by Dunbar et al. [27], Villagers' ratings of Spies on dominance decreased over time, whereas it increased for Villagers as they came to their final game round. Dominance was correlated with trustworthiness. Dominant players may have been more confident in their abilities or perhaps had more charisma and extroverted styles that led them to appear more trustworthy. Despite their increased dominance, Villagers were not more likely to win (the win ratio was nearly 50/50 for Villagers and Spies). Thus, the link between dominance and trustworthiness did not seem to result in outcomes that are beneficial to the players. Ratings of apparent nervousness were only mildly affected by the players' game role: Villagers were less nervous over time than Spies but only slightly so. Villagers became more relaxed, while Spies remained somewhat nervous.

**Figure 4a and b** show the pattern of relational messages predicting trust by role, in this case illustrated with the dominance relational message. Although ratings declined initially, ratings of Villagers remained higher than Spies and showed an upswing over time. In other words, the more Villagers communicated moderately high dominance, the more others saw them as trustworthy; Spies expressing dominance were also seen as more trustworthy. The correlation between dominance and trust ranged from .23 in the baseline to .37 at game's end, indicating that moderately high dominance contributed to more trust.

### 3.4 Behavioral relational messages

Facial expressions can convey a lot of information about one's physical and emotional state. People rely on facial expressions to "collect" both intentional and unintentional meaning during interactions. The Facial Action Coding System



**Figure 4.**  
*Relationship of dominance to trust, by veracity.*



(FACS) [28] was developed as a systematic way to code facial motion by segmenting the face into separate regions (forehead and eyebrows, eyes and cheeks, mouth and chin). Each of the motions, such as an eyebrow raise or an open-mouth smile, is a Facial Action Unit (FAU).

Results from a dissertation showed that dominance was predicted from non-verbal kinesic signals, head movement and vocal signals. As illustration, **Table 1** shows all the facial action units, both means and standard deviations, with significant relationships with dominance [29]. There are several facial muscles involved with various emotional expressions, but the most noticeable effect is high standard deviations, meaning there is a lot of variability or expressiveness. Composure had several relationships, although fewer than dominance, but trust had only two FAUs that emerged as significant. AU23 appeared most frequently. (Liking was not examined.)

Among the most important behavioral vocalic signals in these models were utterance length, harmonic noise ratio (a quality measure), pitch, loudness and shimmer. Longer utterances, more voice quality, deeper pitch, louder, more variability in loudness and more shimmer were more indicative of dominance. These signals were most evident around critical decision points in the game, such as choosing team members and voting on leaders for the mission team.

Liking was most predicted linguistically by the number of sentences. Liking was higher, the more a person spoke multiple sentences. Vocally, it was most predicted by measures of voice quality (harmonic noise ratio standard deviation, jitter standard deviation, and shimmer). These measures of voice quality indicate liking was higher the less the voice HNR and jitter varied and the lower the presence of shimmer. These are indicative of a consistent, unvarying voice.

Dependent Variable: Dominance (Low/Medium/High)			
Control Variables: Gender, Game Experience, English Proficiency			
FAU	Description	Significant Means	Significant Standard Deviation Coefficients
AU1	inner brow raiser		*
AU2	outer brow raiser		*
AU5	upper lid raiser	*	*
AU6	cheek raiser		*
AU9	nose wrinkler	*	*
AU10	upper lip raiser		*
AU12	lip corner puller		*
AU14	dimpler	*	*
AU15	lip corner depressor	*	*
AU17	chin raiser	*	*
AU20	lip stretcher		*
AU23	lip tightener	*	
AU25	lips part	*	*
AU26	jaw drop	*	*
AU45	blink		*

**Table 1.**  
*Linear mixed-model analysis of facial action units related to dominance.*

Nervousness was associated with softer amplitude, more jitter, less dominant language but surprisingly, longer turns at talk. Composure would be the opposites of these, i.e., louder, less jitter, more dominant language, and shorter speaking turns.

Linguistically, trust was most predicted by more turns at talk, more words, and a higher readability score (i.e., more articulate speech). More talk, with a more educated voice, elicited trust.

Does the smallish number of predictors of trust mean there are few nonverbal and verbal signals of it? No. The reason is the interdependence of these variables. They are correlated with one another, so the statistical models using multiple regression identify the signals that account for the most shared and unique variance (have the biggest impact). Although included as possible predictors are all the variables identified above in the 2.4 Behavioral Indicators section, because so many of these variables are highly correlated with another, the statistical models will only retain the most significant variables (i.e., the ones accounting for the most variance). These are the best predictors, but doubtless several other indicators combine with them, or substitute for one another to convey a given meaning. For example, affection can be expressed by smiles, or frequent eye gaze, or touch, or direct facing, or a combination of these, as well as plural first-person pronouns and more intimate language.

What is apparent is that all the communication channels—verbal, kinesic, vocalic, and linguistic—play a role in the trust process and together can convey trust in a very substantial manner. Classification analysis for specificity (i.e., identifying truth-tellers) showed 74 - 79% accuracy in spotting truth tellers, a significant level of discrimination.

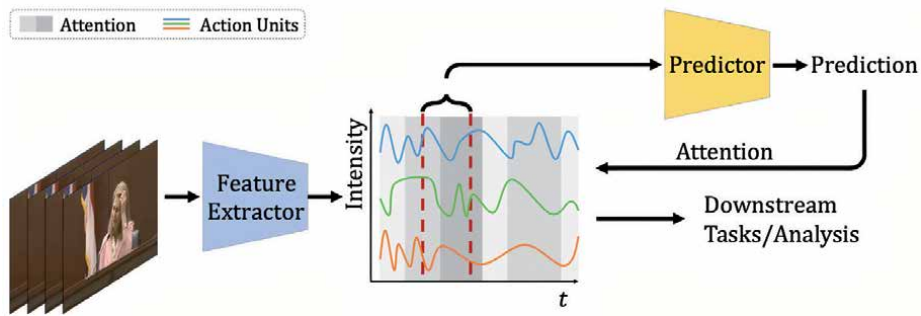
### **3.5 Retrospective attention mechanism through computer vision**

One of the unique contributions of the current investigation was the development and application of a computer vision method for retrospectively finding the most meaningful segments in a video. Here we describe the framework and its application to dominance, liking and trust in videos using robust facial features. We create a mechanism to compute the attention of the detection model in the time domain, identifying key frames. We use those key frames to draw conclusions about the kind of micro-expressions that emerge as important during the attentional periods of the model.

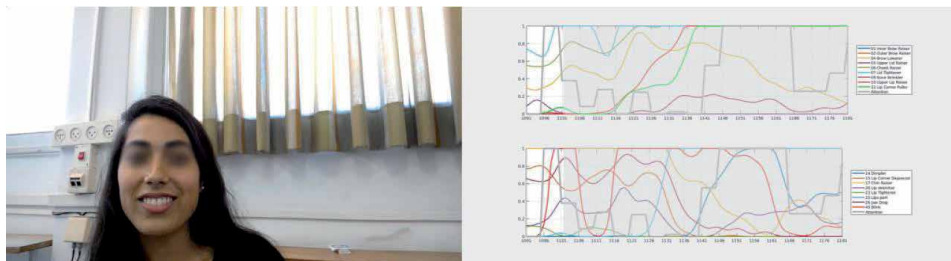
The Facial Action Coding System (FACS) [9] was developed as a systematic way to code facial motion with respect to non-overlapping facial muscle actions called Facial Action Units (FAUs).

With so much communicated by the facial expressions, we opted to incorporate facial cues into a system to investigate whether the presence and intensity of some specific facial expressions correlate with how dominant, likable, and trusted a person is perceived by others. For the technically minded, our approach has the following pipeline. A morphable model is superimposed to a subject's face and, with the help of a feature extractor, for each frame of the input video the intensities of 17 Facial Action Units (FAUs) are computed. These are normalized with the parameters of the morphable model, resulting in 17 identity-agnostic FAU intensities. Also, gaze angles of the subject are tracked for each frame of the input video.

The 19 1-dimensional signals (17 FAUs and 2 gaze signals) were concatenated, channel-wise, and this signal was fed as input to a model for video classification. The model used was the Temporal Convolutional Network (or TCN) [30, 31]. We used 250 videos and trained our model to regress dominance, liking and trust using an MSE loss function. Given a trained model, we predicted dominance, liking and trust



**Figure 5.**  
 Illustration of the proposed framework. FAU intensities and gaze angles are extracted from video sequences which are considered as 1D normalized channel-wise concatenated signals to train a predictor model. Model attention is computed to enable retrospective analysis of dominance, liking and trust.



**Figure 6.**  
 (left) screenshot of frames from original videos; (right) FAU waveforms and attention visualizations of the predictor model. We can see that the model trained for liking identifies as key timesteps, the frames that the subject smiles; lip corner puller (FAU 12) and upper lip raiser are maximally activated at those frames.

on a test set and retained 25 subjects with the lowest error for further analysis. By using the gradients of the model, we identified the key frames in the input video and performed retrospective analysis on the facial features that are most prevalent in the model's prediction. The overall framework can be seen in **Figure 5**. In **Figure 6**, we can see the attention visualization of the model.

Analysis of the players' facial behaviors revealed that some facial action units including lip stretching, blinking, and fake smiling occurred more frequently during deceptive acts. These might be expected with inauthentic trust. Further analysis of the players' facial muscles suggests that subjects who were more dominant, likable and trusted had more intense facial expressions. Speculatively, it seems that those subjects were more involved in the game and as a result gained the trust of their peers. Furthermore, specific facial expressions, such as smiling and eyebrow raising, emerged more than others.

There were no noticeable differences when examining the FAUs across subjects from different countries, further supporting our intuition that expressions of trust are culture-invariant.

#### 4. Discussion and implications

As part of a cross-cultural, multi-purpose investigation, this project investigated whether trust is signaled by kinesic and vocalic (nonverbal) features and linguistic (verbal) features. Results show that all these features convey relational messages of dominance, liking and composure, which in turn combine to signal trust or distrust.

Although the relational messages are moderately correlated with one another, different types of signals are present in each relational message. Whereas both kinesic and vocalic signals play a role in conveying dominance or nondominance, vocalic signals are more prominently featured in composure or nervousness, and facial expressions are especially salient in signaling liking and disliking.

The various indicators, or their perceptual representation, spiral together to form an amalgam of trust. The verbal and nonverbal signals are dynamic, so that their meaning is in flux. Rather than judgments being made anew during each round, it appears that trust is forged from an accretion of meaning built up by the interaction context. For example, in the current task, over the course of several rounds of decision-making, players had the benefit of results from prior rounds to inform their current judgments and build up impressions of other players' trustworthiness. In other words, judgments were cumulative rather than transitory. First impressions may also have set an interpretation frame that colored all that followed. If, for instance, someone had a reputation for dishonesty, nonverbal and verbal signals by that individual might be attached to that initial expectation and help build an impression of someone who should not be trusted. This is often the case when members of law enforcement quickly narrow an investigation to a single suspect and in a hypothesis-confirming manner, interpreting all relational messages to fit their first impression. Scam artists hoping to swindle elders out of their social security checks rely on this principle to create a favorable first impression and continue to build upon it.

Other relational messages may fill out skeletal first impressions, adding, for instance, messages related to involvement, emotional arousal, formality or informality, similarity or dissimilarity, inclusion or exclusion, task or social orientation and so on. The context may dictate which messages may be salient and have a potential connection to trust. The key is to understand that these implicit messages that are exchanged are part of the interaction spiral that forms trust or distrust. It is the communication exchanges and the resultant relational message interpretations that become the psychological template of trust.

Future research could explore expressivity from other kinesic indicators in the trunk, limbs and hands. Which behaviors generate a sense of energy and engagement that promotes trust? In contrast, the behavioral opposites of inexpressiveness and rigidity may generate suspicion. The suspicion and distrust aspect of developing trust is understudied yet quite important to probing relationships in adversarial relationships and relationships in which trust is eroding. Facial impassivity and wooden postures can be a potent clue that someone is being deceptive. Onlookers may develop early suspicions from such behavior apart from anything that is said. People in intimate personal relationships may begin to develop distrust of their partner from such nonverbal behaviors before other actions begin to undermine trust.

An interesting result of our work is that culture did not appear to be a major driver of trust. While we found a few differences in trust patterns across the six countries, and that the cultural orientation of vertical individualism negatively correlated with trust, on balance the results generally support the universal cues hypothesis more than the specific discrimination perspective. These results are in line with some other recent studies of culture and deception (e.g., [17]).

The current investigation, beyond contributing to an understanding of the psychology of trust, presents a number of methodological advances that have, or could be made. Many insights come from the dissertation of Walls [29] in using artificial intelligence to transform behavior into actionable insights. Walls observes that before significant accuracy can be achieved in creating a set of classifiers for predicting trust, measurement decisions must be made about the length and

duration of units of observation to be used. Whether analysis is at the level of individual turns at talk, interact exchanges between pairs or clique groups, phases of decision-making, or entire rounds of a game can alter estimates of accuracy. Also, eliminating periods of silence in videotaped recordings and narrowing judgments to meaningful segments such as voting periods can also alter and improve predictive accuracy. The parameters of the classification models can be learned in a data-driven approach using machine learning techniques.

This research successfully demonstrates that automatic action unit extractions and feature creation for facial analysis, combined with the latest in computer vision techniques, represent an unbiased analysis of videos that brings an understanding of trust. Model building is accomplished using feature creation algorithms, machine learning techniques, and analysis. This project has demonstrated the utility of this approach by using the same analysis to predict team selection, leader elections and game wins. That is, the design has replications built into it. Such within-subject designs have the benefit of controlling other sources of “noise” such as personality or gender because those sources of variance remain constant across the replications. Thus, the system design is general in that it can discover connections to any set of cues.

Another innovation of the research reported here is the use of the attention mechanism to locate sparsely exhibited behaviors and identify the key frames in the video that may be especially consequential in understanding trust. Just as interpersonal relationships have trajectories that change at turning points, key frames may signal those important turning points that signpost the positive or negative development of trust. For example, disclosure of highly intimate details about one’s past may encourage reciprocal disclosure from the partner and escalate the relationship’s mutual trust to the next level. In videos consisting of thousands of frames, the ability to locate the points at which turning points occur can be very useful.

The use of the attention mechanism can alleviate the need to label every timestep of importance in the video. We store only meta-data for each video, such as the subject’s role, and use the attention mechanism to identify the important time-steps in the video. Those vary depending on the task that the model is trained for. In that way, we can perform retrospective analysis of those frames, while keeping the data collection protocol simple.

A further next step in research would be to use the key frames identified by the attention mechanism to re-train the model. Re-training the model can be useful for large input videos, since the models can ignore the majority of the input frames, which are irrelevant for the modeling task.

Future collaborations with others investigating behavioral networks of linguistics, vocalics, and kinesics is sure to bring new discriminating features to the machine learning techniques. This is easy to do with the current developed methods since they can be used with different modalities. Only one step to transform every modality to a canonical input form is required. Obtaining new features can be accomplished by having new experimental participants watch the game videos and record their perceptions of trust.

The psychology of trust is a rich construct for investigation. Examination of how it develops through implicit relational messages promises to bring greater understanding of the construct. New software and automated computer vision tools can accelerate and amplify the progress of those investigations.

## **Acknowledgements**

This research was sponsored by the Army Research Office and was accomplished under Grant Number W911NF-16-1-0342. The views and conclusions contained in

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## **Conflict of interest**

Judee Burgoon and Jay Nunamaker are principals in Discern Science International, a for-profit entity conducting research and systems development for credibility assessment. The remaining authors declare no conflict of interest.

## **Notes/thanks/other declarations**

The authors wish to thank Bradley Dorn, Rebecca (Xinran) Wang, Xunyu Chen, Steven Pentland, Lee Spitzley, Tina Ge, Matt Giles, Mohammed Hansia, Chris Otmar, Yibei Chen, Becky Ford, Ligong Han, and Lezi Wang for their contributions to conducting this research.

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## Section 3

# Trust in the Workplace

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# Trust in Leader as a Psychological Factor on Employee and Organizational Outcome

*Panteha Farmanesh and Pouya Zargar*

## Abstract

While leadership studies have tackled the concept in various ways, it can be said that often basic psychological elements are overlooked. In this sense, the notion of trust is focused in this chapter to highlight, elaborate, and provide a thorough understanding on the vitality of trust between leader and his/her followers. Whether a business achieves success or not is highly dependent on leadership of the firm. Mutual trust among staff and their managers is a crucial matter that can hinder or enhance the process of success. With the existence of trust, workplace and environment of company become soothing for individuals, leading to positive psychological outcomes, and improved wellbeing. Therefore, we argue that building, and gaining trust should be the focus of leaders regardless of their style for it will improve performance, and thus, organizational outcome while simultaneously benefiting the staff via psychological elements. This becomes more vivid in modern business world as wellbeing of individuals and their mental health are more emphasized. Both leaders and scholars can benefit from this manuscript.

**Keywords:** trust, leadership, psychology, organizational behavior, employees

## 1. Introduction

Trust in leader has been discussed in numerous studies and across several disciplines. Trust can be defined as “the belief that something/someone is true or correct, or that you can rely on it” [1]. In current business world, leaders play a major role in the outcomes of organizations. These can be turnover, environmental responsibilities, wellbeing, social image, and market elements. It is widely believed that trust carries a vital importance in the relationship between leader and follower. The higher the extent of trust, the higher the likelihood of positive behavioral and performance outcomes. Sciences such as psychology, behavioral science, neuroscience, education, and politics have noted the aforementioned vitality. To provide a thorough understanding on the linkage of leadership and trust, an array of recent studies have been reviewed. In this sense, different styles of leadership and their impact on trust are highlighted. This provides a pathway for comprehending how trust as a psychological factor is linked to leadership and subsequently, employee and organizational outcomes.

The manner in which businesses are managed, requires leaders to meet high standards by being able to comprehend data, communicate and interact across

various media channels, be aware of political situations and changes. Notably, leaders are to provide quality services, and compete with others for achieving organizational success [2]. For leaders, it is imperative that their bonds and linkage with others (staff or clients) are recognized as a prevalence for business conduct. This becomes more explicit in service sectors as human interaction are constant or higher compared to other industries. However, empowering followers, focusing on their wellbeing, and provision of an organizational culture, where resilience is encouraged have become easier to comprehend through development of neuroscience and other relevant fields of psychology and behavior. Emergence of these disciplines have provided a combination of scientific and psychological factors that aid leaders in obtaining higher levels of effectiveness [2]. Making better decisions, finding new solutions, regulating emotions, sense of teamwork, and being more influential on others as well as implementing change more smoothly are among the traits that a leader with scientific knowledge can exhibit [3]. Neuro-leadership has been examined in human services with consideration of issues such as, effect of toxic leadership, turnover, and organizational culture. These are reflections of a leaders' approach, staff and their engagement with job, and organizational trust [4]. Leader is not a mere title in business but rather a behavioral framework, in which the linkage between leader and their staff is focused [5]. In this sense, there are three fundamental aspects, which are required to exist that are namely, leaders' commitment, harmonized followers, and a mutual aspiration towards the firms' vision among all members.

Among the attributes and traits of leaders, trust is a key factor that can lead to emergence of positive behavioral outcomes. Psychologically, trust can lead to employees exhibiting extra role behaviors, volunteer intent, engagement, higher job satisfaction, and performance. Embedded in the premise of leader-member exchange (LMX) theory [6], a two-way relationship between leader and their followers is shaped through trust, emotions, and respect. It is important to note that from psychological perspective, trust is a fundamental element for psychosocial development [7]. In this regard, leaders may treat each individual differently and thus, have high or low quality exchanges, which will lead to varying perceptions and trust degrees among staff. The higher the quality of exchanges between leader and follower, the higher the extent of trust, respect and obligation and vice versa [8]. Based on LMX, leader and follower become acquainted (from not knowing one another) in a process that matures through exchanges and is shaped by support, loyalty, respect, emotions, and trust that are mutually inclusive. This highlights the psychological, and social capabilities of a leader to establish an environment, in which individuals can thrive as their psychology is engaged with the workplace. Therefore, leadership and trust should be taken into consideration from both negative and positive aspects.

## **2. Trust hinderer**

### **2.1 Toxic leadership**

As noted, leaders can boost or dampen trust based on their approach and behavior. Toxic leadership can be referred to as traditional, autocratic and against values and ethics of work in a social setting. Toxic leadership leads to negativity in organizational culture with significant effects on work processes, approach towards operations, which become highly vivid in times of difficulty and crises [9]. Leaders, who deploy such approach disregard and diminish social values at work and ethical means of business conduct. A negative culture is cultivated through this approach

that comprises fear, which in turn lowers engagement and response. Boldly, toxic approach of a leader can hinder welfare and wellbeing due to excessive stress. Decreased morale, emotional drainage, and lack of trust are among the explicit outcomes of this style which turns to higher rates of turnover and burnout.

The word toxic can be applied not only to leaders, but to management, organizations, and work environments [10]. Albeit, being a toxic leader varies from transactional or 'hard individual' [11]. It is interesting to note that only individual characteristics are not determinants of toxic behavior. In this sense, traits (behavioral), and factors such as, culture, climate, and environment can be influential in the extent of toxicity. While personal characteristics (e.g. hard or tough, and authoritarian-directed) are important for understanding and pinpointing toxic leadership, culture has been noted to be significant for thoroughly analyze this behavior [12]. Thus, it can be interpreted that toxic characteristics of a leader can be enhanced through proper organizational culture and environments. Such aspects can be integrated in organizational strategies for further development.

Notably, communication techniques or attitude of a leader are not the predictors of a toxic persona, but rather dynamics of toxicity are derived from negative discouraging effects [13]. Thus, such leaders may prove to be very efficient in their tasks. However, they add fuel to the fire of a climate or culture that subdues wellbeing of followers/staff. In other words, instead of motivating and aspiration, they tend to control others, leaning towards a toxic climate. Turnover, drug or substance abuse, lowered motivation and productivity, and other negative outcomes arise through such approach in the workplace.

In this sense, as trust is a psychological state which incorporates depending on other(s) based on expectations and intentions, and acceptance of being vulnerable [14]. *Cognitive* trust that is the belief of the extent of which someone can be trusted; *affective* trust, that is the expression of emotions and their vitality in shaping trust; and *behavioral* trust that is the actual disclosure and dependency through sharing important information with the other individual are the three components of trust [10, 15]. These components are formed through observations of attitudes and behaviors of others such as, leader, organization, or group based on equity, ethics, fairness, friendliness, and being considerate to others' rights. This implies that a leaders' behavior and approach should comprise of emphasis on developing trust, and not unethical or discouraging behaviors. *Cognitive* trust addresses the extent of which another person is trustworthy. These are sets of beliefs and value-related aspects. *Affective* trust explains the importance of emotions in the process of trust. The role of leader and relationship with individual is of significance due to emotions at work. This is while *behavioral* trust is the notion of sharing important/sensitive information with an individual, or being able to rely on them.

### 3. Trust boosters

#### 3.1 Empowering leadership

This style is the by-product of praising shared, transformational, and democratic leadership styles, which focus on the leaders' role as a single player in decision-making, autonomy, an authority. In this sense, empowering leaders inherit foundational frameworks of the aforementioned styles, and reshape it into a different structure. Empowering leadership delegates autonomy and responsibilities of managers among members of the firm, leading to a shared power situation that constantly promotes inner motivation [16]. As empowering leaders delegate responsibilities, they create a sense of involvement, commitment, and support for

individuals for improving professional aspect of their lives. Through self-determination theory [17] individuals meet the needs to thrive, develop and psychological wellbeing via autonomy, relatedness, and competence. This leads to high levels of self-satisfaction. Empowering leaders further provide psychological strengthening that is explained through social exchange theory (SET) [18]. This theory states that emotional support, encouragement, and desirable incentives can enhance self-efficacy for carrying out tasks at job. Moreover, SET incorporates the link between empowering leadership and trust. Trust is accumulated through gathering data regarding an individual or via a cognitive evaluation of the bond and experiences with that individual. Being trustworthy is considered to be the most vital virtue of a leader. Honesty of a leader blooms trust in their followers and thus, leaders' behavior is adjusted accordingly.

Sense of security and positivity is created, when trust in leader/manager is developed by staff. This is while stress, burnout, lack of engagement, lowered focus and other negative emotions arise when trust lacks. It is perceived by employees that personal achievements are likely to fail, when trust in leader is absent, which leads to reduced job satisfaction and development of negative attitudes towards the firm, colleagues and leader [16]. It has also been noted that empowering leaders can trigger innovativeness by fostering trust. Through trust leaders are able to exchange knowledge with their followers, which can lead to emergence of new ideas. The mediating effect of trust in leader on creativity and empowering leadership has been noted in the literature [19]. As staff are given power in the company, they are more likely to develop trust, since the organizational climate provides support and respect. Subsequently, staff will tend to be more involved and make an effort to aid the organization. If members have high uncertainty avoidance, empowering leaders should utilize trust as an element for promoting innovativeness. Thus, employees, who trust in their leader are more capable of handling risk and dealing with the unknown [20].

When concern is genuine and is combined with care and emotions, trust in leader is shaped as affect-based [19, 21]. This is reflected in a sincere feeling of empowerment for employees by the leaders' behavior, which in turn enables the staff to exhibit higher rates of creativity. Self-efficacy is facilitated when leaders are trusted, especially when their guidance is sought by their followers. Empowering leaders show confidence in their followers, which in turn enhances their performance [22]. This is while employees who do not trust their leaders will limit the effectiveness of empowering leaders on self-efficacy, hindering their creative abilities. Thus, this style of leadership is adequate for those with high levels of uncertainty avoidance, and have developed affect-based trust in their leader.

### **3.2 Transformational leadership**

This style of leadership is effective on individual and team levels as well as being applicable in any society [23]. It focuses on improvement on a constant basis through competence of followers and their trust in leader. The extent of trust in leader is among the main predictors of organizational identification and improvement in the firm, which is highly influenced by the behavior of a leader. Transformational leaders are successful in enhancing trust for their employees, making them feel belonged to the organization, and thus, improve performance and outcomes of the company. SET implies that experiences that are shared among individuals lead to exchanges that are embedded with reciprocation. This further shows the vitality of trust in relationships among individuals, and particularly in the bond between a leader and follower. Trust is the glue that holds a linkage between a leader and their followers and is regarded as the risk and vulnerability that are perceived

[14]. Individuals in the firm assume trust based on the treatment they receive from the firm and especially, its leader. This treatment has to be fair and desirable so that trust can be built. Moreover, confidentiality, identification with the firm, and safety are important factors for an individual in a company to build his/her trust.

The leader or supervisor of a company is regarded as the agent, which makes them extremely important for creation and establishment of trust. Trust in leader has been linked to a variety of positive outcomes such as, performance, satisfaction, autonomy, extra-role behavior, and creativity and innovation as when employees trust their leader, the workplace environment becomes safe and nurturing. Transformational leaders focus on provision of motivation for their subordinates and push them towards performing beyond the norms. Additionally, they provide meaning and value for the goals that are to be achieved. This enables the transformational leader to meet higher needs of their followers, and aspire self-interest. Idealized influence is among the characteristics of these leaders, which triggers trust as followers can take their leader as a role model [24]. They emphasize on organizational goals prior to their own, which further induces affective trust in their followers. Provision of feedback, variations in tasks, and autonomy in decision-making are among the key factors that a transformational leader uses to facilitate trust. Furthermore, they use their charismatic personality to motivate followers towards seeking organizational goals with higher commitment. This leads to an environment, where trust is fostered as vision is shared and workplace has harmony [25].

Transformational leaders project trustworthiness, which is defined as integrity, benevolence, and ability and is regarded as a major element for followers to trust in their leader. Moreover, these leaders elaborate on company's vision and goals in a manner that attracts others. This is referred to as inspirational motivation and enables staff to be more focused on their tasks, and in turn have more trust in their leaders. They have high concerns for the needs of their followers and seek to strengthen them through various means. This is referred to as individualized consideration, which shows high levels of genuine care that will lead to followers perceiving their leader as a trustworthy individual. Employees are more likely to exchange information and knowledge, when trust is present [24, 25]. Though means such as, technology, management, and infrastructure aid employees in gaining knowledge and improve their abilities, it is not enough to have a sufficient communication flow. This is where trust shows its importance as personal features such as, reputation and fulfilling promises are factors that facilitate trust. Thus, the role of leader is imperative for establishing a smooth communication process, in which trust can be built. Communication becomes more efficient as trust is built, and knowledge sharing, cooperation, and better interactions are shaped as leaders provide an atmosphere, where employees have necessities for proper interaction. This in turn, leads to higher levels of trust [26].

In the light of what was mentioned, trust in leader is regarded as a psychological process between a transformational leader and his/her followers, which leads to sense of identification with the firm by employees, and allows them to improve on a constant manner. Embedded in the premise of SET, transformational leaders are more effective in establishing trust, when compared to other traditional leadership styles such as, transactional or charismatic. This is due to the fact that transformational leaders develop the workplace through social exchanges and not economic ones. This is the main difference between transactional leadership and transformational in developing trust. Similarly, charismatic leaders are less successful in building trust, when compared to transformational due to their focus on organizational goals. SET explains how reciprocation is the basis of leader-follower linkage. Transformational leadership is more effective in building trust among traditional styles. As followers trust in their leader and exchanges between them

grow, the sense of organizational identification and belongingness improves, which positively impacts employee performance. Transformational leadership is known as an antecedent of newer styles such as, servant leadership, and has been known to be of significance in modern contexts of business.

### **3.3 Servant leadership**

This style of leadership as the name shows, focuses on serving others. In this sense, servant leaders tend to serve their followers' needs and wants before their own [27]. The theoretical foundation and nexus of servant leadership can be found in chaos theory, where decentralization, differentiation of tasks, collaboration, flexibility and adaptability of structures and processes, participation, and autonomy are focused [28]. In the premise of chaos theory, it is important to recognize the difference between unpredictability and complexity, and randomness. While the former have causes whether known or unknown at the time of occurrence, the latter refers to events that have no cause. Chaotic systems comprise *sensitive initial conditions*, *self-similarity*, *iterative feedback*, and *strange attractor* [see [29]]. As organizations are dynamic, complex, and nonlinear systems, chaos theory is applied in organizational theory. Notwithstanding that servant leadership constructs have been linked to those of chaos theory. Personal bond created by servant leaders or the organizational culture they establish address initial conditions and strange attractor aspects through psychological effects. Moreover, servant leaders reshape their systems to achieve development and positive results. This is similar to situational variables that are incorporated in chaos theory for alteration in systems [29]. In addition, chaos and servant leadership are alike in growth manner. Servant leaders tend to grow their linkage with their followers through ever-growing systems, which links to iterative feedback and strange attractor dimensions of chaos theory.

From an individual perspective, servant leaders constantly seek skilled followers and value their input and ideas. This is a means for establishing trust between leader and followers. Moreover, responsibility of failure or negative results is taken by the servant leader, which further promotes trust. From a cultural perspective, servant leaders affectively facilitate a learning environment through role model behavior, training, and initiatives that enhances the atmosphere of work. As they create personal bonds with their followers, collaboration, value and accountability are promoted and learning is motivated. Furthermore, servant leaders exhibit high levels of integrity, which further established the notion of trust [30, 31].

Servant leaders are employee-oriented [30, 31], with significant influence on positive outcomes in different sectors and industries, and levels (personal, team, and organizational). As these leaders are people-centric, their effect in service industry has been note to be significant as they focus on others' wellbeing and serving their needs, which goes beyond the organization, and to the society. Through personal and close bonds with followers, servant leaders are able to facilitate higher qualities of relationships, which in turn can be seen in performance of their followers. Early works on servant leadership indicates a number of dimensions that are namely, listening, empathy, healing, conceptualization, awareness, persuasion, stewardship, building community, foresight, and high commitment [32]. In this sense, servant leadership and transformational leadership share features of vision, being influential, and trust. Servant leaders distinguish themselves from transformational, transactional and charismatic leaders with their emphasis on development and wellbeing of others around them. With altruism, servant leaders tend to their followers' needs and goals prior to their own, or the organizations' goals. This behavior puts the attention and focus on others and their progress rather than making the leader a sole importance.



Characteristics of a servant leader predict various behavioral outcomes such as, trust. They can further enhance trust in organization as they act as stewards of the firm. Due to the fact that trust plays a major role in the relationship between a leader and his/her followers, interpersonal trust, communication, harmonization, and integrity of the leader become vivid elements. Notably, trust and its existence provides a stable climate within the organization, which leads to positive results. Servant leaders foster trust by being role- models and serving others. Long-lasting relationships with their followers, trusting their peers and strong personal bonds distinguish servant leaders from traditional styles. Regardless of philosophy of the firm, servant leaders focus on provision of care to others and exhibition of trust-worthiness behavior [33]. Via open communication, honesty, moral integrity, and empathy, servant leaders create an atmosphere, where trust can shine and commitment is promoted. As followers perceive care for their wellbeing, and support for their professional and personal development, they are more likely to trust in servant leaders [27].

### 3.4 Neuro-leadership

This style merges the science of brain with leadership for better motivation, influence and adjusting changes while promoting engagement with the staff to comprehend their responses [34]. Various circumstances trigger reactions in the brain that can be linked to marketing, economics, and leadership. Leaders and leadership can benefit from the emergence of neuroscience and its bond with psychology to better grasp the factors that influence behavior unconsciously. Leaders with knowledge of biology can deploy their awareness towards enhancing performance of those, who work with/for them. Considering the recency of this area, it has been argued that neuro-leaders can generate trust as they understand the mechanisms of brain and implement this understanding in their strategies. In turn, they can shape a climate at workplace that fosters wellbeing, retention, productivity, effectiveness, and more energy for work [34, 35]. Neuro-leaders are to exhibit vulnerability, humility, and integrity alongside being optimist, present, and actively engaging with their subordinates.

Linked to transformational leadership model, an atmosphere of positivity is shaped in the organizational culture that leads to better performance levels. Usage of influence and authenticity for bonds between leader and follower is shared in neuro and transformational leadership styles. Furthermore, servant leadership emphasizes on serving others that fosters positive relationships and promotes appreciative, engaging and integrated behavior from the leader. Organizational trust has been noted to be shaped through *ovation, expectation, yield, transfer, openness, caring, invest, and natural* factors [35]. These factors can be seen in **Table 1** with their linkage to leadership traits. Production of oxytocin in the brain is bound to promotion of trust in the behavior of leaders in neuro-leadership style. This chemical is what apprises the notion of trust that is not limited to those whom we are familiar with, but to any social or professional context that we face or interact with. Particular to leaders, this understanding can be used to increase performance, enhance organizational culture, and sow trust. Studies have shown that oxytocin is released significantly amid being trusted or trusting another individual [35].

Neuro-leaders can emphasize on trust through their knowledge of science and psychology, leading the firm towards a higher level of change acceptance, resilience, and retention of talent. When trust is highly embedded in a company, productivity increases, collaboration develops, and relationships among members last longer, when compared to firms in which trust is lower. As trust is a psychological and vital factor, wellbeing and quality of life are affected by its level. For instance, chronic

Trust factor	Leadership trait
Ovation	Recognition of excellence and expect logical performance
Yield	Discretion in task completion, and encouragement
Openness	Communication, listening and sharing
Caring	Authentic relationship creation with intent
Invest	Facilitate growth for individuals
Natural	Authentic leadership, integrity, being humble and vulnerable

**Table 1.**  
*Trust factors and leadership traits – derived from Zak [35].*

stress can be lowered, which adds to the overall healthiness of individuals. Leaders commonly understand this crucial factor and tend to focus on development of trust in their firms. However, neuro-leaders possess the know-how of enabling trust to grow. Having purpose can release oxytocin similar to sense of trust on a mutually inclusive manner. Work becomes joyous when it is combined with purpose and a trustworthy environment. Thus, neuro-leaders focus on stimulating oxytocin to increase engagement, wellbeing, performance, and other positive elements in the workplace [34, 35].

Neuro-leaders can reshape organizational culture through building factors, situations and practices that trigger oxytocin for individuals in the company.

### 3.5 Virtual/e-leadership

The environment of work has changed as the technological advances reshape our world. Virtual or online platforms now allow people to carry out their work from a laptop regardless of their location. Communication has evolved from its traditional form and individuals can work together without having met each other in person. Accordingly, the context of leadership and management has adjusted to this new business environment [36]. This virtual era has aided firms to become more resilient, and flexible to meet the demands of market and thus, a leadership style that is adequate for this instance is referred to as E-leadership or virtual leadership. The concept can be explained as a means of being influential on behavior, attitude, thoughts and feelings, and performance of workforce through the medium of technology [37]. E-leaders have to overcome the challenges of this modern and advanced working environment. In this sense, both traditional challenges of handling teams and virtual management become apparent.

The role of these leaders are vital as the virtual workplace does not provide constant in-person interaction. It has been noted that leading the virtual workplace is reliant on both transformational and transactional leadership [38]. Efficiency of teams can be enhanced through the aforementioned styles as they can facilitate uncertainty and where trust is not present. Efficiency of online/virtual teams incorporate both satisfaction of employees and the extent of their performance. In such environment, communication can vary from distance to face-to-face depending on the work itself and thus, conflict management becomes more difficult to handle. Due to varying communications, interactions differ from standard and members can grow apart as they do not interact physically. As such, e-leaders face issues regarding coordination, trust building, conflict management, and shared mental settings in their teams. Comparably, this is much more complex than having a traditional organizational format [39].

Accordingly, various levels of work require leaders to have strategies and measurements for each construct. Team level consists of global, shared, and configural

constructs [40]. Global construct explains a team-level setting that does not include individual elements [39]. In other words, global features of team are not based on individual characteristics. Shared construct refers to a collective situation, where members share perception (e.g. quality or extent of cooperation and coordination to task completion among team members). Experiences, attitudes, perception, values, cognitions, and behaviors that are common among the members are referred to as the shared construct [40]. Cohesion of the team, its norms, climate, and mental models are among the shared constructs. Similar to shared construct, configural features of a team reside in the characteristics of individual team members. This construct includes pattern, variations and array of each members' characteristics such as, interpersonal network density of the team, its personality composition, and diversity (e.g. age).

E-leaders are aware of the abovementioned constructs and utilize this understanding to overcome challenges of lack of social presence among team members. This lack leads to decreased trust, which e-leaders must control through collective identity and proper communication means for their teams. Thus, e-leaders endeavor to establish a common meaning and perspective so that trust is enhanced [37]. In this sense, a number of factors are influential on trust in virtual teams such as, time, culture, geographical proximity and interactions that can be both online and face-to-face. As virtual systems are temporary, trust in such systems is also not permanent. This is mainly due to lack of direct management. Therefore, trust has been noted to be instant in a virtual setting. As virtual teams are vulnerable, trust becomes more important and difficult to establish. Hence, the strength of transformational leadership has been proven to be significant in this case, more than transactional. Both styles are linked to virtual settings and their effectiveness in establishing collective trust has been shown. Through expression of concern for needs of members, a transformational leader can generate trust, and exhibition of will to achieve the goals of the group. This is while transactional leader establishes trust through maintaining their promises and showing respect and fairness. It is imperative that trust is built so that a virtual team can obtain its goals and remain efficient. As interactions are coordinated, existence of trust enhances performance and increases satisfaction for the individuals in the team.

Leaders use different means of technology to provide feedback, signals and messages through an integrated format and tailored tones for each individual in the team. This is referred to as media richness that is a moderating factor for e-leaders in online settings of work, and its efficiency that is based on trust and cohesion [37].

Especially in the occurrence of global pandemic, virtual leaders have become more crucial for organizations. These leaders can aid the business to survive and avoid bankruptcy. E-leaders operate remotely and maintain virtual interactions with more emphasis on those, who might have issues with the technology and thus, are less likely to trust and communicate through virtual settings [41]. Ethical issues, cultural differences, and communication means are main challenges of building trust for e-leaders alongside usage of technology in a manner that will keep the leader effective. In this sense, e-leaders rely on education, training, and development practices to build trust for their followers, and they endeavor to maintain a high standard of communication, and coordinating tasks among team members.

#### **4. Conclusion**

Leaders can deploy different aspects of highlighted models in this chapter so that their approaches are enhanced and developed. While some characteristics are deeply embedded in individuals, recent studies show that organizational elements,

culture, environment, and psychological dimensions such as, coping mechanisms, burnout, and wellbeing are influential. This suggests a pathway for leaders to adjust their styles with current demands of business in the modern world, especially during and after global pandemic of Covid-19, which has drastically changed work environment. Resilience, flexibility, and change are essential for leaders to maintain competitiveness in markets. Thus, regardless of its difficulty or uncertainty, leaders should endeavor to effectively lead their firms towards sustainable advantages, and higher levels of productivity. Leaders can adjust their approach towards their followers, considering various elements that can boost trust. In turn, this will lead to better performance and a positive workplace, leading to organizational achievements.

### **Conflict of interest**

The authors declare no conflict of interest.

### **Notes/thanks/other declarations**


The authors would like to show appreciation and gratitude to Mr. Mark Unwin, and Ms. Marjaneh Arasteh.

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# Justice to Generate Trust, Two Aspects of Human Relationships in Management

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## Abstract

Justice and trust have largely been considered important in organizations, to generate sustainable management practices that when maintained generate improvements over time. Trust is the organizational glue allowing people to enter into mutual benefiting interactions and relationships for a continuous long-term coordination. Trust is unavoidable as not all participants have all the information and should rely on others' decisions. Justice is a personal virtue that affects all the relationship participants, the decision-maker, the recipient and the beholder. Justice is also a perception of these participants about decisions, people involved and results. Justice as a personal virtue is important for the decision-making, but as an organizational value is coming as a set of requisites for organizational formal and informal systems. In this chapter I aim at understanding the foundations of trust, understanding justice dimensions, and finally disentangling the relationship between trust and justice and how both can mutually be cause and effect of each other. I also examine how trust and justice brought together may cause other desired effects into organizational performance. I propose an understanding of the interplay between trust and justice that helps to improve management practices and their design to maintain and promote economical and socially sustainable organizations.

**Keywords:** justice, fairness, trust, ethics, sustainable management, practical wisdom

## 1. Introduction

Justice has been studied in several organizational disciplines, the most important being ethics and human resource management. But this is not all the picture, as justice has also been studied in some research that fundamentally tries to show how to design systems and decision processes with justice in the core of their formal and informal elements. Trust has been considered the best intangible asset that serves as an invisible glue that sets together people and organizations to coordinate for common goals. Trust is necessary to be in place between people in organizations and between organizations and their stakeholders. Being an intangible, the mechanisms to generate and promote trust are hidden; therefore trust is not possibly exchanged as a normal asset, and in fact, organizations that “buy” trust from their stakeholders usually do not generate anything close to it. The mere fact of entering in a conventional exchange involving trust (try buying with money trust) removes the motives

that people hold when willing to trust others, and even poses red flags that motivate just for the opposite. Trust, when in place, allows performance as a consequence for the long run, promoting socially sustainable organizations.

The relationship between trust and justice has been also considered crucial, as both are aspects that involve social interaction, better fulfillment, and increasing alignment of people's and organizational goals (goal congruence). Many researches in management have concentrated on these two elements, and how both can mutually affect each other. In this chapter I am going to devote time to propose a way of how both are important and should be brought together to promote long run organizational performance and sustainability.

I proceed to study first trust, then justice and eventually the interaction of both, to conclude which may be a good approach to understand both in terms of implications in organizational management. Finally, I end up stressing the importance of ethics and specifically see how ethics come in the form of showing trust and justice to be the crucial embedded aspects of ethical relationships.

Including the ethical dimensions of justice and trust into organizational relationship and coordination allow going beyond the social and psychological characteristics already posed. Then, ethics, or the principles that guide and serve as basis of what should be done, make justice and trust the two intangibles that are the most important in organizational relationships and therefore in the long-run survival of organizations as a social system of coordination, relationships, interactions, and worth exchanges.

## **2. Trust, justice, and a comprehensive interaction model**

Trust has been an elusive concept that has been studied in many fields, most importantly in economics and management. From an economic perspective it is the necessary intangible glue that makes people exchanges progress in a smoother way. Trust should be built to make coordination last, but economists discovered that it is not a commodity that has its own market to be exchanged. This implies that trust has value but there is no price of acquisition, so it is generated in a way that incorporates personal morality and the willingness to do good for ourselves and, in case of trust, for the others. Arrow, a preeminent Nobel awarded economist arrived to this conclusion, as we will show below [1]. In the "Limits of Organization" in fact what Arrow is showing is more the "limits of the markets" to organize interaction, as precisely organizations as a coordination mechanism, involving trust, is what go beyond the pure market reasoning of facilitating exchanges in a pure monetary basis.

Trust is needed when people as consumers decide over a set of potential options, as they eventually chose one option that they trust. But also, into organizations to make people rely on other people assessments and opinions, when they cannot arrive to one personal opinion due to lack of information or expertise. Or complementary to this, when people rely on other's information to form their own opinion.

Justice is both a cause and effect of some specific characteristics that are incorporated into relationships, their process and distributions. Studied as the main moral virtue of character, the mother of moral virtues, it makes people pursue their own good and the overall good of the organization and its participants. Both concepts, trust and justice, are crucial in the ethical dimension of business interactions and relationships.

In the next sections, I am going to study both of them separately and then explain the relationship between the two, to generate socially and economically sustainable organizations. I am going to stress that trust and justice should

incorporate their ethical dimension as these are the ones that allow nurturing interactions between people and between people and organizations for the final end people have, which implies fulfilling themselves through their purposes and mutual supporting.

## **2.1 Trust and its foundations**

Trust has been studied in several organizational disciplines, the most important ones being economics and management. Trust is not an easy intangible to study. All incumbents in organizations are talking about trust generation as one of the crucial aspects to be promoted to generate involvement in coordination for the common goals, and specifically, a long-term coordination. Brands talk about trust generation and use brand ambassadors for that purpose. Organizations talk about generating trust and care for their employees first and the rest of the stakeholders afterwards. So, all management disciplines talk about trust as the most necessary intangible to be incorporated in their relationships with clients, workers, and all the stakeholders. Trust should be built and not destroyed; these two objectives are clear and widely shared. But how to achieve those goals? This is a complete personal career in any managerial field, no matter which discipline, no matter which organization. All managers care about this but are not sure how to implement it successfully. Another aspect of trust is that it is hard to build and easy to lose in any reputational dispute, so it is not only that trust is important, but managing any short-term reputational effects over the trust that has been long term generated, is also very important (i.e. it is important to note that as people have their own perceptions of trust, managing them is important, and making them close to factual).

One of the scholars worried about trust has been Kenneth Arrow. In his book “The Limits of Organization”, Arrow considers trust as the necessary glue of economic systems. Trust, according to Arrow, is elusive and non quantifiable, and without trust desired transactions do not occur [1]. In fact, he considers that trust is in the boundaries between authority and responsibility, as a crucial aspect that has value but not clearly an exact and known transactional price. Therefore, in Arrow’s words, if you have to purchase trust, you are not really sure about what you have really bought. In fact, we can even say that when you try to put trust as a mere exchange good, what happens is that at some point you force people to concentrate in mere motivations that imply short-term win/lose analyses. Then the prophecy self-fulfills and finally you have people that usually mistrust the rest and only focus on the short term.

So, if trust is not a commodity this means that cannot be easily transacted. Thus, it is difficult to know how to generate and destroy trust which makes more important its study as a worth ethical characteristic of economic and organizational systems. And on top of that, trust is unavoidable in exchanges and coordination, if we want it to last, so the fact is that trust is not exchangeable easily but at the same time it is a must.

In fact, organizations that try to buy trust among their employees are paving the way to precisely generate the opposite. Why? Because, people are easily aware that the interest of the organization is instrumentally using trust as an excuse for something else, so not being transparent of their real interest and purpose, so ending up generating just the opposite: distrust. So, looking for trust generation should bring something genuine in place so people could think it is for the best of all, not merely a few or for some spurious organizational interest.

Arrow was a preeminent economist, and his last work was devoted precisely to the nature and value of trust, that he considered an ethical concept, to be necessary in economic interactions. He considers trust to be the most efficient lubricant

in social interactions as it allows to save lots of resources. Therefore, he looks at trust as an ethical aspect with real pragmatic value, so, trust is not only a nice thing to have in organizations but a necessary ethical requisite. Markets and ethics are confluent, and this confluence needs specific attention and implementation. In the end morality is unavoidable to get markets that work [2]. You should be more or less confident that persons interacting in a market generally act in a morally sound way and so should build relationships that make them trust each other. From the point of view of an economist, Arrow considered trust as a social norm based on morality, that equals transparency, integrity, and honesty to make reciprocal social interactions follow the right path to bring good for everyone. The fact that Arrow considers trust, and ethics (as the broader recipient of the first), as the foundational aspects that make organizational deals work, is seeing trust as the cause of worth relationships in business.

To put it simply, trust in its minimal approach implies 1) two persons, the trustor and the trustee, 2) evaluation from trustor to decide whether to follow the trustee advice in something of his or her interest, 3) an act from the trustee that shows whether the trustee honors or betrays the trustor's trust on him or her, and 4) an evaluation of the interaction from the trustor of whether it has been worth to trust the trustee.

Following this simple trusting mechanism, several definitions of trust have been posed from the researchers' community. There is a broad conceptual definition of trust that summarizes the concept in a meaningful way. According to Zand, trust is composed by the "actions that increase one's vulnerability to another whose behavior is not under one's control in a situation which the penalty one suffers if the other abuses that vulnerability is greater than the benefit one gains if the other does not abuse this vulnerability" [3]. So, there is something to lose from the trustor's perspective. Also, not honoring trust from the trustee can have some short-term surplus gain compared to honoring it (so trustee is better off when not honoring trust compared to honoring it), because otherwise, there is simply a win-win game, without any need for trust to be in place. Of course in this situation of win-win, the trust specific interaction does not exist, but it could happen that trust over that person in general exists anyway, the issue is that the trust interaction does not start, or it is not even necessary when everyone earns trusting the other, usually, trusting in a specific moment in time, should imply having some tradeoff, so there is something to lose when the trustee honors trust compared to some gain for taking advantage of not honoring it. The same happens for the trustor that she/he is worse off in case the trustee does not honor the trust compared to honoring it.

So, first, there is the decision to trust, and enter into a trustworthiness evaluation (from the trustor about the trustee), and afterwards the decision to honor the trust (from the trustee). Of course, for trust to last, both parties (specially the trustor) should evaluate how worth has been the actual interaction and therefore as a consequence how probable it is to trust the other party again. Meaning, how probable is to enter into a long-lasting trust, that is the glue that is needed in Arrow's terms [4].

But which is the process of trust generation, and which the process of mistrust generation or trust destruction? More recently, organizational scholars have tried to see trust as a sequence of personal dynamics that involve at least two parties, in which, one of the two (trustor) decides whether to assign to the other party (trustee) the required trustworthiness. In case the required trustworthiness is assessed and the trustor considers it enough, then this makes the trustor trust the trustee. As Dietz believes, there is a basic dynamic, common to all trust encounters, in which "an assessment of the other party's trustworthiness which informs a preparedness to be vulnerable that, in genuine acts of trust, leads to a risk-taking

act" [5, p. 215]. Then, trust, looked at this way, is a consequence of trustworthiness (defined as a perception of trust placed on a person who is evaluated as to whether he or she deserves to be trusted or not).

So, trust is a consequence of trustworthiness which acts then as a cause. So, it is a risk-taking activity that involves some time of perceptual process of the trustor about the trusted party (trustee).

Some researchers consider that there are several types of trust, for instance rational calculative trust, altruistic trust, or blind trust, or also depending on the parties, if these are two individuals, the trust is labeled "personal trust," or in case of involving organizations, then it is called "institutional trust" [6].

But, other scholars, like Dietz, suggest that trust can be considered as general trust experience process that, depending on the individual and group characteristics, may differ in how this universal trust experience or process occurs, and which steps are more or less prevalent when compared to the others. This group of scholars consider that different evaluations of trustworthiness, cognitions, and actions of trust will thus originate different effects coming from the trust experience [5].

Then, trust is a choice? Not always, as people may be obliged to enter into trust, as maybe they are interdependent to the other party. In this situation there is no decision of trusting the trustee, so this specific condition is not there, but still the rest of the trust process remains. In this case, trust is not a decision, but the process of generating trust should occur for sure. So risk and interdependence are intrinsic elements of trust, the definition then being more a general one, so trust is 'the willingness to be vulnerable in conditions of risk and interdependence' [7]. Considering trust this way, trust is not a cooperative behavior or a choice of taking some risk, but instead a situation in which risk and interdependence may generate necessarily an evaluation that once is positive, conduces to trust generation, and then, implies cooperation and taking the risk.

But one caution here, the mere existence of risk and interdependence may not need trust process to occur. In some cases there is only the need to calculate to arrive to a decision; then, it is not easy if this can be considered "calculative trust" or really trust is not even in place nor needed [8]. Boundaries of the concept of trust still exist and there is not a complete agreement between researchers.

In all instances, even if trust is a decision or a situation in which there is some obligation to be interdependent with some other party, trust requires an evaluation from the trustor about the trustworthiness of the trustee. This trustworthiness is a construct formed by the perceptions of some trustee's aspects, that were revised in an integrative paper by Mayer, Davis, and Schoorman [9].

When assessing trustworthiness people evaluate the following three aspects of the trustee: ability, benevolence, and integrity. However, in a more recent paper about trust quoting this research by Mayer et al., it has been argued that "the Mayer et al. definition misses an important aspect of trust, though: in order for the situation to be meaningful, the potential trustee has to have something to gain by performing an action that is not favorable to the interests of the trustor. If not, the interests of the two people are perfectly aligned and thus, in general, there should be no problem" (8, p3). Meaning again, that boundaries of trust are still there in discussion. This latest boundary incorporates, then, the avoidance of trustee's opportunistic behavior, seen from the perspective or assessment of the trustor [10]. This evaluation of the trustworthiness of the trustee is done in some specific situation, that is, the specific "trust encounter" or in other words, the trust exchange.

This vision of trust being a consequence of trustworthiness incorporates morals, and each of the three aspects go parallel to the Aristotle concepts incorporated into his book *Rhetoric*. Ability corresponds to Aristotle's concept of "intelligence," integrity to Aristotle's "character," and benevolence to Aristotle's "goodwill". Then,

the Aristotle concept of persuasion that would imply making appealing what a trustee says to convince others of being trusted is linked to the building blocks of the trustworthiness concept, a very successful construct in the literature of organizational trust.

In general, when trusting someone implies an assessment about this person's consistency (sometimes even we think that this person in that matter is even more consistent than ourselves), to actually make this person capable of putting into practice what is good for all (also ourselves) according to his or her system of values. Then what we in the end trust is his or her capacity to do that, to act in that specific ethical way. In consequence, we think that the trustee is a person that shows the integrity between his or her actions and values and does this for the good of the ones involved in the relationship or also for the entire organization (in case of he or she acting on its behalf). Then trust is linked to believing from the trustor's perspective that the trustee is a virtuous person and so pursues the good. Here comes the ethical part of trust, that is, the trustee's capability of making right choices about what is good to be pursued. Right choices imply deciding over which objectives area good, and it is here when justice comes to place into the trust equation. As being good and right implies being just. So, looking at the ethical dimension of trust, this implies we trust someone because we consider she or he is the one that is just when deciding, and therefore incorporates in the decision-making, standards of just behavior. We trust in his or her justice standards.

In conclusion, we trust someone because the choices he or she usually makes are leading to generate just outcomes; therefore this person shows up justice standards and learns and evolves to individually increase these justice standards over time. We are going to examine justice as the moral virtue that managers need to put in place to generate trust. Managers should include justice into their decision-making process to generate trustworthiness and therefore trust among organizational relationships between individuals and between individuals and the organization.

But first, I should examine justice as a crucial concept in many disciplines, including management, to finally look into the concepts that are worth to be built-in trust generation.

## **2.2 Justice in organizational relationships**

Justice has been studied in several organizational disciplines, the most important ones being ethics and human resource management. But these are not the only ones. Justice is studied in management control systems to show that managers should design systems and decision processes with justice in mind (formal and informal management control systems with justice incorporated) [11]. Justice is also the basis for the full theory of law, and it is also a social norm, in the discipline of sociology. In ethics or normative theories justice is considered a virtue or a mandatory set of requisites for a worth societal scheme. I am going to revise all the concepts of justice and how they have been integrated to some extent.

Organizational justice has started some decades ago, with the study of the perceptions of justice that people have regarding aspects related to processes, distributions, relationships, and information. Under the label of 'organizational justice', perceptions of justice from organizational participants have been rated to decide whether the organization or the manager is fair or not. Organizational justice is formed by four justice types: distributive, procedural, informational, and interpersonal, depending on the aspect of perceptions people focus on. Distributive justice refers to the perception of what people receive, as rewards or resources, tangible or intangible. Procedural justice asks about the perceptions regarding the processes to arrive at any decision that people consider may generate some effect upon them.

Informational justice refers to the fairness people perceive about the information a manager shares and delivers in the process of deciding. And interpersonal justice measures fairness of the treatment received by a decision-maker in decision processes that affect the recipient. Research has linked organizational justice and close constructs to many desired performance effects in organizations [12]. Recently in the actual investigations around sharing economy, organizational justice has been found as a requisite to build socially sustainable organizations over time, as it serves as an antecedent of knowledge sharing among organizational participants [13].

The entire field of organizational justice has usually evolved through empirical enquiry. Researchers have studied perceptions and how people react to these aspects of distributions, procedures, information, and interpersonal treatment. The underpinning of this reasoning relies on Adams' equity theory [14]. Adam's equity theory states that people compare their own ratios of output and input with the same ratios of others, which is similar to Aristotle's concept of merit. Of course, there are other underlying mechanisms for people to judge fairness, in which people assess what they actually receive compared to what they think they "ought to" receive [15]. In this last one, some ethical standards about what should be are necessary. In this respect the worries are not about deciding between ethical standards and which are sounder, but in understanding that people when assessing fairness have implicit in mind some ethical standards. Both approaches are based on psychology, and some way of looking at justice as a subjective aspect of people's thinking, without caring about which should be the good justice for everyone, or the good thinking of justice or ways to compare which thinking of justice is better suited than the other to generate the good.

But some questions still remain unanswered, as, for instance, are some concepts of justice better than others? Is there a way to decide which justice is better suited to generate the good? And this is the type of questions answered by ethic theories. Ethics is concerned about what is good and what is better. The ethical individual reasoning, subjective in nature, that makes people assess something to be fair or not, treats justice as a black box, subjective and personal, and does not care about the actual black box, containing some specific justice definition or standards. In fact, it presumes all individual standards of justice are equally good. But, here is when ethical reasoning enters into the picture to underline that some justice norms are a central requirement to create good societies for everyone, and therefore, justice is the foundation for a correct functioning of society that aims at providing high levels of happiness and common good to its constituent members [16, 17].

Therefore, once entering into the philosophy and ethical domains, some concepts like justice norms and justice standards appear to be defined, and along with them, specific ways to reason which requirements are needed to generate the best conditions for justice, that in turn may be the foundations of the good and the better.

There is an ongoing discussion of whether justice is a fact or more an ideal to be attained, so a desirable value. And in fact, justice may be, to some extent, both. Of course, justice is not only what people thinks is just, as people can be misled. But justice is also not only what some ethical standards think it is.

Both aspects of justice are important and correspond to different concerns. Normative research remains into the "ought to" type of reasoning that does not attempt to discover at all "what actually is". The same with looking at what people perceive as just. This can indicate whether some justice is in place and, of course, can be an indicator of what people think regarding justice, but these perceptions cannot be a guide to generate norms of what "ought to be" and following implementations. All of these have their own role, as perceptions of justice indicate the actual state of justice implementation and justice while the "ought to be" justice should

guide what reasonably people should follow to achieve a long-run just result in their interactions.

But people's actual subjective thinking of what ought to be is also linked to the ethical reasoning of what ought to be. Some research has focused on interconnecting both types of queries, to find out whether people's concepts of justice are actually aligned to the notions ethicists claim justice to be. From existing data, we know that favorability tend to be correlated to positive perceptions of justice of actual outcomes received, meaning that we believed we deserve (and find it just), the outputs that favor us. In specific distributions, people tend to value just what they positively receive (as they believe they deserve it) and unjust when they are not receiving anything (as they think they deserve it), even if in the normative sense it does not follow justice requirements. This is even stronger in some real and actual situations and not some hypothetical ones. In the hypothetical people tend to be more prompt to actually match what they think about justice ought to be and what theories reason justice ought to be.

Both types of justice, perceptions of fairness and justice as a virtue or ideal for systems and decision-making processes, have some connections and attempts of integration. In fact, moral motives are a very strong psychological motivation to care about justice, even if there is nothing to gain personally in this specific caring. It means people see justice as a moral value and not just a means to achieve selfish ends. Some research asks respondents how they perceive the work behavior "ought to be" and how they perceive "actually is." And surprisingly these are not that far away. This means that, first, as my actual subjective "ought" thinking is not far from the philosophical normative theories, and as I try to be consistent with this, in the end what I do tends to get closer to what I should do, over time. And when asked about perceptions I tend to be consistent on what I think it should be and what I think it actually is regarding what it should be.

Then not all organizational groups think the same; for instance managers think they are implementing justice following this "ought to be" standard, whereas the rest of the organization thinks differently, as they report managers acted differently from what they ought to [18]. All stated before is important, as understanding normative theories people adhere to can improve predictions. And for ethicists, empirical studies about perceptions can also indicate the behavioral and perceptual constraints of justice desired ideals, and how far or close to the standards people think the others and themselves are.

But we should also be aware that differences exist even if researchers come from a similar background. Justice studied from the perspective of organizational justice differs from justice studied from a behavioral sciences perspective. Organizational justice research has assumed individuals are motivated for selfish reasons and by social identities, while behavioral ethics has usually focused on internalized moral convictions and duties and on moral identities. So, justice has different underlying concepts even if the mainstream approach is from a psychological background and through empirical studies. Then it seems justice take several approaches because the questions to answer differ and the visions of humans differ as well.

There is also a paper summarizing justice concepts and providing a useful way to integrating inquiries in a meaningful way in organizational contexts [19]. In this it is explained that a full concept of justice across disciplines would be difficult to incorporate and arrive at. But, instead, we should be aware of the matters and questions around justice that are responded following each approach.

Investigation of perceptions alone cannot replace reflection and discussion about justice. Many situations in organizations reflect this. Imagine the case of an organization in which employees experience a really bad environment, even if they are given voice to express it. And this given voice has not positively converted into



a real change. When they are asked about “procedural justice” they rate it high. However procedural justice is upheld, the voice they are actually given has no real impact on their actual working conditions. So, managing group’s perceptions of justice without addressing real issues of power distribution and safety at the workplace could be judged as unjust from a beholder perspective or from an ethical point of view, even if the worker is rating justice high.

This late example does not mean that perceptions of justice are not important, if correctly managed for the good purposes and for the change towards a greater justice environment. In fact, if we just follow a normative approach without caring for actual perceptions about justice, this dogmatic approach can generate unhappiness in case people’s preferences are not incorporated to some extent, or people feel they are not capable to follow the normative approach in place. And moreover, some existing normative approaches are a close system and are simply obsolete. Many normative systems are closer to societal norms at some past point in time rather than being a truly humanistic approach for promoting the rights of all. It should be important to create a paved way to change the current norms for some better ones, in all instances. Discussions in normative approaches cannot be avoided in any instance. Even claiming around legality, when legal norms are outdated, is even worse, as in some moments in time, some norms in institutions followed strictly the legality and were totally unjust (i.e. apartheid). So thankfully, societies evolve in terms of updating their normative and legal systems to improve justice over time. Another aspect in terms of normative approaches is that in some specific instances, competing normative approaches exist when solving specific ethical dilemmas, and so, it is not clear which is the best one to choose.

In summary, justice has been studied as a social norm in sociology; as a minimum set of rights or duties in law; as a perception of specific instances regarding distributions, procedures, information, and treatment; in organizational justice; and as a moral motivation in behavioral sciences. All are valid and useful concepts around justice worth taking into account, even if some are invalid or useless because they have become outdated or show incompatible visions of human beings.

With respect to the questions responded and the methods used, organizational justice is concerned with the perceptions of justice from the individual point of view, the group point of view, or the beholder point of view, as a psychological construct. Organizational justice addresses questions regarding why people care about justice, how people judge justice, and which are the effects of justice or injustice perceptions.

The questions aimed at being responded in normative justice theories are concerned with justice as an ideal, precisely trying to figure out what a just society is and should be and what is and should be a just person. Responding to these questions could characterize how should be individuals and societies as to be considered just. Or similarly, knowing the requirements for just leaders, companies and society. This then responds also to the additional query of why justice is important. There are connections between both, as it is presumed that in good (therefore just) societies or organizations, people can develop also personal justice skills and so become fairer over time.

Usually the concepts of justice useful in management implementation are the ones concerned with design of systems and their use, which take a normative approach, and also measuring perceptions of actual justice, once these systems are used and implemented. This is nicely explained in this research that proposes a model of formal and informal justice and how when they are present, generate a greater alignment between the interests of stakeholders, and then build the way to increase justice perceptions of individuals under those systems [20].

In the next section I am incorporating practical wisdom as the required virtue of knowledge that Aristotle incorporates as crucial for organizational decision-makers. This is also a point to be made as practical wisdom is a necessary requirement for taking commonsensical decisions in specific organizational situations and arrangements and so, part of situational knowledge that a decision maker faces when deciding over anything today that has huge consequences in the long term.

### **2.3 The role of practical wisdom**

It is important to notice that apart from justice, there is another virtue (the main virtue of knowledge, in Aristotelian terms) that has been considered important in managerial decision-making, and this is practical wisdom [21]. Even if some research has given more importance to this virtue than to justice, in fact there are virtues of a different type. Justice is a moral virtue concerned with what is a good objective to pursue, so it comes first. And afterwards, practical wisdom is the process of implementing that objective to improve the chances of success. Also, when there are several possible good (so just) objectives to choose among, practical wisdom assists to determine which is (or are) the best suited to prosper.

Thus, justice is a moral virtue, and therefore informs about which options are good, and practical wisdom is the virtue associated with the process of decision making; once good options (just options) are in place, practical wisdom is necessary for implementing them, so to build the process to be followed for that implementation. Therefore, practical wisdom is not really useful to discuss about the morality but helps to follow a rationalistic approach of implementing the good and just option in place, or to choose details to make proper just alternatives when several of them are available.

In short, justice is the main moral virtue that allows us to have sound objectives in organizations. Once there are alternatives that accomplish justice requirements, situational knowledge, specific for real life implementation, requires managers with practical wisdom. This practical wisdom is the virtue associated with the practical knowledge to apply specific courses of action that have proven possible in specific situations. This process is clearly explained in this article and proves to be generating learning processes of acquiring practical wisdom over time [22]. It seems that as practical wisdom and justice, put together, help to align people's goals with the organization, this can also be seen as a limit for the need of trust in terms of specific transactions, as the general trust on the virtues of the decision maker, which in turn increases this alignment over time, goes for a lesser need of specific transactional trust.

But, it is the combination of practical wisdom as the principal virtue of situational knowledge, and justice as the moral prevalent virtue in social systems and interpersonal relationships for the good, that makes the organization fulfill its endeavor and be socially and economically sustainable over time [23].

### **2.4 Justice and trust virtuous circle in management**

From the trust literature and the seminal ethical literature, we have arrived at the conclusion that justice is a generator of trustworthiness, and therefore potential trust. Justice in this vein is one of the components that are incorporated into the assessment of trustworthiness of the trustee from the trustor's point of view.

Trust is not a considered a virtue, but it is considered an ethical fundamental concept, that is referred as an intangible asset that serves as a glue to increase efficiency of human interaction at the market and organizational level. Also, trust is a result of trustworthiness evaluation, meaning that, to trust someone, first the trustor needs to evaluate whether the trustee deserves to be trusted or not. As a characteristic of the trustee, trustworthiness also has many ethical elements,

mainly involving justice and fairness. Then, trustor should judge the trustee fair to enter into the trusting process; otherwise it is difficult that trust could be built over time. And this can happen in both voluntary and forced trust events in which risk is involved and interdependence exists between the trustor and the trustee.

Justice as a requisite then is an antecedent of trustworthiness and also an antecedent of systems requisites to generate future fairness perceptions, that are also necessary to generate future trustworthiness, once some trust interaction has started. Therefore, justice is both an antecedent and a consequence of trust in someone.

In organizations justice has been considered as a construct based on perceptions, on the form of organizational justice that is the aggregation of perceptions of how fair are procedures, distributions, relationships, and information. It has also been studied as being part of formal systems and system's use (what has been labeled as informal systems). Following this late definition, a seminal paper in the literature of management control systems and justice has considered that there are two types of justice, the formal justice (attached to system design) and informal justice (attached to system use or managerial use of the system, which is the same). Then informal justice is linked to the informal organization and formal justice to the formal organization. Both formal and informal justice have a positive effect over goal congruence, meaning that people that perceive the system and its use are fair tend to increase their alignment between their individual goals and organizational goals over time. So, justice tends to increase the alignment of interests between the institutions and participants [11]. Even if in terms of justice, it seems that informal justice has more potential to actually change the system and generate greater improvements over time rather than formal justice alone, the use following justice criteria seems more appropriate to learn and suggest improvements [24]. So, the ethical or virtuous use of the systems (which mainly should be just) generates greater alignment of goals and greater overall future fairness compared to the mere implementation of formal justice in a mechanical way.

Additional research on the matter uses this underlying relationship between justice and goal congruence, and incorporates also the trust in managers variable [25]. In this model, ex-ante justice (formal and informal), trust in managers, and interest alignment between participants are shown to generate future perceptions of justice over time. This means that when managers use the system following justice requirements, people trust them, their interests are more aligned with the organization, and finally justice is generated also in the long term. This is creating a virtuous cycle, as once this starts, this new justice perceptions reinforce future trust generation, helping to improve the system and its use over time.

Goal congruence or interest alignment on its own, when high also makes people increase fairness perceptions, meaning that it increases how they perceive the justice in all organizational dimensions (distributions, processes, information, and personal treatment). Then, once informal justice is in place, it generates a positive effect trusting managers, and this in turn has a positive effect in future perceptions of fairness that following this virtuous circle feeds again the process of trust generation. The previous virtuous circle, once in place reinforces the alignment between the interests of the organization and stakeholders, increasing the willingness of a shared meaningful purpose.

### **3. Conclusions**

Trust is the most desired intangible to be generated in economic exchanges. Trust functions to bring ethics into the market interactions and into the organizational relationships, which is considered the best way to increase efficiency. The

big characteristic of trust is that it increments efficiency but in nature is a moral aspect that cannot be traded. In fact, thinking of its tradability makes it clear that we are trading something that we can assure is not trust at all [1]. So, ethics should be incorporated into this with a genuine interest for the good, and when doing so, it is trust, this ethical intangible, that eventually makes the economic world function smoothly and with ease.

But trust needs to be generated, and fundamentally foundations of trust rely on how trust is generated and so, how one party (trustor) makes a specific assessment to what extent the other party (trustee) deserves to be trusted or not. Fundamentally this assessment is based on ability, integrity, and benevolence, psychological characteristics that are found also in the Aristotelian Rhetoric, being there labeled intelligence, character, and goodwill.

The first (ability) is more linked to technical skills and expertise (I am trusting your ability to perform efficiently and effectively some specific tasks and duties), but the other two (character and goodwill) are mainly linked to building the specific virtuous aspects of managers. And which are the aspects of managers that generate trust? Managers generate trust when acting according to what they say and based on a system of values that incorporate virtues, justice being the mother of moral virtues, central to generate the good in organizations. Therefore, managers generate trust when the ones that are affected by their decisions judge they are going to act according to justice for the good of all, not for selfish interests. This good, then, can be judged by the ones that have trusted managers, in terms of justice perceptions related to processes, information, relationships, and outcomes. Once these perceptions are present can feed new trust interactions, which in turn affect future generation of trust and trustworthiness. Justice is an antecedent of trustworthiness, and future justice is an antecedent of future trustworthiness. Thus, the loop generated is clear, and the virtuous circle is clear too. Both trust and justice are crucial ethical dimensions in organizational relationships to serve as the long-term fuel to build social and economic sustainable institutions. Trust cannot be generated out of the blue; instead it needs strong justice implementation and performance to start being generated. Once the virtuous circle is implemented it should be fueled over time, as learning to be fairer is a path of improving character and goodwill of managers that never ends. Ethical standards and justice standards evolve, and managers should evolve too. This learning is necessary to allow trust to increase, as if the process of increasing trust is not in place the process of destroying has, for sure, started.

## **Acknowledgements**


I acknowledge the invaluable help of my colleagues at Open University of Catalonia and IESE Business School for our discussions on the topics of this chapter, mainly Josep Maria Rosanas, my advisor and colleague with whom I have shared uncountable hours of conversation and fruitful debates.

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# Cultivating Trust in Employee Relations

*Lydia Mhango*

## Abstract

At the heart of employment relations is the desire of both management and employees to create an ideal and efficient and effective organisation. However, this does not always happen, and both employers and employees and their representatives share the blame. For employees and their representatives, the “us against them” attitude is a catalyst for distrust. For employers, inflexibility and autocratic leadership styles make effective human resource management extremely difficult. Through interviews with management and union representatives, this experimental research explores causes of distrust, offers solutions and ends by suggesting the adoption of the Soft Human Resource Management (SHRM) approach as a solution to enhance trust in employee relations. The study focused on trust in organisations that have unionised workers.

**Keywords:** trust, cultivation, employee relations, SHRM

## 1. Introduction

Why do most employees have little or no trust in their employers? We spend many hours of our working lives at the workplace yet we find that to a large extent, there is little or no trust in our employee relations. Generally speaking, in many organisations in Zambia, for whatever reasons the absence of trust exists, the effects are negative on organisational morale and performance, particularly when all parties feel and can justify that their position is right. Justification is always supported with genuine examples, thus making the cultivation of trust difficult. Parties involved become embroiled in investigations and manoeuvres to further justify their positions to prove their stance.

An indicator of the importance of trust in employee relations is the extensive literature that exists on trust in the workplace and in general. Research results on the effects of mutual trustworthiness between labour and management concluded that labour-management representatives must recognise the importance of mutual trustworthiness in employee relations in their efforts to adopt high-performance work systems [1]. Employee's lack of trust in their employers is not a new phenomenon. Researchers acknowledge deep and structurally embedded conflicts of interest and worker alienation Thompson [2]. According to Francois [3], findings on trust in union leaders and the decline in union membership concluded that this is a result of failure by union leaders to lead by example, poor communication, lack of training and unfair practices.

A survey by Deloitte [4] indicates that one-third of the survey participants desire new employment; of this group, almost half cite a distrust in their

<b>High trust</b> Characterised by: hope, faith, confidence and initiative	<b>Low distrust</b> Characterised by: no fear, absence of scepticism, absence of cynicism, low monitoring and no vigilance
<b>Low trust</b> Characterised by: no hope, no faith, no confidence, passivity and hesitance.	<b>High distrust</b> Characterised by: fear, scepticism, cynicism, wariness and vigilance

Source: Elgoibar et al. [7].

**Table 1.**  
Characteristics of high and low trust.

company. The Elderman Trust Barometer [5] reported that 82% of employees do not trust their bosses to tell the truth. When employees have little faith in their leaders, businesses experience several negative consequences. Employees feel less invested in the outcome of the business. This results in lower productivity as employees may miss work and deadlines and become indifferent to disciplinary action from managers. Trust in employee relations is important for organisational performance and is linked to outcomes such as reduced employee turnover, better profits and generally improved cooperation among employees. Many employees tend to have negative views about their employers [6] just as many employers have negative views about their employees.

Elgoibar et al. [7] defined trust as “the expectation that the other party will cooperate in the future.” Since it is an *expectation*, they further argue that trust and distrust often appear together; that distrust appears mainly when the other party violates the psychological contract<sup>1</sup> or formal agreements. In the case of organisations, distrust usually appears in downsizing, corporate restructuring situations or when the information is partial or invalid [7]. Characteristics of both trust and distrust are summarised in **Table 1**:

Examples of behaviours that indicate a lack of trust by employees in organisations include:

- a. Employees do only what needs to be done and are anxious to knock off. Trust has been found to explain why some employees effectively complete their jobs and in addition go above and beyond the call of duty in their work without clear recompense [8].
- b. Limited collaboration, cooperation and information sharing; practice of the safe decision making to avoid conflict; where the management style is top-down and top management believe influence comes with their titles. Employees and union leaders are taken by surprise at decisions made and implemented without joint consultation.
- c. Pertinent information required for good decision-making is withheld; lack of open and honest feedback, input and dialogue are rare. “*Successful relations with management are dependent on openness but also access to reliable and up-to-date- information – the latter is not always guaranteed*”—union leader [13].

<sup>1</sup> The *psychological contract*: the unwritten set of expectations of the employment relationship as distinct from the formal, codified employment contract. Available from: <https://www.hrzone.com/hr-glossary/what-is-a-psychological-contract>

- d. Employees ignore emails or pretend they have not read them. Managers that wonder why employees push back, miss the mark and second-guess their advice might want to consider a less obvious problem – an underlying lack of trust (Hinojosa, P).<sup>2</sup>
- e. Too many dark corner meetings, rumours and grapevine news. It is unwise to instantly dismiss grapevine news as petty and untrue; while it might be distorted, it may serve as a pointer to something happening. Persistent rumours are not always without merit [9].
- f. Complaining, finger-pointing, blaming; no personal accountability; decision-makers say one thing and do another.
- g. Lack of transparency – transparency is important because it goes hand in hand with trust. Without these two, workplace culture and relationships suffer. Lies and secrets break trust, while honesty and transparency build trust. When trust is created, it leads to a heightened sense of security and better employee performance (fierceinc).<sup>3</sup>
- h. Policies, systems and procedures are grounded in a belief that employees cannot be trusted and have to be monitored and controlled. *“Management doesn’t consider us part of the decision making process. If they don’t trust us, we can’t trust them.”* (union representative).
- i. Managers assume the worst of their subordinates; do not trust them to do their work.
- j. Managers showing favouritism – when a leader shows favouritism, it works against a culture of trust [10]. Superior’s actions through which favouritism is identified include: spending time and socialising with favourites, praises even in small achievements, overlooking mistakes, enjoying more benefits than others in the same position. This results in other employees feeling disliked and end up being resentful, angry, jealous and losing trust in the leader.

Available from: <https://www.psychologytoday.com/us/blog/trust-the-new-workplace-currency/201405/10-ways-tell-trust-is-lacking-where-you-work>.

Despite the importance of trust, organisational environments often challenge the trust that employees bestow on organisations. As trends toward downsizing, restructuring, and temporary employment continues, perceptions of unfair treatment, broken contracts and experiences of betrayal remain a part of the organisational landscape [11].

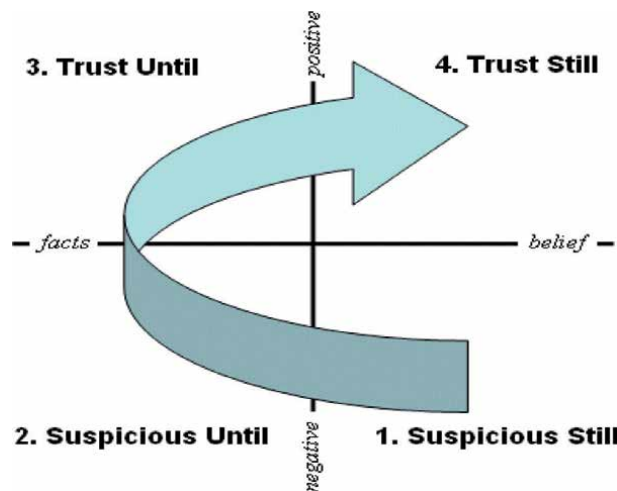
The above examples of causes of distrust in employers and management by employees are often exacerbated by the “us versus them” attitude, which serves to deepen distrust in the work situation. Much as unions have a legitimate right to organize, they need to guard against the dangers of firstly uniting against management and secondly their leaders focusing on adversities. Probably a weakness in managers, resulting in their positions of authority, is that *they take trust for granted* and assume their employees can be kept at arm’s length without guidance on how to improve performance.

<sup>2</sup> Available from: <https://www.insperity.com/blog/lack-of-trust-in-leadership/>

<sup>3</sup> Available from: <https://fierceinc.com/blog/leading-business-problem-3-lack-of-transparency/>

## 1.1 Trust models

Building trust can be a complicated process depending on attitudes. Paul English (2020) [12] quotes HR consultant Robert Fisher that there are four basic trust models shown below:



**Suspicious still**—do not ever trust anyone, even after they have done something nice. *“My relationship with the management is difficult and the management trusts me never and not in any matters. It’s not possible to increase trust.”* (union representative)—It is not possible to build trust with such a negative attitude. Once betrayed, the reaction can be anger, bitterness, hurt, vengeance, etc. Leaving one believing that they can never trust again, and wondering why they trusted the management in the first place, and believed they would have integrity.

**Suspicious until**—do not trust anyone until they prove themselves. *“Trust should be earned. I definitely can’t say that I deem everyone trustworthy until they prove otherwise”* [13]. Thornton [14] writes that trust is eroded by waiting for others to earn our trust in that when we meet new people and immediately think that they have to earn our trust, then we are intentionally withholding trust from them. It is a “wait and see” attitude that leads to Low Trust in **Table 1**.

On the other hand, this is a slightly better attitude that can provide the beginning of trust-building.

**Trust until**—trust people until they screw up. *“If you begin every relationship not trusting that is what you are seeking unconsciously. Trust should be given to all and it is for those people to break that trust and that is when it is taken away. It is called seeing the best in everyone until you are proven otherwise.”* [15]. Broken trust is not always easy to mend and it causes people to withhold trust. “Trust until” is another negative attitude if it is prolonged. Such an attitude should also call for self-examination in that employees may have unrealistic expectations of their employers.

**Trust still**—trust people even after they make mistakes, sometimes even when they hurt you. This attitude works in important relationships necessary for continuity, and perhaps coupled with a genuine apology by the betrayer. Thus, trust is also a risk, and most people are victims of betrayal of one level or another. Kwon<sup>4</sup> offers positive advice by suggesting that the only way to know if you can trust somebody again is to trust them. “If we never allow ourselves any vulnerability, we lose out on

<sup>4</sup> Available from: <https://tinybuddha.com/blog/trusting-in-the-present-when-youve-been-hurt-in-the-past/>

the opportunity to make incredibly deep and meaningful connections that open up our lives in ways that couldn't happen any other way.”

People can evolve from the ‘suspicious still’ to get to ‘trust still’ stage, i.e., trusting people even after they have wronged you or treated you unfairly. In the workplace, stages 1 (suspicious still) and 2 (suspicious until) are negative and ingredients for distrust. Stage 3 is safe unless people actually ‘screw up’. English concludes by saying “People at the positive top of the trust diagram are generally more successful in life than those on the bottom. Part of this is that you often need to trust colleagues to have them perform at their highest levels” [12].

Can organisational employees evolve to stage 4? What techniques can be used to cultivate trust to evolve to this stage? Below are the findings of the study of causes of lack of trust by employees and their representatives in management or employers.

## 2. Findings

### 2.1 Reasons for distrust: Employees and unions

- i. *Information Hiding by Management*—unions resent this and become suspicious whenever there is an absence of information flow between themselves and management. It is perceived as a sign that there is no middle ground to share vital information necessary for mutual existence; management is management. Information gathered from corridors and hearsay fosters immediate distrust.
- ii. *Management's Stance on Inclusiveness*—whenever unions are not included on the organisation's strategic committees (e.g., Council and Senate in a university) with the result that there is no input on important decisions from employee representatives, decisions are questioned, and inevitable outcomes are infighting and distrust.
- iii. *No Joint Consultations*—a consequence of ii above; meaning unions are not regarded as part of stakeholders; they do not have decision rights and are seen as trouble makers. Management's unilateral decision-making is a premise to lack of trust by employees and their representatives. Unions, therefore, resort to planting spies to gather information which is then shared with their members, leading to uniting against management.
- iv. *Questionable Financial Management*—where evidence exists that the organisation does not have adequate resources, has a huge wage bill, and is carrying a huge debt (e.g., unpaid retirees and contract gratuities), yet it embarks on, for example, employing more staff, taking numerous expensive trips, and construction of unimportant infrastructure is seen as a sign of poor financial management. Retirees remain on the payroll and the wage bill continues to increase.
- v. *No Adherence to Strategic Plans*—where there is little or no reference to well-written and published strategic plans to verify that activities are aligned to plans, and which plans the unions are not involved in the drafting, leaves employees and their representatives without a sense of ownership of the plans. Unions end up criticising strategic plans and untrustworthy management styles.
- vi. *Broken Promises*—this is a perfect example of ‘suspicious until’ and ‘trust until’ in the trust model. For most human beings, ‘broken promises’ is equivalent

to 'broken trust' in relationships. When promises are broken by employers/management, it increases the magnitude of violations, the number of past violations, and the perception that the offender *intended* to commit the violation and raises distrust. To distrust is to have no confidence in someone or something.

- vii. *Inequities in Career Progression and Remuneration*—this is perhaps the most damaging cause of distrust, whether blatantly or subtly practiced. According to Equity Theory, individuals are motivated by a sense of *fairness* in their interactions. Perceptions of inequity create suspicion and tension within employees and drive them to action that will reduce perceived inequity.

## **2.2 Suggestions on how to build trust**

### *2.2.1 Union perspective*

It can be seen that distrust arises as a result of the experiences mentioned above, and that employees have no incentive to be cooperative where there is no trust. To build trust in employee relations, employees and their representatives suggested the following:

- i. Social Partnerships—defined as “stable relations of mutual recognition, institutionalised co-operation and regulated conflict between organised labour, organised business and government” [16]. This would be a good point to begin to eliminate distrust, where employees and unions work together, involving coordinating the collaboration of key interests. Management needs to treat employees and their representatives as equal stakeholders who should be trusted with vital information and involved in decision-making.
- ii. Create an Inclusive Culture and allow room for differences—an inclusive workplace is one where people with all kinds of differences feel welcome and valued for their contributions and have the same opportunities for advancement, rewards talent and hard work and invites participation from employees. Employees and their representatives should be given a say in the way the organisation is run; they should not be seen as overstepping their mandate when they question certain management decisions.
- iii. There should be a platform to share information—sharing data or information transparently ensures that everyone is in the loop, and that everyone is aware of any potential issues with the business, product or service that can be addressed in a collaborative manner [17]. This would eliminate the use of spies to get information—an embarrassment to management if found out—which also results in distrust in fellow managers as they wonder who squealed.
- iv. Employ the Equity Theory—*Equity is determined by comparing one's input-outcome ratio with the input-outcome ratio of a referent. When the two ratios are equal, equity exists* [18]. It is said “justice is in the eyes of the beholder.” Management should pay attention to being perceived as fair by creating a sense of justice in the entire organisation. Unions care about how their members are treated as their mandate demands.
- v. Equality in the distribution of resources.

- vi. Provide more training and support to prevent employees from feeling stuck in their positions without hope of progression. This builds trust and reduces turnover.
- vii. Include employee representatives in formulating policies to reduce distrust; do not just announce new policies endorsed by management.
- viii. Empower the union by trusting them; they will in turn trust the management team.
- ix. Value the employees.
- x. Avoid disjoint between various decision-making bodies and work in unison to avoid throwing unpopular decisions at each other.

### *2.2.2 Management perspective*

From a management point of view, one CEO itemised the following as ways of enhancing trust in the organisation he works for:

- i. “I wish everybody was a Rotarian” were his opening words. The first of Rotary’s Four Way Tests is “Is it the Truth?” He lives by this quote. “Above all else, reflect the truth as clearly as possible. Honesty helps you gain respect.” He cited an example of politicians who make a lot of promises during election campaigns but fail to deliver after being voted in. There is no truth in that. He stressed that a CEO should be mindful that subordinates should not see him as a dishonest person because this destroys trust.
- ii. “Walk the Talk” is his motto, because he strives not to undermine his leadership by betraying his values, in particular, being truthful as stated in 1 above. As far as possible, he tries to align his words with his actions, and admits that is not always easy. Leaders that are seen to be believable are more readily trusted by subordinates.
- iii. Avoid making promises you are unable to keep—this makes you lose respect. If promises are broken due to circumstances beyond your control, communicating this is better than keeping quiet about it while subordinates wait for it to happen.
- iv. To be seen to be fair—“If I grant a request for employee A and deny the same request for employee B, I am not being fair. It is important to be consistent in what I do in order to remain trustworthy.”
- v. To show interest in staff welfare through sharing relevant information.
- vi. Do the right thing—“Everything I do is driven by the desire to do the right thing.”
- vii. Confidentiality—CEOs have to keep certain information private in order to be trusted. A breach in confidentiality, whether about a superior or subordinate, arouses immediate distrust.
- viii. However, the findings in Section 3.1 reveal that employees and union leadership’s perspective of the CEO did not reflect what the CEO had to say concerning his leadership style. They do not trust him and see him as a leader that does not walk the talk. This perspective ties in with the conceptual framework of Mayer

et al. [19] which examines three trustee attributes, i.e., ability, benevolence and integrity as predictors of trust in leaders. *Ability* reflects the knowledge, skills and aptitudes of a leader, in both technical areas and general management competencies. *Integrity* is the extent to which a leader is seen to adhere to accepted principles. *Benevolence* is the extent to which a leader is perceived to want to do good to the followers; to be considerate of the follower's needs and interests. Benevolence and integrity are aspects of the leader's character which require time to judge [20]. All the union leaders interviewed did not feel that the CEO possessed all three attributes even after he had held the position for a decade.

### 3. Trust must be mutual

There is an inevitable destructive potential in the presence of distrust in organisations in that both management and employees and their representatives think that motives and intentions are sinister. The parties, therefore, make efforts to reduce their vulnerability and protect their interests, which encourages a competitive atmosphere.

Organisational success depends on mutual trust. Unfortunately, this may be lacking in most organisations because trust is risky; risky because it involves an element of vulnerability. Vulnerability means openness to be physically or emotionally hurt or wounded. Dr. David DeSteno says, "*The heart of trust is vulnerability. There's something that you need to acquire or achieve, and you need help to do it, but by accepting that help, you make yourself vulnerable*" (Weir, 2013).<sup>5</sup> This is a challenge for both employers and employees and their representatives if they are to achieve organisational goals. Building trust requires both parties to take the risk and accept the vulnerability that goes with trust; otherwise, an organisation remains in the tit-for-tat situation which affects performance and morale negatively. During all the times people are at work, cooperation and communication are loaded with risks and likely betrayal. Feelings of betrayal, no matter how small or subtle, lead to distrust. Much as we all try to avoid risks and protect ourselves, we need to choose to trust others at work.

The onus is on the leadership of both management and unions to bring about mutual trust in organisations. They need to honestly assess themselves and ask: "Do the people I lead trust me?" DeSteno further says "the potential benefits from trusting others considerably outweigh the potential losses on average."<sup>6</sup> Leaders need to accept that success is *with and through* those they lead, hence the need to earn their trust.

Where trust has been lost, it cannot be built overnight. It takes time and effort and must be evidenced by walking the talk, effective communication and listening to others, shared decision making, team work, rewarding and acknowledging good performance, accepting blame, fairness in all dealings and putting a value on good relationships. Organisational change is difficult but not impossible when the parties are willing to change and encourage psychological comfort at the workplace where more time is spent than in their homes.

Of course, there is always the inevitable situation where jobs are difficult to find resulting in those in employment finding it difficult to criticise authority even in the face of glaring distrust and inequity, for fear of losing their jobs. Such employees revert to boot licking and bad-mouthing colleagues in the hope of advancing their careers. Instead of building trust, such situations build distrust.

<sup>5</sup> <https://www.weunlearn.org/blog/trust-detailed-perspective>

<sup>6</sup> Ibid



## 4. The soft human resource management approach in building trust

According to Mayer et al. [19], trust is “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective to the ability to monitor or control that other party.” Trust is therefore a *psychological* state in which a party accepts vulnerability based on the positive expectations of the trustee. In employment relations trust and trustworthiness reveal an underlying antagonistic union-employer relationship.

Features of the human resource management approach to industrial relations include that:

- It views organisational development from a *psychological* perspective;
- Focus is on the *positive nature* that is found in all employees and management;
- Management has an open-door policy—thus the need for unions lobbying for changes is unnecessary because the SHRM approach emphasises engaging specialised industrial relations practitioners in the human resource department to handle employee relations matters.
- Assumes that managers listen to the needs and concerns of employees. It is an assumption because this may not necessarily be the case for all managers.

The challenge here is whether human resource practitioners are equipped with the skills to execute these features to foster trust in organisations. An expansion of this approach is the Soft Human Resource Management approach (SHRM).

This paper would like to suggest that Soft Human Resource Management<sup>7</sup> (SHRM) an approach where mutual trust exists, offers an ideal and effective management system for organisational performance. SHRM can be compared with McGregor’s Theory Y assumptions that: employees enjoy their work and will be committed to the organisation if they are trusted, trained and developed, and work autonomously. Soft HRM (or the Harvard Model), advanced by Beer et al. [21], Walton [22] and Bailey *et al.* [23] lists the key features of soft human resource management which foster trust between management and employees as follows:

### 4.1 Key features of soft human resource management

Treating employees as the organisation’s most important assets
Employees are key to long-term business strategies
HR department integrates employee’s needs into long-term organisational strategies
Focuses on how employees are rewarded and recognised for their performance
Focuses on how employees are motivated to be actively engaged in achieving company strategy, mission and values
Empowers employees by encouraging them to take responsibility for their roles
Encourages open communication between management and employees
Employees skills are developed

<sup>7</sup> Hard HRM on the other hand treats employees as just another resource like tools and machines required to operate the business; their needs are not considered.

From the worker's point of view, Vroom's Expectancy Theory can be applied here, which holds that employees will be motivated when they believe that they can achieve certain goals and that once these goals are achieved they will receive valued rewards. It is a sub-conscious assessment based on "the perceived **trustworthiness** of organisations and their leaders in honouring the social contracts that govern organisational relationships" ([24], p. 158).

SHRM aims to bring about efficiency, profit maximisation and committed employees. Unions are also interested in these goals for the welfare of their members. This can be seen as compatibility between the two, much as trade unions adversarial strength of bargaining power may be seen to weaken. De Silva (1998) states that, "HRM is not per se anti-union and its central themes are not necessarily inconsistent with unionism." Although SHRM does not focus on collective bargaining in the way industrial relations do, collective bargaining involves all mechanisms brought in to reach a consensus between trade unions and employers. When viewed in this way conflict is reduced and compatibility meets requirements, promoting human capacity building and sustainable productivity. What is required is cooperative unionism since both SHRM and trade unionism require employees' loyalty—this confirms compatibility [25].

SHRM sounds appealing but requires research into its feasibility in Zambia. This is a limitation of the study.

## **5. Conclusion**

Although trust may be a desirable resource, it is often fragile, elusive and difficult to cultivate [26]. For both employers and employees and their representatives, it is important to firstly recognise the presence of distrust and trace the origins. Both parties should also be willing to take the risk of trusting each other despite the vulnerability involved. Accepting this risk should considerably reduce the perpetual conflict and unnecessary suspicions about each other's motives and intentions in their activities and decisions. Unions would do well to organise workshops on conflict resolution and how to handle distrust. Organisations should consider employing the soft human resource management approach to enhance trust in employee relations. With this approach people can evolve from the 'suspicious still' to get to 'trust still' stage. As English concludes in the trust diagram, "People at the positive top of the trust diagram are generally more successful in life than those on the bottom. Part of this is that you often need to trust colleagues to have them perform at their highest levels."

## **Thanks**

Most of the data for this paper were gathered from interviews with workmates. I wish to thank all the people that participated in the preparation of the paper. They wish to remain anonymous but I particularly thank the unnamed CEO, the union leaders and the many workmates who willingly gave their thoughts and ideas on how trust can be cultivated in a work environment.

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# Spoken and Unspoken between Indigenous and Non-Indigenous: Trust at the Heart of Intercultural Professional Collaborations

*Emilie Deschênes and Sebastien Arcand*

## Abstract

Several contemporary societies are facing important issues regarding the relations between Indigenous and non-Indigenous populations. The difficulties of establishing dialogs based on lasting positive intercultural relations have repercussions within the institutions and organizations of a given society. Between the affective and relational sphere and the professional sphere, links are forged, which reproduce complex social relationships, even conflicting ones. This is the context in which our chapter's proposal fits. By focusing on the determinants of social relations at work in these daily encounters between non-Indigenous and Indigenous in the workplace and the bonds of trust, or mistrust, which ensue, we will question the premises of social relations between non-Indigenous and Indigenous. These questions emanate from various research studies that we have carried out in recent years in organizations in the mining and energy sectors.

**Keywords:** trust, Indigenous peoples, institutions, organizations, emotions

## 1. Introduction

*It will take many years to mend broken relationships and trust in Indigenous communities and between Indigenous and non-Indigenous people [1].*

Trust is at the heart of many organizational strategies from different sectors. Yet while the outcome of trusting relationships is indisputable, its determinants are less well known. In various organizational contexts, organizations implement strategies to build trust, which will be adjusted according to contexts, such as in the case of a multicultural organization. In this chapter, we go further by analyzing the determinants of social relations that lead to the trust of Indigenous workers and the extent to which trust influences social and professional integration as well as retention of these workers. To do this, first, we present the issue of current Indigenous employment conditions and its link with trust. The next three sections deal respectively with the conceptual and theoretical framework on which trust is based, examining the determinants that influence the confidence of Indigenous workers in the mining and power generation sectors, and then analyzing and defining interpretation of the elements selected.

## 2. Problem

According to the National Native Economic Development Council (CNDEA), which has developed economic development indices to assess the general results of the various communities, Indigenous remain markedly excluded from economic systems [1]. Despite the fact that an improvement in economic development was observed between 2006 and 2016 [1], it remains lower than that of the Quebec or Canadian population. Likewise, the level of poverty and food insecurity are problematic in several indigenous communities [2, 3] and their well-being index, assessed according to income, level of education, infrastructure. Housing, as well as the employment rate, show poor results on most indicators [2–4]. In this context, employment is of major importance for Indigenous people and for the cultural, social, and economic development of their communities.

The various statistics available related to work or the labor market for Indigenous present data that are not very comparable to the rest of the Quebec and Canadian population. In particular, few jobs are available in the communities, the unemployment rate is higher among Indigenous than among Quebecers and Canadians, and employment rates are lower [5]. According to Posca [6], the gap between the participation rate and the employment rate of Indigenous people indicates that Indigenous people are less likely to be employed than non-Indigenous people in the labor force. Then, data from the Labor Force Survey show that Quebec has a lower employment rate (64.3%) among Indigenous than the other Canadian provinces and territories [7].

However, Indigenous people represent a significant labor pool. Their birth rate is higher than in the Quebec and Canadian populations and the demographics, in both community and urban settings, are growing strongly. For example, according to Howard et al. [8], approximately 600,000 young Indigenous will arrive on the job market before 2026. However, even if we note an increasing presence of Indigenous workers on the Quebec and Canadian labor market [9], the number of jobs available in the community is insufficient to allow everyone to be professionally active. One solution lies in the possibility of working outside their community, in an urban setting or in organizations located close to their community, for example, with natural resource operators.

For those who choose to work in non-Indigenous organizations, there are many challenges. Among other things, intercultural professional meeting is inevitable between indigenous and non-Indigenous workers and requires the establishment of a relationship based on trust, as a necessary condition to allow the socio-professional integration of indigenous workers [10]. However, it appears, in general, and for all the historical and current reasons known [11], that trust is not very present in the relations between Indigenous and non-Indigenous and that some are tinged with mistrust. For example, trust in public services in general is low [12–14]. At the same time, mistrust in criminal justice is great [15, 16], and Indigenous people have developed a constant and deep mistrust of Canada's political and judicial systems ([11], p. 215). In short,

*“The destructive effects of residential schools, the Indian Act and the Crown's inability to honor treaty promises have undermined relations between Indigenous and non-Indigenous people. The most significant damage is the breakdown of trust between the Crown and Indigenous peoples. This rupture must be repaired” ([11], p. 204).*

This lack of confidence is also reflected in non-Indigenous organizations where Indigenous people want to take jobs. However, the non-Indigenous organization may be seen by the Indigenous worker as a representative of society and



relationships are affected. While the socioeconomic development of Indigenous people requires successful integration into employment, it also requires a multidimensional approach [1]. Based on the results of previous research, we believe that trust between Indigenous and non-Indigenous workers is one of those dimensions that needs to be addressed. Confidence makes possible the social cohesion necessary in a professional framework and allows the regulation of intercultural relations between workers, even the reduction of the uncertainty or insecurity that indigenous workers may feel when faced with non-Indigenous people [17]. In addition, it is reputed to facilitate the socio-professional integration of Indigenous workers [10]. It is therefore relevant to analyze the determinants of social relations that influence the trust between Indigenous workers in their colleagues. This reflection also aims to provide possible solutions to facilitate confidence in this intercultural context as a means of facilitating the social and professional integration of indigenous workers.

### 3. Objectives and research questions

Our objective is, on the one hand, to update and enrich the results of previous<sup>1</sup> research using secondary data from different industrial sectors (mining and energy). On the other hand, it aims to take stock of the determinants of trust in these sectors and to determine the potential impact of trust on social and professional integration and on the retention of indigenous workers in nongovernmental organizations.

Two questions guide our thinking:

1. What are the determinants likely to influence the confidence of indigenous workers in their non-Indigenous colleagues in the organization of the mining or energy sector?
2. What is the potential impact of trust on social and professional integration and on the retention of indigenous workers?

### 4. Conceptual and theoretical framework

#### 4.1 A definition of trust

*“Trust is honoring the bonds that unite us” (Indigenous worker).*

The concept of trust is complex, multidimensional and is characterized differently depending on the context and the people involved. It is characterized by notions of expectations, anticipation, and positive belief [18–25]. In the organization, the worker who trusts another worker knows that he can anticipate some of his behaviors or attitudes: he will therefore not be largely surprised or caught off guard. He trusts, because he has no apprehension or uncertainty vis-à-vis the behaviors and attitudes of the other and following the considering and the calculation of the

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<sup>1</sup> This research focused on the determinants of trust in social and professional relationships between indigenous and non-Indigenous workers in the education sector. These are two groundbreaking research studies that focus on the training and employment integration of Indigenous workers. The first was carried out as part of a postdoctoral fellowship at HEC Montreal. (Deschênes, 2017, unpublished), and the second was commissioned by the Niskamoon Society ([17], unpublished).

risks related to his decision and according to the gains or losses he might encounter. For example, he will trust if he can expect, for example, the benevolence, competence, or reliability of the other. From his thoughts, he knows if it is in his best interests to trust. If so, he determines that the other is trustworthy, because his interests or motives lead to the almost certainty that the other will be loyal. At least he is better able to assess reliability and the likelihood of loyalty.

On the other hand, trust is a risk that makes the worker a little more vulnerable, a little more subordinate, and a little more dependent [24, 26–29]. To gain confidence, a step must be taken, a leap in commitment [24, 28], which goes beyond reason alone and which can be emotional, spontaneous, or based on feelings. In a sense, for a worker, trust is the sign of a reciprocal belief in interdependence, as if the other became just as vulnerable as him [26, 30] and that he could lose, or win, in a more or less equal relationship at the start. It nevertheless implies a non-definitive character, depending on the evolution of the relationship [29, 30].

Calculation and rationality are the basis of the reluctance to agree to trust: if the worker always had more to gain than to lose, it would no longer be a matter of either a risk or a risk uncertainty. In addition, trust is built up gradually [15, 23], with varying degrees of involvement.

Then, the characteristics of intercultural environments, those that involve the encounter between Indigenous and non-Indigenous workers, complicate this decision whether to trust the other. Among other things, uncertainties arise, which are linked to the ignorance of the other and the difficulty of anticipating their behavior and attitudes toward them [17, 26, 31, 32]. As in other settings that involve other complexities, trust becomes dynamic [15, 18, 19, 30], as it develops, maintains, decreases, or breaks. The bonds of the members of a team in which the expertise and roles are complementary “must” to some extent be based on a feeling of trust: the work of some depends on the work of others. In such a context of reciprocity, the interest in trusting is great since the mutuality of benefits facilitates the calculation on which the decision will be made.

## **4.2 Affective and cognitive foundations of trust**

*“Building trust, encouraging inclusion and fostering reconciliation” ([11], p. 340).*

In this chapter, the notion of trust is based on a dichotomous vision, which, however, offers a series of nuances between its ends: it is affective (based on benevolence, the desire to get closer, a positive feeling toward the other, even the identification with the other or the internalization of his values, without a priori, etc.) or cognitive (based on the knowledge held about the other, intelligence, reasoning, learning over time, etc.) [15, 23, 24].

Thus, conscious affective and cognitive foundations are involved in the decision to grant confidence (see following table **Table 1**). For example, a worker might find it easier to place his trust in another worker who has the same values as him, whom he has known for some time, who has ethnic or cultural characteristics closer to his own, who has a similar representation of work or family, or which he has heard very positively from several of his colleagues. Then, this same worker could, in theory, have more difficulty trusting a new worker whom he does not know and whom he has never seen, who was trained in a school other than his own, or who speaks another language. Whether voluntary or not, these foundations influence workers.

Then, trust is not one-sided. It concerns a relationship between two parties that have expectations, anticipations, reasons to trust and others, not to risk the bet. The two are responsible for building this relationship, which does not depend solely on

Affective trust foundation	+ or – (shades)	Cognitive trust foundation
<ul style="list-style-type: none"><li>• Previous links between workers</li><li>• Shared common values (cultural, family, etc.)</li><li>• Emotions, intuitions and irrationality</li><li>• Decision based on feelings or on the relationship</li><li>• Personal identification with the other</li><li>• Sense of belonging to the same group (social, ethnic, professional, etc.)</li></ul>	Confidence can fluctuate depending on emotional or cognitive foundations, for example: time, situations experienced with others, positive or negative experiences, new knowledge, etc.	<ul style="list-style-type: none"><li>• Information available on the competence, responsibility or reliability of the other</li><li>• Personal justifications and rationality</li><li>• Accumulation of knowledge about others and their environment</li><li>• Reciprocal representations of work, competence, etc.</li><li>• Similar way of working</li><li>• Decision based on judgment or discernment</li><li>• Political issues related to the relationship</li></ul>

Source: adapted from [17].

**Table 1.**  
*The foundations of affective trust and cognitive trust.*

the worker who fits into an organization. Also, while emphasizing the importance of the trust that individuals place in representatives of an organization (organizational trust) or in institutions (institutional trust) [17, 32, 33], the reflection in this text bears on only on the trust of Indigenous workers in their colleagues (interindividual trust). All share the same space framed by standards specific to a given organization in each territory. In the context of this chapter, the reflection focuses on the trust that Indigenous workers have in their non-Indigenous colleagues in Quebec and non-Indigenous organizations.

In general, trust is approached and analyzed from the angle of a social relationship between indigenous and non-Indigenous workers, which has its source in a colonialist dynamic marked by power issues and underpinned by relationships with the other, to its history, its characteristics, its relation to the territory, etc., which influence the decision to trust. We believe—and our premise is—that the relationship between the two groups is unequal, that one group is more vulnerable than the other [11], and that relationships of mistrust can be created and reinforced because of these elements, even before the meeting between the workers.

Finally, our approach to trust is multidimensional and contextual. Our experience and our previous research on the question of trust lead to a broad understanding of it in an approach that touches on several dimensions (social, cultural, political, historical, etc.) and more specifically according to the contexts [34]. Thus, this chapter does not address trust as it occurs in almost homogeneous cultural environments (for example, a predominantly Quebec organization that welcomes very few Indigenous workers) or in multicultural environments. Rather, it does so in this very particular so-called bicultural (and bi-homogeneous) context, that is, a context in which two almost homogeneous and more or less numerous groups meet.

More specifically, this chapter discusses the determinants of social relations that influence the confidence of Indigenous workers in their colleagues in the specific context of the socio-professional integration of Indigenous workers in non-Indigenous organizations.

### 4.3 Determinants of trust

*“The hope of a new relationship ( ... ) in order to trust each other and to walk side by side” ([11], p. 420).*

In addition to the emotional and cognitive foundations, which serve as the basis for trust, in this text we mobilize relational and personal determinants of trust that come from previous research on the construction of trust between Indigenous and non-Indigenous people in the education sector [17]. They seemed to us to be an interesting grid for the analysis of secondary data resulting from two studies<sup>2</sup> on the employment integration of Indigenous workers in non-Indigenous communities in the mining and energy sectors in Quebec. The common point of this research is the encounter between workers from two different cultures (Indigenous and Québécois) who belong to the same geopolitical territory (Quebec).

The determinants of trust are those elements that indicate and delimit with precision what is to be implemented to encourage the construction of relationships of trust between workers and the human and social aspects, which govern their interactions in the context of work. They are presented in the following box (**Box 1**). It is from these determinants that we examine data emerging from another context: organizations in the mining and energy sectors.

Relational determinants	
<ul style="list-style-type: none"> <li>• Initial relationships or interactions between two people, including the first opinion on the qualities, abilities or skills of the other from the first interactions with the other;</li> <li>• Reciprocal expectations of people promote or inhibit the emergence of behaviors likely to determine trust;</li> <li>• The cost associated with the exchange, that is, the risk of inequality between people or non-reciprocity, then the benefit that one person derives from the other;</li> <li>• The nature and duration of the relationship, the degree of familiarity that determines part of the predictability of the behavior of the other;</li> <li>• The function and roles of the people involved in the organization;</li> <li>• The reciprocity of the feeling of trust.</li> </ul>	
Déterminants personnels	
Worker who gives his trust (i.e. the one who gives his trust)	Worker who is trustworthy (i.e. the one you trust)
<ul style="list-style-type: none"> <li>• The autonomy and room for maneuver granted;</li> <li>• The natural propensity to grant it;</li> <li>• Previous experiences in a multicultural environment;</li> <li>• Knowledge of the other's culture;</li> <li>• The person's propensity to trust or not, which is at the heart of his thinking and which conditions, in a sense, the degree of involvement in the relationship;</li> <li>• The general propensity of the person, depending on the circumstances, to take risks;</li> <li>• The feeling of personal efficiency and professional competence;</li> <li>• The natural or intuitive predisposition to trust others;</li> <li>• Personal values, which guide the choice of behavior.</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback given on the work;</li> <li>• Competence or skill;</li> <li>• The consistency of behaviors such as discretion, fairness, predictability or the quality of judgment;</li> <li>• Discretion;</li> <li>• The availability;</li> <li>• Integrity or moral values, such as honesty, sincerity or keeping promises;</li> <li>• Loyalty and commitment, benevolent intentions, shared values, concern for others or the desire for their protection;</li> <li>• Openness, for example accessibility, information sharing or willingness to share ideas;</li> <li>• Respect for promises;</li> <li>• The accuracy or frequency of the information shared and the modes of communication;</li> <li>• Cultural and ethnic origin different from his own.</li> </ul>

**Box 1.**  
*Relational and personal determinants of trust.*

<sup>2</sup> The results of the two studies are unpublished. They are presented in two research reports. The first postdoctoral fellowship (HEC) and private research (Niskamoon)

## **5. Results: a review of the determinants of trust in the mining and energy sector context**

Considering data on the context of Indigenous and non-Indigenous workers in the mining and energy sectors, the determinants are organized a little differently. Rather than considering determinants depending on whether they are relational or personal in nature, they appear grouped into two “new” categories. We present them in this section.

### **5.1 Determinants prior to the social relationship that influence trust**

First, the repercussions of history and of colonialist heritage on work influence the level of trust Indigenous workers develop in their non-Indigenous colleagues. The colonialist heritage on which Quebec was built continues to shape, among other things, ways of thinking and structure relations between workers [12]. These relationships are tainted by the oppression experienced historically through various actions aimed at colonization, then cultural assimilation, which are still perpetuated today in different forms. Historical background also includes evangelization and forced schooling in boarding schools (as well as all the cultural, spiritual, social, or moral losses that they imply), which have disturbed several generations of Indigenous and still mark, notably in an intergenerational way, certain people. The consequences of these breaches of trust had “serious consequences well beyond the residential schools” ([11], p. 236). In the organization, feelings among Indigenous workers, which vary from a feeling of unease to a feeling of oppression, reverberate in different ways in their social relationships with non-Indigenous workers and influence their propensity to give their trust. Relationships are also marked by the mistrust that arose from the colonization process during which the Indigenous were imposed on institutions and systems of thought that were distant from their own systems (social, cultural, political, etc.). Organizational life, by requiring compliance with rules and norms, can recall this process and the imposition of a whole foreign social system on the Indigenous, which caused unforgettable prejudices, which still affect intercultural relations today [11, 12].

Workers may fear to experience this type of relationship again or in a different, more subtle, even unconscious form in the non-Indigenous worker who reproduces colonizing behaviors, often without knowing it. Then, it can be difficult for a Indigenous worker who has experienced the direct or indirect consequences of the colonialist heritage to fit into an environment where non-Indigenous are mostly the decision-makers of all decisions affecting his/her professional development in the organization. This is reflected even among Indigenous workers according to their personal trajectory: “People who come from reserves, they really have a longer way to go than those who come from Abitibi, that’s day and night” (non-Indigenous worker). Another adds that these latter went to school with the whites. “That’s it, they’ve been assimilated since they were very young” (non-Indigenous worker). In a work setting, a Indigenous worker might fear the imposition of a one-sided relationship. On the other hand, this situation leads Indigenous workers to confuse cultural assimilation with assimilation into an organizational culture and to a specific team and job dynamics. A change in behavior or attitudes may indeed be desired by a workplace (or its representative, the employer), and Indigenous workers who have less professional experiences in this type of organization or sector may have thought that the milieu wanted to “culturally” assimilate them. To this is added the fact that the company specializes in the production and processing of a single resource distributed to all consumers. This favored the construction of a traditional organizational culture based on the performance and productivity of its

workforce and without considering the contribution of other cultures in the organization of work and talent management.

The cultural stake of intergroup or interethnic meetings is another important determinant of social relations on which the trust of indigenous workers is based. Among other things, ignorance of the other (as much as the ignorance of the characteristics of Indigenous workers for non-Indigenous workers and vice versa) carries potential conflict that undermines trust. It brings its share of prejudices and stereotypes that undermine the building of trust. Then, it is also the source of a lack of adaptation of the environment to accommodate the Indigenous workers. Blind to the real characteristics, issues, and realities experienced by these workers, organizations find it difficult to intervene knowingly or in such a way as to recognize practices, representations of work, or important values in the eyes of Indigenous workers [10]. In general, non-Indigenous workers know little and are less interested in the culture and traditions of Indigenous communities [35]. Then, the lack of knowledge and respect for elements of indigenous cultures, in addition to their negative impact on confidence, is at the origin of the dissatisfaction of indigenous workers and can undermine the integration and retention efforts of the Indigenous workforce in non-Indigenous organizations [36–39].

The recent commissions of inquiry on the realities lived by Indigenous people report that the truncated public image of Indigenous people is also responsible for maintaining ignorance of them, including under-representation and the folkloric way of portraying them, in particular by conveying stereotypes [11–13]. In short, ignorance and lack of understanding of certain social and psychological repercussions of elements linked to the history of communities, particularly those concerning colonization, evangelization, and residential schools, affect trust [32, 40]. On the other hand, for both Indigenous and non-Indigenous workers, training helps to overcome these shortcomings and the lack of knowledge of others, which two workers express as follows:

*“I think it was good [the training]. He explained to us the whole reality of arriving in an environment where it's just white people and the difficulty of not being able to trust everyone” (non-Indigenous worker).*

*“I find that what is lacking in terms of training is to make a profile of whites to [Indigenous] ( ... ). They make us the profile of the [Indigenous] before joining us, not personalized, but rather integral. But the reverse is not done, they do not explain to [Indigenous] what a White” (non-Indigenous worker).*

In the context of the data used for the drafting of this chapter, the circles surveyed are bicultural, which generates a particular dynamic where two groups tend to form and to mix less [17, 32]. Specific identities (linked to ethnocultural, linguistic, or spiritual affiliations) characterize them and the individual identification or belonging of workers to one or the other of the groups seems to be “taken for granted” to them. The self-registration of indigenous workers in a particular affiliation leads some of them to isolate themselves socially and without too much interaction with workers belonging to other spheres of affiliation. Moreover, a particular phenomenon of voluntary social isolation, a form of self-marginalization of indigenous workers (for example, indigenous workers who take their meals and do leisure activities only among themselves) becomes a way for them to protect their own cultural belonging and their sense of security in the face of difference [10]. A non-Indigenous worker also evokes the relevance of workers mixing and suggests that this rapprochement could encourage an Indigenous worker to confide in:

*"By being together more often, [Indigenous and non-Indigenous workers] create a real dynamic, a real relationship [of trust]. ( ... ) The goal is for integration to be facilitated. If the relationship is great between the men, maybe I as [Indigenous] could possibly confide in [a member of my team]" (non-Indigenous worker).*

Then, as the following worker puts it, the development of a relationship of trust in which the person can confide also depends on complicity, the demonstration of concern for the other, and discretion.

*"I consider [the confidence] to be fine today. [This Indigenous worker] confides in me very fast, that things are wrong with them and the small problems. I have a good bond with him. He trusts me. He must know that I won't tell anyone. In individual meetings it remains between us. I do everything to help these people" (non-Indigenous manager).*

Thus, this mixture would promote exchanges and communication in general in the team, even within the organization. Then, it possibly allows for greater confidence and eventually makes it possible to achieve common organizational goals.

While the concept of individual identity plays a role in building trust, much like other emotional foundations, that of professional identity also plays a role. A Indigenous worker who identifies with his trade as an electrician and has a strong sense of professional competence, for example, would tend to trust another electrician more easily than he finds competent. The information he has about him (cognitive basis) could then be sufficient to take the risk of trusting him, bypassing the feeling of identity threat (personal and cultural).

Cultural differences have a particular impact on the emotional, then cognitive, foundations of workers. These include representations of work that differ, but also representations of the organization of work and teams. They go to the heart of workers' tasks. For example, an Indigenous worker reports a situation in which his Indigenous colleague lacked confidence in his boss. Since he does not share his (ethnic) culture, he fears that he will be less understood.

*"His boss mugs him in a corner or makes him empty trash cans, ( ... ) he [my Indigenous colleague] was tired, ( ... ). He didn't have the instinct to talk about it, he didn't trust the boss because he was white. He didn't want to talk to her about it because he didn't feel the boss was going to be there for him" (Indigenous worker).*

In the following example, a non-Indigenous worker talks about the emergence of cultural tensions related to everyone's adaptation to the other's culture. He clearly relates the difference between emotional foundations (I would trust you, because I appreciate you) and cognitive foundations (I would trust you, because I understand the way you work, and it corresponds to what I know). However, it is clear in his remarks that cultural adaptation to one another is important.

*"There are cultural tensions, meaning that everyone has different ways of working. It's not personal; I may like you well, but not like the way you operate according to your culture and without adapting to the other on the other side" (non-Indigenous worker).*

Other representations, such as those of family, divide workers when it comes to setting priorities that directly or indirectly affect work. For example, close family for the majority of Indigenous people is similar to what non-Indigenous people commonly refer to as extended family. Also, a Indigenous worker could arrive late, which would have an impact on the work to be done within his team, because he

wanted to help a member of his family whom he considers “close.” However, in the conception of most of non-Indigenous workers, work might come before this extended family. A manager in the human resources department of a mining organization in Quebec told us about an exchange she had with an Indigenous worker who arrived late at the workplace:

*“I asked him why he was late. He explained to me that he had to help his aunt. After telling him that was not a valid reason, he replied, as if it was obvious: ‘But she’s my aunt! Would you have left her alone?’”*

In this example, the comparison of values in connection with representations of work and family is interesting to recognize. This manager was subsequently able to support this worker in his management of time and priorities. She taught him that he did not have to choose between his aunt and his job and that he could do both. However, taking the example from the perspective of the Indigenous worker, the manager’s lack of understanding of her situation is a sufficient reason, at the outset, to hesitate to place her trust in her, since she does not have the same values or at least not the same order of priority of those values as it does.

The major direct consequence of cultural differences between workers is systemic discrimination and racism [11–13, 41–43]. For example, reports Caron [35], indifference and detachment from colleagues or superiors to Indigenous cultural identity can create stereotypes and systemic racism. The presence of racism in a work environment is one of the greatest obstacles to the integration of Indigenous workers and will have a relatively pronounced impact on their employment outcomes [10, 35, 37]. One concrete consequence relates to the difficulty for Indigenous workers to express themselves, which makes building social relationships more difficult: “One characteristic that we Indigenous people have is that we don’t talk a lot. We are afraid of being judged” (Indigenous worker). Thus, for reasons of systemic discrimination and racism, Indigenous workers are reluctant to take this “social risk” of approaching each other and, possibly in their relationship, of trusting them.

Whether they are incidents or cultural prejudices that indigenous workers have themselves experienced [11–13] or that they have experienced by proxy (members of their family who would have suffered, for example), fear or sometimes anger or indifference makes professional experience in a non-Indigenous environment a considerable challenge, especially in relation to the establishment of relationships of trust. Then, to some extent, members of their nations may question the need to work outside of their community and for non-Indigenous employers. In this sense, these workers must be solid in a community context that may appear closed, impermeable, and complex about relations with the outside world [32] and in a national political context of very delicate relations between Indigenous and non-Indigenous [12].

Then, cultural differences, racism, or discrimination brings cultural biases into relationships. For the next two non-Indigenous workers, one way to resolve or break free from these situations is to take this risk of trusting.

*“We all have cultural biases, but if both stick to their position and there is never one who takes the risk of trusting the other, it will stay that way for years to come, and in labor relations too” (non-Indigenous worker).*

*“Trust is a circle, who is the first to trust the other? There has to be one who does it” (non-Indigenous worker).*

*“Current” determinants of the social relationship that influence trust*



Different determinants of the social relationship between workers influence the confidence of Indigenous workers in their colleagues. First, the individual and collective adherence to a system of norms and rules demanded by the organization would have an impact. In the organizational context of meeting between Indigenous and non-Indigenous workers, it is not always easy to comply with certain standards and rules since many are implicit. Indigenous workers face the complexity of a social organization that they are less familiar with and that do not always correspond to this knowledge, practices, values, or beliefs. This situation has consequences for the establishment of a relationship of trust.

For example, for fear of being rejected for reasons of behavior or words, Indigenous workers are reluctant to act or speak out. The cultural insecurity they experience leads them to reduce social relations [44]. However, silence is not always a sign of mistrust. A Indigenous worker reports that individual characteristics such as the ability to express oneself also play a role and are not a sign of a lack of willingness to trust or fit into the community.

*"It's not because we don't have confidence that we don't speak, but sometimes also, it's not everyone who has the ability to express themselves, it's not everyone who is able to put words to what they think is not always easy, you know" (Indigenous worker).*

In addition, the difficulty, in some cases, in anticipating the behavior of their non-Indigenous colleagues marks the relationship: it remains difficult to place one's trust in a person whose behavior or reaction cannot be predicted. If cognitive confidence is based on this possibility of anticipating the behavior of the other, this difficulty has repercussions on the decision of a worker to take this social risk, since his knowledge of the other and of the system is irrelevant. On the contrary, the ability of the Indigenous worker to anticipate the behavior of the other favorably influences confidence.

Despite the existence of some training sessions on Indigenous cultures, a certain level of ignorance still exists among non-Indigenous workers. Added to the organizational culture and its exigencies in terms of standardized processes, it is difficult for Indigenous workers to be engaged and to fully contribute. This difficulty is partly explained by cultural and social differences in the functioning or exercise of management practices, but also in terms of individual interests and the organization of professional relations. It can also be the effect of divergent representations of work. Before getting to know these peculiarities better, Indigenous workers remain on "their guard." It takes time for them to understand the parameters of the system into which they are operating. In short, this phenomenon exacerbates the ability to bet on trust: from experience, unfamiliar territory may seem undermined.

Confidence in this case is given once the system is better known and the standards are accepted as specific to the organization and its culture and not related to the feeling of a demand for conformance to a culture in the sense of ethnicity and society (assimilation to organizational culture versus cultural assimilation). Indigenous workers, like all workers elsewhere, must be willing to conform to, and even assimilate into, an organizational culture. Thus, behaviors become easier to anticipate, predictable, even more consistent, and cognitive confidence easier to grant. Common cultural (organizational) benchmarks are thus built, and it becomes easier for the Indigenous worker to see the match between his interests and those of the other, then to create a zone of trust. However, indigenous workers sometimes interpret compliance with the system of standards and rules as exposure to some vulnerability, or even possible "subordination." This potential for vulnerability seems more difficult to accept, since it involves a risk for these workers.

Other determinants emerge from the analysis of social relations between indigenous and non-Indigenous workers. For example, repeated positive interactions improve communication, information sharing or the clarification of mutual expectations. Attitudinal and behavioral characteristics of workers (demonstration of intercultural skills, discretion, keeping promises, openness, ability to admit mistakes, etc.) also lead to trust more easily. For example, a Indigenous worker explains that the concern that members of her team had for her gave her confidence.

*“The moral side for example, the motivation, it was good. I was moving away from my family, I came here, but they took me under their wings, I felt confident with them and supported” (Indigenous worker).*

In short, level of trust among Indigenous workers relies on the nature of their social relations. The latter intervene by minimizing the risk inherent in trust. Also, the foundations of affective (common and shared values, identification with others, feeling of belonging, etc.) or cognitive (information about the other, representations of work, judgment, etc.) trust seem few and not frequent. For example, values seem uncommon and shared between Indigenous and non-Indigenous workers. Indigenous workers identify little with other workers, and a sense of belonging seems diffuse. In a more rational calculation, workers may consider that trust is too high a bet because the sources of mistrust are numerous and varied. That is because knowledge about the other is insufficient to be certain of their behavior toward them or because experiential events related to the story are negative or negatively interpreted.

## **5.2 Being trustworthy**

While Indigenous workers are trusted, non-Indigenous workers must also be trustworthy and play a role in building social relationships between Indigenous workers and themselves. This section reports what non-Indigenous workers suggest as ways to foster the confidence of Indigenous workers.

Being trustworthy presents characteristics very close to the need for cultural security of indigenous workers [44]. The culturally safe approach is to build trust with Indigenous workers. To do this, organizations will recognize the role of socio-economic conditions, history, and politics in interpersonal relationships. Cultural safety also relies on understanding the power imbalance inherent in these relationships, the underlying discrimination, and the need to rectify inequities by making changes in the system [45]. “A safe work environment increases self-confidence as well as individual performance, well-being, and job satisfaction. It helps ensure better integration and retention of Indigenous workers in an organization, in addition to supporting their professional development” ([37], p. 63). For example, for a non-Indigenous manager, the need for cultural safety may be met when a competent mentor accompanies the Indigenous worker:

*“When you have a good coach with [the Indigenous worker], it becomes like your father and that person has a lot of confidence” (non-Indigenous manager).*

In addition, several organizations have begun to recognize the need to adapt their work environment, through the implementation of a practice of supporting Indigenous workers in changes in their relationship with work over and generations [10, 38].

The Truth and reconciliation of Canada (TRC) suggests certain practices or strategies to induce trust or minimize mistrust between Indigenous and non-Indigenous that are consistent with cultural safety and the type of environment being studied. Some of them apply very well to organization and intercultural relations between workers: opening the door to positive and productive communications, affirming pride in indigenous cultures, teaching, and creating cultural knowledge and appreciation or work with partners from Indigenous communities to help achieve their own goals.

All these practices are based on the recognition of indigenous specificity in all areas of life and on the reduction of cultural distance. This is made possible thanks, among other things, to the integration of strategic orientations within organizations. This integration shows a real openness and generates changes in operating methods, including ways of planning, and carrying out recruitment and training for indigenous workers.

Current adaptations in the organizations visited relate to cultural accommodations (for example, allowing time to participate in seasonal or traditional activities [8]), including models, elements, and Indigenous values in the workplace (for example, meals inspired by Indigenous cultures) or rapid intervention when discriminatory behaviors are identified.

The importance of supporting the heterogeneity of cultural identities within the work environment and collectivism [10, 35] is materialized by showing more flexibility, by revising policies for work-life balance so that they are coherent and that they adjust to the cultural and personal realities of Indigenous workers [38, 46]. Through training, non-Indigenous workers, including managers, improve their intercultural skills. For example, they become more aware that the behaviors they adopt may be reminiscent of discriminatory or colonizing behaviors. Thus, they increase the potential for sensitivity to the cultural reality of Indigenous people [43] and are better able to rectify inequities caused by systemic discrimination.

Workers report that to gain the confidence of Indigenous workers, it is necessary to trust them first and to give them the autonomy and the leeway that allow them to find their ways of working and to achieve their objectives:

*“You have to give them confidence. (...) It seems that we do not delegate enough the chance to make their own trail” (non-Indigenous manager).*

*“I’m trying to change my approach to give them a little more rope so that they can take the tools themselves and develop their technique. For example, this week, I took out all the inspection papers, I gave them: ‘Here you guys are great, read this, you are starting to have experience, you are capable’, I let them go with the leaves, and if there is anything, they come to see me” (non-Indigenous manager).*

In this sense, these workers will be able to develop their confidence because representatives of the organization believe in them. As such, a senior executive of a large organization that hosts a few hundred Indigenous workers noted that trust is based on listening to and showing concern for Indigenous workers and then recognizing their needs and facilitating their progression in the organization.

*“For the establishment of a relationship of trust, it is giving the feeling that you are heard, listened to by the hierarchical line, (...). At the [Indigenous] level, it takes listening and maybe it takes an adjustment of our expectations. Like anyone who*

*progresses in our business, we give mandates that they are able to carry out with a level of difficulty increasing over time according to the experience and the capacities and interests they have” (executive non-Indigenous superior).*

Finally, being trustworthy has several important dimensions that representatives of organizations must consider. They allow indigenous workers to place their trust in them, and it facilitates their integration into employment and their retention in these mining and energy sectors.

To conclude this section, examining the determinants that have been updated in the light of new research data leads to some interesting clarifications (see next box (Box 2)). They allow the organization to identify sources of confidence that will lead them toward the achievement of their objectives regarding the social and professional integration and the retention of indigenous workers, the subject of the next section.

Prior determinants to social relationship that lead to trust	
<ul style="list-style-type: none"> <li>• Repercussions of history and of colonialist heritage or work</li> <li>• Intercultural issues</li> <li>• Bicultural environments</li> <li>• Lack of knowledge of the other</li> <li>• The truncated public image</li> <li>• Personal and professional identification</li> <li>• A confrontation of values</li> <li>• Systemic discrimination and racism</li> <li>• Cultural incidents or prejudices</li> <li>• Organization of work and teams</li> </ul>	
Current determinant of social relationships that lead to trust	
<ul style="list-style-type: none"> <li>• Worker who gives his trust (i.e., the one who gives his trust)</li> <li>• Individual and collective adherence to a system of standards and rules.</li> <li>• The fear of being rejected</li> <li>• Some insecurity</li> <li>• Difficulty anticipating the behavior of the other</li> <li>• Lack of knowledge of the other's culture and the organizational culture</li> <li>• Cultural and social differences in the operation or exercise of management practices</li> <li>• Common cultural (organizational) references</li> <li>• Repeated positive interactions</li> <li>• Good communication</li> <li>• Information sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Worker who is trustworthy (i.e., the one you trust)</li> <li>• Fulfill the need for cultural security</li> <li>• Recognize the role of socioeconomic conditions, history and politics in interpersonal relationships</li> <li>• Understand the power imbalance inherent in these relationships, the underlying discrimination and the need to rectify inequities</li> <li>• Open the door to positive and productive communications</li> <li>• Affirm the pride of indigenous cultures</li> <li>• Teach and create cultural knowledge and appreciation</li> <li>• Work with partners from Indigenous communities to help achieve their own goals</li> <li>• Implement support practices</li> <li>• Recognition of indigenous specificity</li> <li>• Reduce cultural distance</li> <li>• Integrate strategic orientations</li> <li>• Stay open</li> <li>• Change operating modes</li> <li>• Adapt or make cultural accommodations</li> <li>• Support the heterogeneity of cultural identities</li> <li>• Be flexible</li> <li>• Revise personal and professional life balance policies</li> <li>• Train and be trained</li> <li>• Be sensitive to cultural reality</li> </ul>
<ul style="list-style-type: none"> <li>• The clarification of reciprocal expectations</li> <li>• Certain attitudinal and behavioral characteristics</li> </ul>	

**Box 2.**

*Past and current determinants of confidence of indigenous workers in mining and energy sectors.*

## **6. Analysis and interpretation: trust, social and professional integration and employment retention of indigenous workers**

The analysis of the determinants of confidence in the mining and energy sectors provides some observations about the social and professional integration and job retention of Indigenous workers. In this final section, we first present some thoughts that have emerged on the trust relationship between workers, and then we discuss the link between trust, inclusion, and retention.

First, let us come back to the concept of trust. In the light of the elements presented, it seems that “trusting” in this intercultural context means accepting a certain vulnerability in a power relationship that is often asymmetrical or perceived as such. Origgi [47] writes that trusting also involves giving others some power over yourself and accepting the inherent vulnerability. However, Indigenous workers already feel in a position of inferiority; trust, for them, may then consist of becoming even more vulnerable. Thus, the unequal relationship between indigenous and non-Indigenous workers partly supposes that the agreement of trust is perhaps a bet that they find more difficult to make.

The heavy weight of history and current postcolonialism still operates within organizations and undermines trust, then social and professional integration by marking relationships, sometimes even before their creation. It intervenes in the decision to grant or not trust and prevents the risk-taking associated with it. We wrote a few years ago [33] that time alone would allow generations to live better with the repercussions of colonialism, including racism and discrimination. However, recent discoveries in connection with the education of several generations of Indigenous children in residential schools have exacerbated what we thought was improving. Today, the lack of confidence of Indigenous people is directly linked to these repercussions. Also, the bet of trust for Indigenous is certainly riskier. Nonetheless, we can think that a positive story repeated over a long period and that cultural proximity will produce the opposite feeling in the long run.

We believe that if all relinquish power or if it is shared equally among all workers, trust will allow the creation of a stronger group whose cohesion will bring significant social capital that will facilitate not only trust, but social and professional integration and retention of indigenous workers.

In this sense, it may be necessary to “frame” the relationship of trust by determining and planning strategies and measures to this end to foster the confidence of the Indigenous worker. While taking into consideration that time is a guarantee for success and that results will only be possible after efforts have been made, strategies should focus on the importance of Indigenous culture in and for the organization. These actions involve collaboration with indigenous partners who can facilitate the presence of indigenous cultural landmarks and symbols within the organization.

As part of the identification of reciprocal expectations, a reflection must be initiated on intercultural social relations between Indigenous and non-Indigenous workers. This reflection must question the place of Indigenous culture in intercultural relations and in relation to Quebec’s organizations whose activities take place on ancestral indigenous territories.

Some findings show that the lack of common reflection, even though groups have started inserting Indigenous workers into employment, but that the main stakeholders, even if they are sometimes consulted, are no longer sufficiently involved in these processes. However, it seems important that Indigenous be part of the thinking of organizations that set up integration strategies, with more concrete and not just symbolic actions. Reconciliations are possible, and we feel that those in charge or

representatives, on both sides, are ready, supportive, and open to such discussions. In this, the organizations will gain social legitimacy among Indigenous.

An organization alone should focus on the strategies it can implement. However, these must take into consideration and distinguish between what is possible to do at its level and what is not within its purview. Also, there are different levels of trust (societal, organizational, within the team, inter-individual ...) that influence each other. Distinguishing them would allow organizations to better approach their efforts. For an organization, beyond strategies and their implementation, it is their real and genuine intention to include indigenous workers that makes a difference in their decision to give their trust or not.

Confidence seems to be a key of major importance that has the potential to minimize the issues related to the social and professional integration and retention of Indigenous workers in Quebec organizations. The reflections that begin this chapter allow to conclude that the thinning of the borders between groups and individuals rests on this risk to be taken in order to generate confidence and possibly leads to a facilitated social and professional integration and to a more great retention.

More concretely, organization that manages to get indigenous workers gives its trust and is willing to take some actions and implements certain strategies that can lead to the success of the workers' professional projects:

- Smoothing out intercultural and intergroup differences: avoiding natural segregation, intervening quickly on the marks of discrimination, leaving less possibility of self-marginalization, insisting on the common characteristics of groups, etc.
- Recognition of the “sovereignty” of the territory (symbolic and current belonging to the territory).
- Repeated positive professional interactions (collaboration, teamwork, activities, shared meals, etc.).
- Establishment of supra-professional links (hockey team, leisure activities on work sites, etc.).
- Flexible interventions within the organization and work-family-community balance practices.
- Establishment of “external” partnerships involving indigenous communities and nations (for recruitment, monitoring, etc.).
- Inclusive representation of all groups within the organization (give an important place to Indigenous).
- Explicit desire to adapt to others and to adapt their organizational methods and processes to the needs of indigenous workers.
- Strengthening of knowledge related to indigenous cultures and intercultural skills of workers, so as to minimize uncertainties related to socio-professional contexts.
- Focus on relationships within the organization, avoiding giving too much importance to social and political contexts.

- Support for indigenous workers, which includes a marked attention to the potential identity threat that the worker might feel and work with him on perceptions of cultural acculturation or assimilation on the part of the organization.

Finally, Indigenous confidence must be “systemic” and be embedded in several layers of society. It is an endemic and structural issue, and our thinking emerges in a context of relative instability where relations between Indigenous and non-Indigenous in Quebec and more broadly in Canada are strained. Both organization and individuals do not have all the power to change things, but they have the responsibility to attempt actions and strategies at their level, to promote the establishment of a strong bond of trust between indigenous workers and the organization and its members.

## 7. Conclusion

The purpose of this chapter was to update the determinants of social relations that influence trust between indigenous and non-Indigenous workers in the context of the mining and energy sectors. Also, the determinants of trust have been described as a strategy to act on issues of social and professional integration of indigenous workers in non-Indigenous organizations. In short, trust seems to be an avenue to be developed for the integration and retention of indigenous workers and, thus, for indigenous communities to improve current living conditions. The contribution of this chapter is therefore based on the place to be given to trust, which is presented as a key for the development of strategies for organizations that are willing to support their indigenous workers in their social and professional integration efforts. More generally, the reflection initiated in this chapter suggests that we must find ways to better reflect the identities and multiple needs of workers in a space shared by two groups.

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## Section 4

# Trust in the Public Sphere

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# Significant Role of Trust and Distrust in Social Simulation

*Akira Ishii, Yasuko Kawahata and Nozomi Okano*

## Abstract

This paper introduces the Trust-Distrust Model and its applications, extending the Bounded Confidence Model, a theory of opinion dynamics, to include the relationship between trust and mistrust. In recent years, there has been an increase in the number of cases in which the prerequisites for conventional communication (e.g., the other person's gender, appearance, tone of voice, etc.) cannot be established without the exchange of personal information. However, in recent years, there has been an increase in the use of personal information, such as letters and pictograms “as cryptographic asset data” for two-way communication. However, there are advantages and disadvantages to using information assets in the form of personalized data, which are excerpts of personal information as described above. In the future, the discussion of trust value in the above data will accelerate in indicators such as personal credit scoring. In this paper, the Trust-Distrust Model will be discussed with respect to theories that also address charismatic people, the effects of advertising, and social divisions. Furthermore, simulations of the Trust-Distrust Model show that 55% agreement is sufficient to build social consensus. By addressing this theory, we hope to use it to discuss and predict social risk in future credit scoring discussions.

**Keywords:** opinion dynamics, trust, distrust, social simulation, consensus building, social division

## 1. Introduction

In society, people have different opinions and are influenced by the opinions of others. It is opinion dynamics that simulate what kind of opinion distribution it will form. Ideally, people in a society should be bound together by trust. However, in reality, people often distrust each other and rebel against each other. In this chapter, we will apply opinion dynamics to take into account the distrust between such people and describe how trust and distrust affect the composition of society.

Opinion dynamics is a field that has been studied for a long time with applications to consensus building and elections in society [1, 2]. The transition of social discussions leading to consensus building is an old problem, but it is also an important theme in the analysis of various communications on the Internet in modern society. The opinion dynamics of binary opinions (agree and disagree or agree and ignore) have long been studied in analogy with magnetic physics [3–9]. In addition, since 2000, the Bounded Confidence Model, which analyzes opinions not as binary values but as continuously varying quantities, has been presented, and more precise studies have been conducted [10–14].

However, the conventional Bounded Confidence Model implicitly assumes social consensus. In Gérard Weisbuch et al. [10] and Hegselmann-Krause [11], which are representative theories of the Bounded Confidence Model, the opinions of individual people are expressed as  $I_i(t)$  in the following equation. Here, the coefficient  $D_{ij}$ , which indicates the degree of influence by other people's opinions, is limited to positive values.

$$I_i(t) = \sum_j D_{ij} I_j \quad (1)$$

In the Bounded Confidence Model, the coefficient is considered to be a factor that represents the speed of convergence of opinions. If the coefficient is limited to a positive value, the opinions of everyone converge without fail, and the larger the positive value, the faster the convergence. In other words, it is not the results of individual simulations that cause the convergence of social opinions, but rather the Bounded Confidence Model [10–14] itself, in which the convergence of social opinions is inherent from the beginning.

The reality of opinions in society is that not all opinions can be agreed upon. In social issues, it is rather rare to reach a consensus. In reality, we all experience cases where we feel opposition to someone's opinion. Therefore, Ishii and Kawahata extended the Bounded Confidence Model by introducing repulsion and distrust of opinions [15–20]. Simply put, the extension is that the coefficients are not limited to positive values, but negative values are introduced, and positive values indicate a trust relationship, while negative values indicate a distrust relationship. If the coefficient is negative, the opinions will be separated from each other every moment. In other words, they will never reach a consensus. This new theory of opinion dynamics is called the Trust-Distrust Model.

Using this theory of opinion dynamics, calculations have been made for the case of a person who is charismatically popular in society [20] and for the case of a person who is disliked by society as a whole [18], and calculations can also be made for the case of a society splitting, so this theory of opinion dynamics has the potential to enable social simulation calculations for many social movements.

In addition, the theory of opinion dynamics with multiple axes of opinion has been proposed by Ishii and Okano, and analysis has been conducted with two axes of opinion, so-called “official stance” and “real opinion” [21].

## **2. Trust and distrust in societies**

Even between individuals with limited time and space, active exchange of opinions has become possible [22]. In recent years, there are more and more cases in which the prerequisite information for conventional communication (e.g., the other person's gender, appearance, tone of voice) cannot be established without exchanging personal information. In recent years, however, immediate two-way communication with excerpts of personal information such as letters and pictograms has become the norm. However, there are advantages and disadvantages to using information assets in the form of personalized data, which are excerpts of personal information as described above. The above discussion has already started in the 1950s when the use of the Internet was limited in the U.S. and the former Soviet Union; in the early 1990s, the Internet became available to the general public and the discussion was accelerated based on the concept of the information highway. Today, the status of information asset management and personalized data management differs from country to country. This has led to various problems in terms of economic loss and



education related to the development of human resources involved in the proper management of information assets using data (e.g., data scientist training, legal development, moral and ethical education in handling data). In Japan, on the other hand, with the spread of mobile communications, the flat-rate system for telecommunications was applied early and actively operated at a rapid pace from the late 1990s to the early 2000s. In particular, the flat-rate system was introduced at a lower cost than in neighboring Asian countries, and advanced efforts were made in terms of information transmission. However, against the backdrop of this rapid progress, it is difficult to say that awareness-raising and legislation regarding the use of the Internet among the compulsory education generation and the generation that is not familiar with Internet literacy and cyber security (assumed to be socially vulnerable groups such as children and the elderly) has progressed. It is possible that communication is repeatedly evolving. In recent years, there have been cases of fake news being disseminated on a large scale. As a result, there have been cases where misconceptions about personal information have spread. In some cases, this may even occur in the community, resulting in a “big wave of information” on an individual basis. While we cannot be certain that there are adequate warnings and laws regarding how to use the Internet, communication may continue to evolve. Therefore, social networking services are always at risk of becoming hotbeds of conflicts and criminal activities that sometimes spill over into society as a whole, and risk management for them has been actively discussed in recent years. In particular, the COVID-19 disaster has increased the need for risk management due to the increased use of online communication. This issue raises concerns not only about the parties involved, but also about the responsibility of those who accidentally spread fake news that pose a great risk to the lives of both parties. How to deal with such cases will need to be discussed in the future. On the other hand, there are concerns about the emergence of a new “digital divide”. In the past, the divide over the superiority of handling computer technology itself was a hot topic in Japan from 2004 to 2005. However, the new “digital divide” assumes that computer technology is available to some extent regardless of gender or age. The differences are differences in literacy due to differences in the ability to transmit information (such as loudness of voice) and extract information. It can be assumed that there will be cases of false understanding, such as being evaluated by the number of people on the web. In this regard, since the beginning of this year, social networking sites have taken measures such as speech control and account restrictions to ensure fairness in elections (e.g. in the US and English-speaking countries). However, in order to ensure fairness, there is a limit to large-scale policing through mechanical processes in the Japanese sphere, which has a complex linguistic context including English, katakana, hiragana, and kanji. Therefore, it can be said that education also requires reading comprehension in all kinds of texts and a perspective on preserving the information resources of individuals. In this regard, those who are vulnerable in the information environment, such as the generation that has not been adequately educated on cyber security, may be at risk of various fragmentation. As a result of this information gap, a threshold of distrust and trust in communication occurs, and sometimes there are scattered cases of major mistakes such as major social fragmentation, deadly attacks, and slander against completely disinterested entities. In the case of socially vulnerable people, there is a limit to the legal measures that can be taken without financial benefits such as hiring a lawyer, and there is a risk that socially vulnerable people who should be protected will be left defenseless or denounced. To remedy them, social protection and remedy mechanisms in online communities, such as digital citizenship, are also urgently needed, and even within those communities, consensus building, trust building, and to some extent, thresholds occur. In addition, slander and defamation may be committed without the person being aware of it and he or she may be held responsible for it.

Only those who are in a superior position to apply the law are protected and enjoy many benefits, while those who are not in a position to denounce based on legal grounds may cry themselves to sleep or suffer losses without any social guarantee. In such cases, although there are problems such as surveillance society, digital citizenship, and other network communication in neighborly relations, the formation of communities that protect each other regardless of social class is more important. And there are expected to work as part of care work in online communities. In these elements, it can be said that mutual care communication based on mutual “trust” and very close relationships, neighborly relationships, is promoted. It can be hypothesized that these online pseudo-societies, which promote the building of invisible trust relationships formed between distant and nearby communities, have something in common with the wider society. Since the rapid spread of public networks, there have been growing expectations for elucidating the mechanisms of social phenomena that have become difficult to visualize and quantify [23]. However, in order to analyze the exchange of opinions left in the vast amount of log data in modern society, it goes without saying that a theory that corresponds to quantitative analysis, focusing on integration with analysis to large-scale data, is necessary. In addition, slander and defamation may be committed without the person being aware of it and he or she may be held responsible for it. Only those who are in a superior position to apply the law are protected and enjoy many benefits, while those who are in a position not to be denounced on legal grounds may cry themselves to sleep or suffer losses, without any social guarantee. Similar functions are ensured in functions such as suggestions in online search behavior and product recommendations in e-commerce, etc. In addition, opinions that infer our trust or distrust, which constitute the recommendation function, become “opinion aggregates” or “generalization models” that are automatically returned to us through public networks. These are the results of online consensus building; in COVID-19, generalized models and recommendations for various social crisis situations will be developed and analyzed based on large-scale data such as our behavior logs and opinions. However, the global spread of public networks has not been positive in all aspects, and while COVID-19 has increased excessively, problems such as online slander have also been highlighted. This chapter touches on those issues as well. In particular, a case can be envisioned where public opinion is formed from the aftermath of unconscious consensus building. This is the case today, when populism and propaganda are rampant. However, the use of online media was pioneered in the 2020 U.S. presidential election, and typical social networking sites such as Facebook and Twitter have been suppressed, and regulations and laws are being revised at a rapid pace. From this point of view, it can be inferred that the nature of online communication is entering a transitional period after COVID-19 and the 2020 U.S. presidential election. It is now possible to pseudo-analyze various opinions in society through online logs. Theories for analyzing the process of consensus building in society (or small groups) have long been proposed and studied from various perspectives [10–14]. However, in order to analyze the exchange of opinions left in the vast amount of log data of modern society, it goes without saying that a theory that corresponds to quantitative analysis, focusing on integration with analysis to large-scale data, is necessary. There are two main types of theories of opinion dynamics. One is the theory that treats contradictory conditions and discrete opinions as 1 (trust) and 0 (distrust), or 1 (trust) and -1 (distrust). In presidential elections in the U.S. and France, and in referendums such as those seen in Brexit, this dichotomous theory is more likely to be applied because voting takes place when there is one clear winner. The other method is the theory that regards opinions as a continuous value with one (or many) dimensions. For example, consensus building is often considered in this way [15–20]. As for the discussion of public health risk management in the COVID-19 disaster, which is imminent every

day as described above, the number of articles being updated and recorrected is increasing every day. Changes in information on the web provide a bird's eye view of the situation, which is often different from the expected case. In addition, there is an urgent need to "democratize security" in order to appeal to, resolve, and protect vulnerable members of society who do not fully understand cyber security. Depending on future legal decisions, significant changes may occur. In addition, there is a need to share security awareness in cyberspace as well as offline crime arrest rates in society. In addition, in various online communities, organizations may be formed to protect each other's security in the form of blockchain, just like the "Ren" (ex. creation critics' community) formed in the Edo period in Japan. In the aforementioned communities, there is a communication and consensus that can only be established if there is a clear relationship of trust and distrust. In recent years, while consensus-based communication has increased, disparities and security issues have also been detected, and more and more fatal flaws and security errors in online communities have been uncovered that were not previously apparent. The mechanism by which these problems are discovered can occur when there is a sense of distrust among a certain number of people in a community. In the context of information and communication known as "technological warfare" or "quiet information warfare," the threshold values of parameters related to the sense of trust and distrust among communities are important information for communication to take place, but they are difficult to determine, quantify, and visualize clearly. Therefore, it is necessary to reason based on mathematical models, develop arguments and predictions, and confront possible risks and potential social problems. These issues, as well as election prediction, are themes that involve implicit understandings, such as floating and fixed votes, and consensus among regions, so we try to consider them together with social discussions in consensus building [15–21].

### 3. Opinion dynamics including both trust and distrust

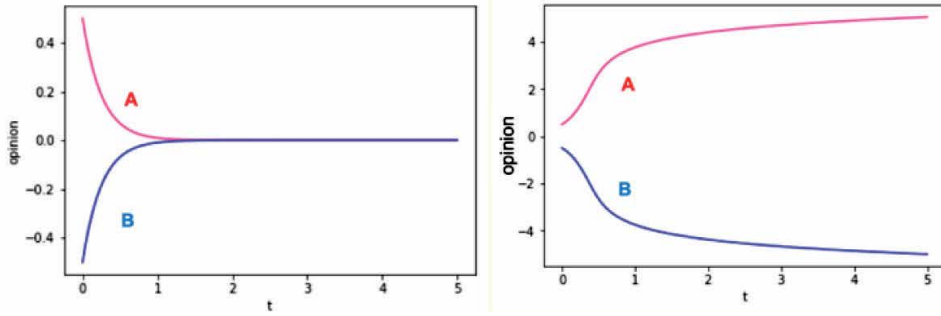
In the opinion dynamics proposed by Ishii named Trust-Distrust Model, the time evolution of people's opinions in the society is expressed by the following Equation [16].

$$m\Delta I_i(t) = c_i A(t) \Delta t + \sum_{j=1}^N D_{ij} f(I_i, I_j) (I_j - I_i) \Delta t \quad (2)$$

The first term on the right-hand side is the influence of external media such as advertising, mass media reports, and government publicity, where  $A(t)$  is the influence from mass media from time to time, and the coefficient  $c_i$  is the coefficient of how much influence each person receives from that mass media. The coefficient  $D_{ij}$  can be negative [15, 16]. Here, the function  $f(I_i, I_j)$  is a cutoff function that is ignored when the opinions are farther apart than a certain degree. Hegselmann-Krause [11] uses a simple step function, but here we use the Sigmoid function in the sense of a smooth cutoff.

$$f(I_i, I_j) = \frac{1}{1 + \exp(a(|I_i - I_j| - b))} \quad (3)$$

Here, the coefficients of trust and distrust,  $D_{ij}$  and  $D_{ji}$ , are considered to be independent. Usually,  $D_{ij}$  is an asymmetric matrix with  $D_{ij} \neq D_{ji}$ . Moreover,  $D_{ij}$



**Figure 1.**

Example of trust-distrust model calculation using Eq. (2). Two people. On the left is the case where two people are in a trust relationship with  $D_{AB} > 0$  and  $D_{BA} > 0$ . On the right is the case where  $D_{AB} < 0$  and  $D_{BA} < 0$ , and the two people are in a distrustful relationship.

and  $D_{ji}$  can take positive and negative values with different signs. A positive value means that  $i$  trusts  $j$ , while a negative value means that  $i$  does not trust  $j$ . Also,  $m$  is the strength of will of agent “ $i$ ”. For large values of  $m$ , the agent “ $i$ ” is not so much influenced by mass media or other people’s opinions.

The Trust-Distrust Model can be used to calculate the case of a person who is charismatically popular in society [22] and the case of a person who is disliked by society as a whole [18], and it can also be used to calculate the case of a society splitting up [23–25], so the Trust-Distrust Model has the potential to provide social simulation calculations for many social movements.

Here is a simple calculation using Trust-Distrust Model. **Figure 1** shows the opinion dynamics for the case of two people, where the left side of **Figure 1** shows the case where the two people trust each other ( $D_{AB} > 0$ ,  $D_{BA} > 0$ ). The right panel of **Figure 1** shows the case where two people in the calculation are shown as “A” and “B”. distrust each other ( $D_{AB} < 0$ ,  $D_{BA} < 0$ ). The case of mutual trust can be found in Hegselmann-Krause [11], but the case of distrust cannot be calculated without this theory.

In this Trust-Distrust Model, the influence of the mass media is expressed by the first term on the right side of Eq. (2) called  $c_i A(t)$ . Here,  $A(t)$  is the amount of mass media coverage of the focal topic. The quantity is simply the product of the number of seconds and the number of channels that handle the topic, and the coefficient  $c_i$  on this means that we can handle the fact that each person is affected differently by this mass media.

Based on Eq. (2), the individual opinions of the people,  $I_i(t)$ , are calculated over time. We assume that opinions can take values from  $-\infty$  to  $+\infty$ ; Hegselmann-Krause [11] has 0 to 1, but Trust-Distrust Model has no upper bound on extreme opinions (and no lower bound if negative). In this case, the initial opinions of people are distributed as uniform random numbers in the range of  $-20$  to  $+20$ .

What is important in Trust-Distrust Model is the coefficient  $D_{ij}$  represented in Eq. (2). In a complete network where all people are connected to all people, there are  $N^2$  coefficients  $D_{ij}$  that express trust or distrust between individual people. Ishii and Kawahata have shown that if more than 55% of the  $N^2$   $D_{ij}$  are positive, that is, trustworthy, the system will form a consensus [17]. This result is also true for random networks [26].

#### 4. Consensus building in societies

When people in a society are bound together by trust, they reach a consensus. This is the implicit assumption and conclusion of the bounded confidence model.

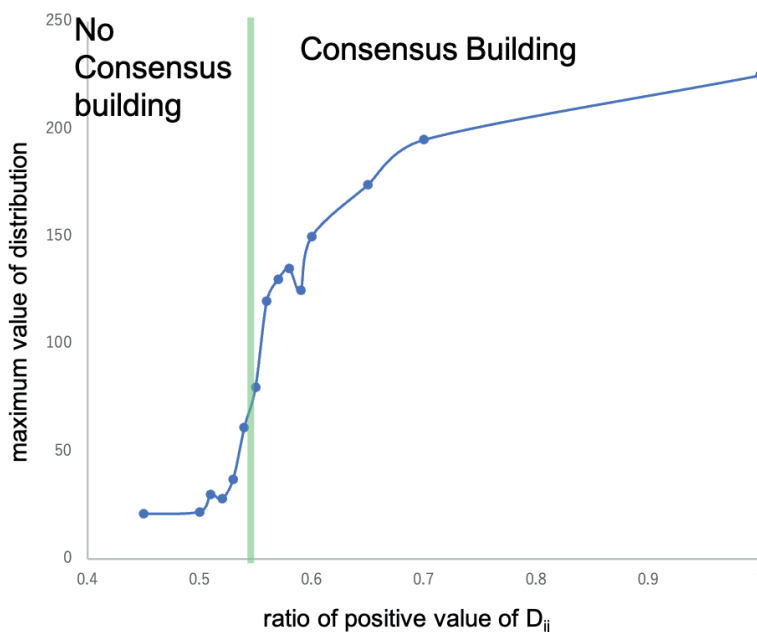
The time required to reach consensus and whether one or more opinions are reached can be analyzed from the calculations of the bounded confidence model.

However, if people in the society as a whole are not necessarily bound by trust, it becomes uncertain whether they will reach a consensus or not. If all the people in a society distrust each other, it is obvious that they will not reach a consensus. Then, there is an interesting question that can be confirmed by a mathematical model: what is the ratio of trust and distrust that will lead to consensus formation?

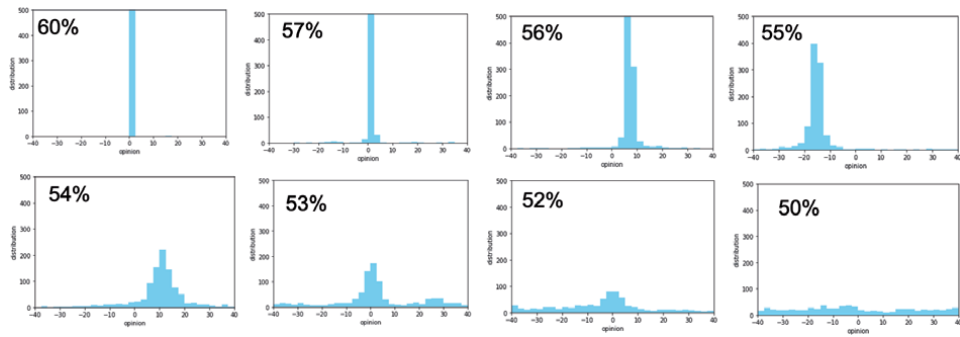
First, we use the Trust-Distrust Model to calculate whether the entire society, assuming 300 people, will form a consensus in a situation where people's connections are mixed with trust and mistrust. Assume that these 300 people are connected by a complete network. Suppose that the coefficient of trust  $D_{ij}$  connecting people occurs in a specified proportion of cases where the coefficient is a positive value determined by a random number between 0 and 1 and a negative value determined by a random number between -1 and 0. Let  $T$  be the proportion of positive or negative values of the trust coefficient  $D_{ij}$ . If  $T = 1$ , the every trust coefficient  $D_{ij}$  is positive. For example, if  $T = 0.5$ , then the positive and negative values are 50–50.

The results of the calculations are shown in **Figure 2** and **Figure 3** [19]. **Figure 2** plots the highest value of the opinion distribution for calculations from  $T = 0.45$  to  $T = 1$ . Since the calculations are for 300 people, the vertical axis of **Figure 2** is 300 if consensus is achieved. The highest value of the distribution is over 200, indicating that the situation is close to consensus formation. On the other hand, at  $T = 0.45$ , the highest value of the opinion distribution is less than 20, suggesting that the opinion distribution does not have a sharp peak. Therefore, at  $T = 0.45$ , the situation is far from consensus building.

The above results were calculated for a complete network of 300 people. Since a complete network cannot be realized in society, calculations for the case where people are connected in a different network structure are also presented. The calculations were done for random networks and scale-free networks.



**Figure 2.** Variation of the highest value of the opinion distribution with the proportion  $T$  of positive and negative values of the coefficient of confidence  $D_{ij}$ .



**Figure 3.**

*The changes in the opinion distribution due to the ratio of positive and negative values of the coefficient of confidence  $D_{ij}$ .  $T_i$  are calculated for  $T = 0.5, 0.52, 0.53, 0.54, 0.55, 0.56, 0.57$ , and  $0.60$ .  $N = 1000$  in this calculation. The probability of people connecting in a random network is set to 30%.*

This can be seen in **Figure 3**, which shows the computation of the opinion distributions for  $T = 0.5, 0.52, 0.53, 0.54, 0.55, 0.56, 0.57$ , and  $0.60$ . Let us assume that the entire society has 1000 people and is connected by a random network. The probability of people being connected is set to be 30%. As can be seen here, when  $T = 0.55$  or higher, the opinion distribution has a sharp peak, indicating that a consensus has been formed. However, at  $T = 0.54$ , there is a peak, but it is not sharp, and at  $T = 0.53$  or lower, the distribution of opinions is flattening out, clearly indicating that consensus has not been formed. The calculation for 300 people in the complete network is very similar to this calculation.

It is noteworthy that the highest value of the opinion distribution in **Figure 2** changes rapidly with the change of  $T$ . The peak of the opinion distribution appears after  $T = 0.5$ , and the height of the peak becomes higher after  $T = 0.55$ . In other words, the value of  $T$  determines whether a society is consensus-building or not. We can see that the borderline between the two is approximately  $T = 0.55$ .

The abrupt change in the highest value of the opinion distribution seen in **Figure 2** suggests that there is a borderline at around  $T = 0.55$  where society may or may not reach a consensus. In other words, if more than 55% of the relationships in the entire social network are trust relationships, consensus building is achieved in the entire society. This means that it is not necessary for all relationships to be trusting in order for the entire society to reach consensus, but if more than 55% of the relationships are trusting, the society will reach consensus.

This conclusion suggests that in a democracy, for example, if more than 55% of the people support a certain policy in an election, it is possible for society to reach a consensus. It also suggests that it is difficult to reach a consensus when there is a strong opposition between those in favor and those against, such as when the number of those in favor is less than 55%. Thus, this conclusion is interesting as an application to political science.

The conclusion that 55% is the borderline of social consensus is very striking. However, I wonder if this conclusion is the same no matter what network structure people are connected to. **Figure 4** below shows a calculation for a random network of 1000 people, where the probability of joining the random network is assumed to be 1%.

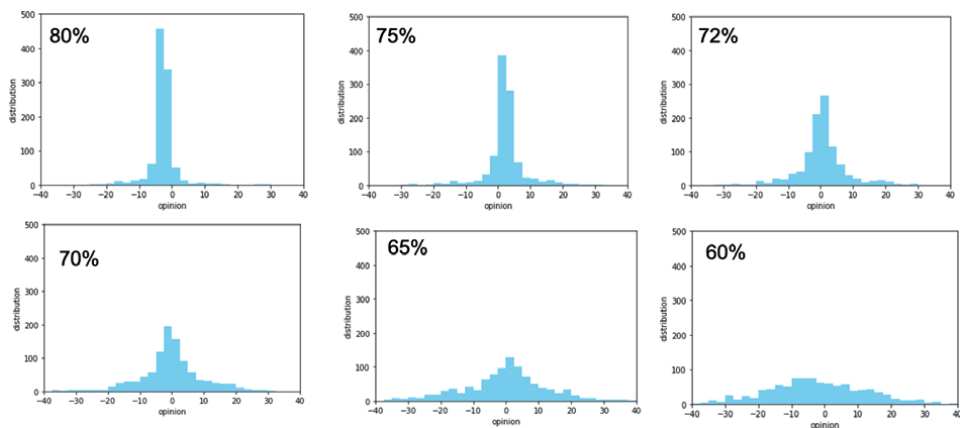
**Figure 4** shows that the sharp peak of the opinion distribution disappears completely at  $T = 0.6$ , and the sharp peak representing consensus emerges at about  $T = 0.75$ . In other words, if people's connections are sparse, such as the probability of joining in a random network is 1%, 55% is not the boundary of consensus formation.

For this quantitative check, we calculate the following quantity. This is the sum of the differences in the opinions of  $N$  people.

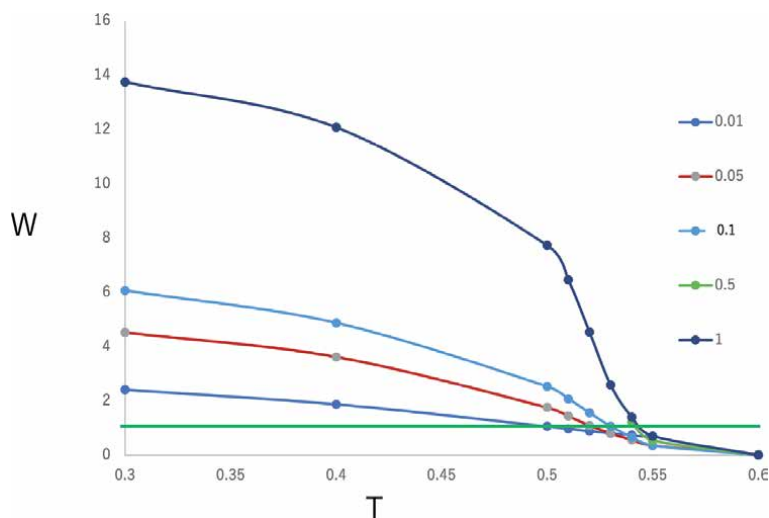
$$W = \frac{\sum_i \sum_j |I_i(t) - I_j(t)|}{\sum_i \sum_j |I_i(0) - I_j(0)|} \quad (4)$$

This  $W$  is  $W = 1$  if the width of the opinion distribution remains the same over time,  $W < 1$  if consensus is reached, and  $W > 1$  if the opinion distribution is divergent without consensus.

Let us examine quantitatively the finding from previous researches [26, 27] that consensus is formed when positive trust between people in a society is at least 55% of all relationships. In **Figure 5**, we show the  $T$  dependence of  $W$  for various values of trust  $\Delta$ .  $D_{ij}$  is between  $-\Delta$  to  $\Delta$ . The calculation of **Figure 5** is  $N = 1600$ , the connection rate of the random network is 30%. Since there are fluctuations due



**Figure 4.** The changes in the opinion distribution due to the ratio of positive and negative values of the coefficient of confidence  $D_{ij}$ .  $T$  are calculated for  $T = 0.8, 0.75, 0.72, 0.70, 0.65$ , and  $0.60$ .  $N = 1000$  in this calculation. The probability of people connecting in a random network is set to 1%.



**Figure 5.** The calculated  $W$  as a function of  $T$ , the proportion of positive values of the trust coefficient  $D_{ij}$ .  $N = 1600$ .  $\Delta = 1.0$ . The average value of 10 calculations is used. The proportion 0.01, 0.05, 0.1, 0.5 and 1 is shown.

to random numbers, the calculated values are averaged over five times. The green horizontal line represents  $W = 1$ . In other words, if the calculation is below this green line, the society forms a consensus.

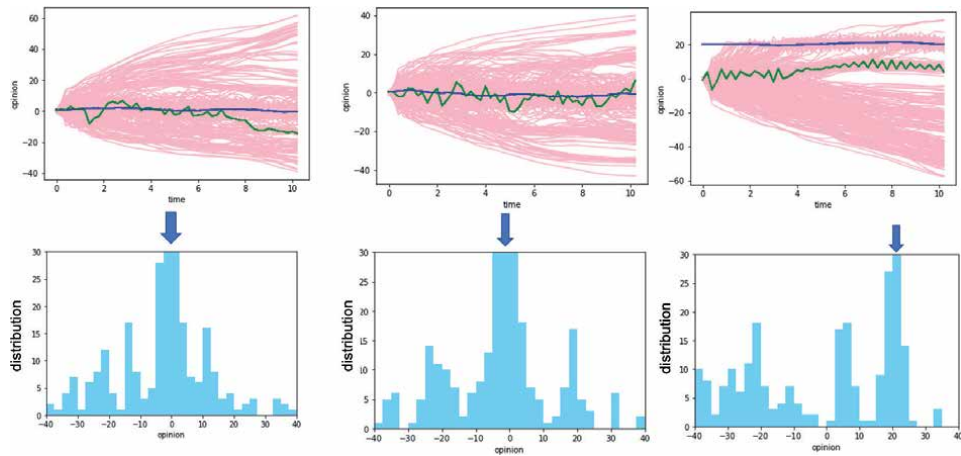
**Figure 5** shows that the condition for consensus is satisfied at about  $T = 0.53$ – $0.55$ , regardless of the size of  $D_{ij}$ . In particular, when  $\Delta = 1.0$ , we can see that when  $T$  is close to  $0.55$ , there is a sharp inclination toward consensus. Therefore, the 55% consensus threshold from previous studies is supported. However, the threshold for consensus depends very much on the connection rate of the network: in the calculation for  $N = 1600$ , if  $\Delta$  is  $1.0$ , then  $W = 1$  is  $T = 0.545$  when the connection probability of the random network is 30%, but  $T = 0.69$  when the connection probability is 1%. This means that if the network is sparsely connected, the threshold value of  $T$  will rapidly increase. In other words, if the network is sparsely connected, it will be difficult for society to reach a consensus.

In our previous work [27], we have performed the same type of calculations on scale-free networks, which are said to be closer to real human connections in society than random networks. However, in the case of scale-free networks, a clear consensus threshold such as 55% does not emerge.

## 5. Charismatic person

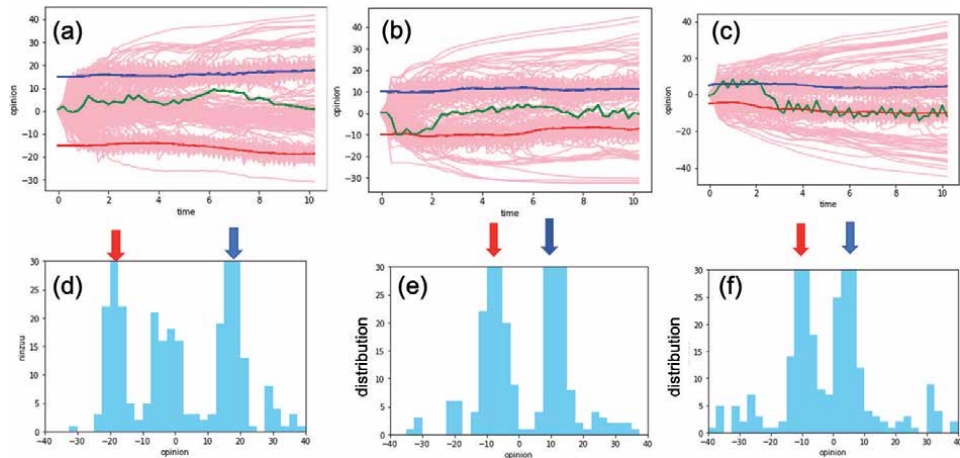
People in society are not uniform, but each individual is unique. A person who is especially popular among many people is called a charismatic person. In this section, we will use the Trust-Distrust Model to simulate the case of a charismatic person who is trusted by many people.

Here, a charismatic person is one who is popular with many people in society. Although being popular among others is not synonymous with being trusted by others, in this Trust-Distrust Model, a charismatic person is considered to be a positive value with a high coefficient of trust  $D_{ij}$  from others to the charismatic person. Thus, a charismatic person is defined as follows. The coefficient of trust,  $D_{ij}$ , is the strength with which person “i” is influenced by a person “j”. Therefore, if the charismatic person is represented by “c” and  $D_{ic}$  is the trust from person “i” to



**Figure 6.** Simulation of a single charismatic person. The charismatic person is trusted by the people in the society with a trust coefficient  $D_{ic} = 10$ , and the trust coefficients between other people in the society are determined by random numbers in the range of  $+1$  to  $-1$ . The arrows show the opinion distribution of the charismatic person. The blue line in the opinion trajectory represents the opinion of a charismatic person, while the green line is a sample of the opinion trajectory of an ordinary person.





**Figure 7.** Simulation of two charismatic persons. The charismatic persons are trusted by the people in the society with a trust coefficient  $D_{ic} = 10$ . The blue line and red line in the opinion trajectory represent the opinions of a charismatic person, while the green line is a sample of the opinion trajectory of an ordinary person.

the charismatic person.  $D_{ic}$  is larger than the influence from other people, then the charismatic person will have more influence.

**Figure 6** shows the case where there is one charismatic person in a society of 300 people. It can be seen that many people have their opinions close to those of charismatic person. Thus, a charismatic person will be able to attract people with similar opinions. The more positive and larger the value of  $D_{ic}$ , the stronger the effect. This is called being popular in society.

**Figure 7** shows the case where there are two charismatic people in the society. These two people are popular and have many people who agree with their opinions. If the two charismatic people are far apart in their opinions, a middle opinion group will be formed between their opinions, but if their opinions are close, there will be no middle ground and the society will be divided between them.

## 6. Mass media effect

Another feature that distinguishes the Trust-Distrust Model from the traditional bounded confidence model is that it can calculate the effect of advertising on the formation of social opinion. In this section, we will consider the impact of advertising on people's opinions of society. In general, advertising is the use of mass media to convey people's messages [28]. Here, we do not touch on the specific method of advertising or the content of advertising but set the impact of advertising per unit time on people as  $A(t)$ .  $A(t)$  can be thought of as the amount of advertising per day, e.g., the amount of money spent on advertising.

The first term on the right-hand side of Eq. (2) is  $A(t)$ , where  $A(t)$  represents the strength of advertising added to society from time to time. This term of the impact of advertising is adopted with reference to the term introduced in the mathematical model of hit phenomena [29, 30], which analyzes the impact of advertising on society.

In this section, the opinions people have are expressed as one-dimensional numerical values. Therefore, an opinion with a positive value simply means that it is expressed as a positive numerical value, not that it is an affirmative opinion. The situation is the same for opinions with a negative value. Therefore, whether an opinion is positive or negative only implies the direction of the opinion on a particular topic. Whether an opinion is positive or negative does not mean that it

supports or does not support a particular topic. For example, on the topic of cola, it is possible to assign a positive value to an opinion that likes Coca-Cola and a negative value to an opinion that likes Pepsi-Cola. Conversely, it is also possible to make the opinion that you like Pepsi-Cola a positive opinion and the opinion that you like Coca-Cola a negative opinion.

**Figure 8** shows the effect of advertising on the distribution of opinions. From left to right, the strength of advertising is  $A(t) = 0, 0.5$ , and  $5.0$ . When  $A(t) = 5.0$  on the right, social opinion distribution moves significantly in the positive direction. In other words, using Eq. (2), we can include the influence of advertising in our calculations.

If we define the advertising term  $A(t)$  as follows, we can concentrate the opinions of the people in the society into an arbitrary opinion.

$$A(t) = -A \tanh(aI_i(t) - b) \quad (5)$$

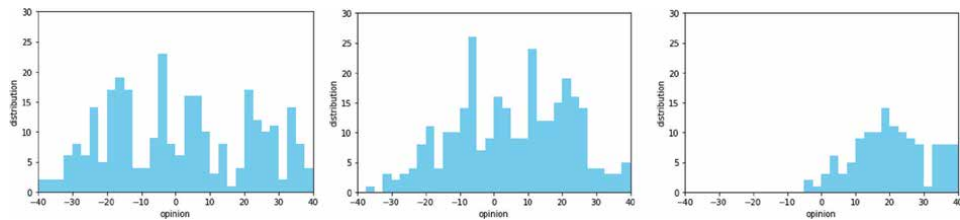
Here,  $a$  represents how narrowly the opinion distribution should be concentrated, and  $b$  specifies where the opinion distribution should be concentrated. By setting these  $a$  and  $b$ , we can decide which and how much of society's opinions should be concentrated. An example of this is shown in **Figure 9**. However, what kind of advertising can have this kind of effect is still another question.

An example of this extreme simulation is shown in **Figure 10**. Here, the opinion of the whole society is negative at first, but due to the influence of strong advertising, the opinion of all people in the society changes to a positive value. We do not know what kind of advertising can actually have this kind of effect on society, but we have shown that it is possible in principle as a mathematical model.

In the first term on the right-hand side of Eq. (2) of the Trust-Distrust Model, which represents the influence of advertising, the influence of advertising can be added separately to each person in society by setting the coefficient  $c_i$ . This shows that it is possible to calculate micro-targeting, which is known in the field of marketing.

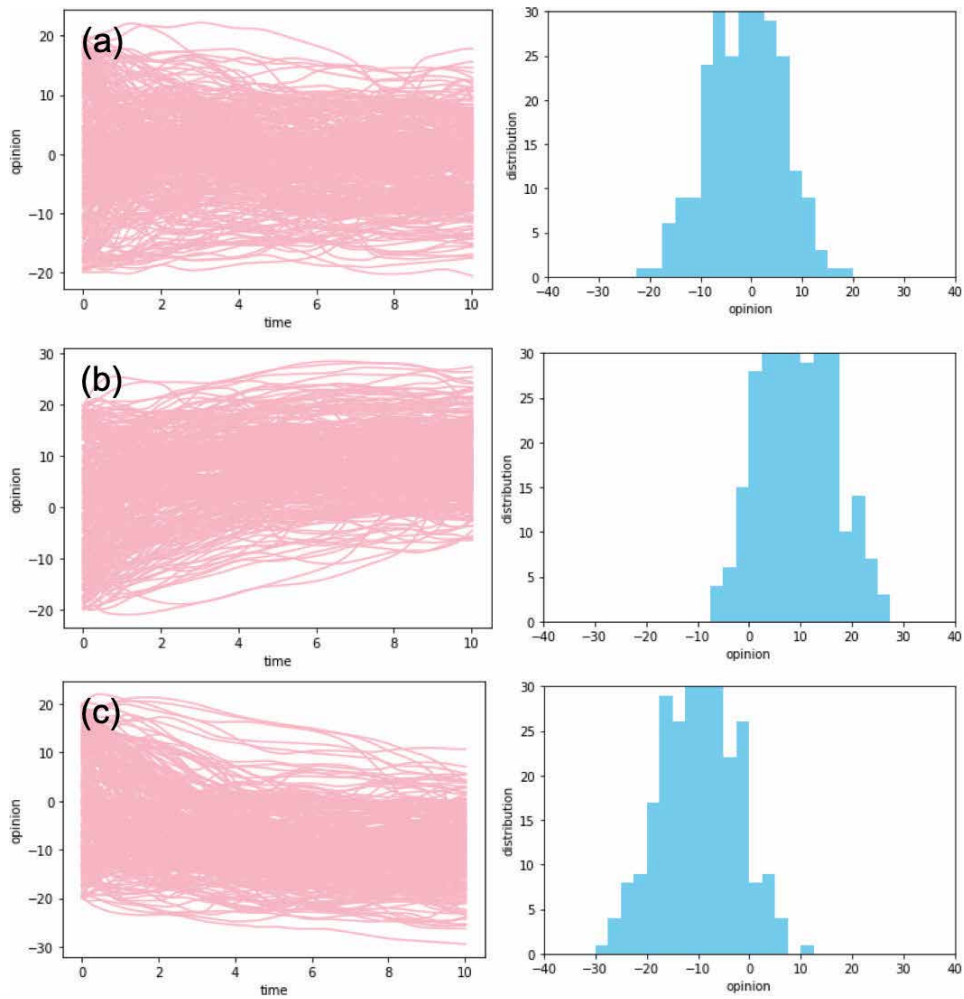
Eq. (2) also shows that people are influenced both by advertising from the mass media and by the people they are connected to in society. Today, with the development of social media, some people are not exposed to information from mass media such as television. Therefore, we will use the Trust-Distrust Model to investigate whether people who are not exposed to information from the mass media are indirectly influenced by the mass media through the influence of people who are connected to them in society [31].

In **Figure 11**, we set the number of people in society as a whole at 1000, of which 100 people, or 10%, are not affected by mass media. The connections between people are random networks, and the calculations for the percentage of connections are

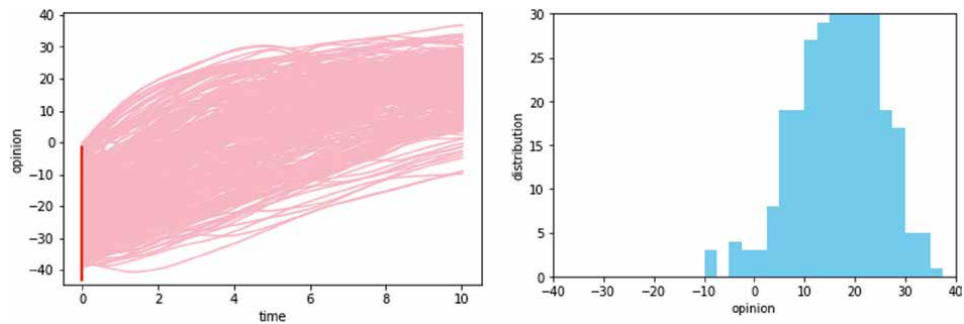


**Figure 8.**

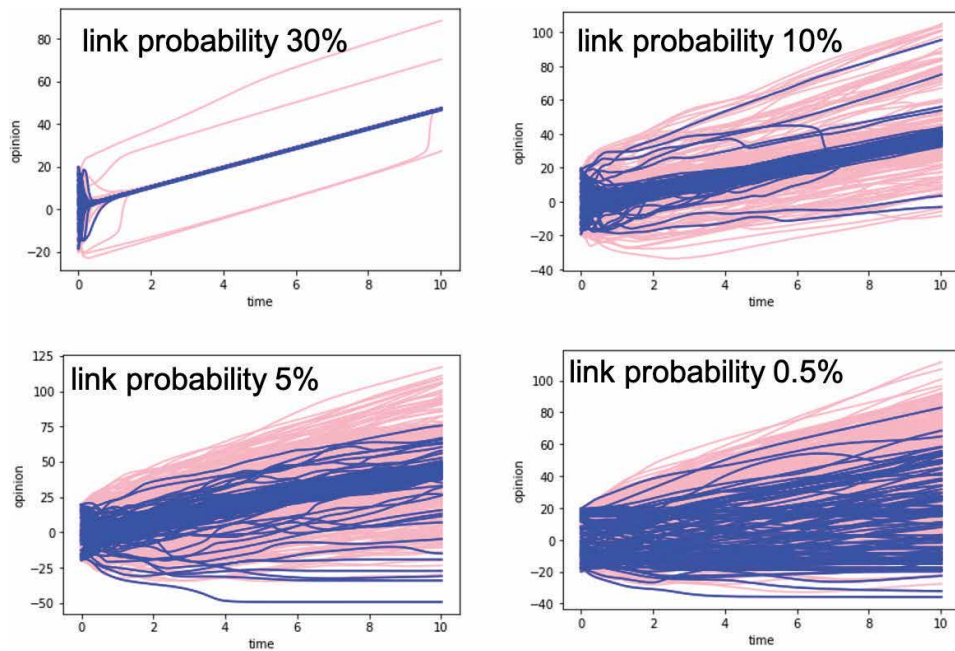
*It shows the effect of advertising on the distribution of opinions. From left to right,  $a(t) = 0, 0.5, 5.0$ . When  $a(t) = 5.0$  on the right, social opinion moves significantly in the positive direction.*



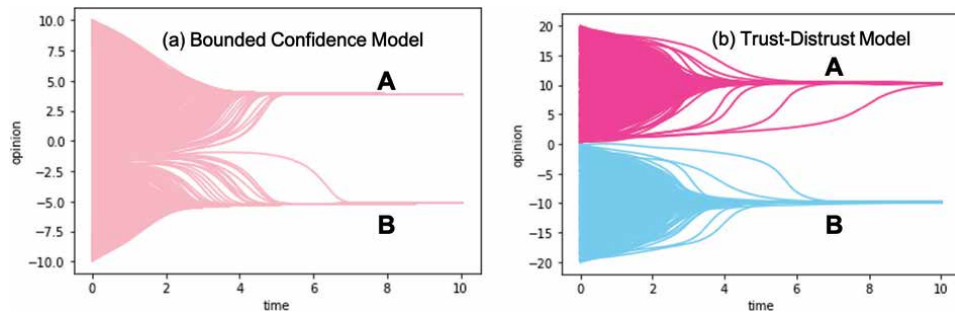
**Figure 9.**  
 Calculation of the concentration of the distribution of opinions in society under the influence of advertising, using Eq. (5).  $A = 5$ ,  $a = 0.2$ . The values of  $b$  are (a)  $b = 0$ , (b)  $b = 10$ . (c)  $b = -10$ .



**Figure 10.**  
 Calculation of the concentration of the distribution of opinions in society under the influence of advertising, using Eq. (5). Parameters are  $A = 5$ ,  $a = 0.2$ . Value of  $b$  is  $b = 20$ .



**Figure 11.** Simulation of the movement of people who are not reached by the influence of mass media. Suppose the number of people in the society is 1000, and 100 people are not reached by the influence of mass media. Calculations are shown for random networks with connection probabilities of 30%, 10%, 5%, and 0.5%. The trajectory of the opinions of those who are influenced by the mass media is pink, and the trajectory of those who are not reached by the mass media is blue. The coefficient of people's trust is set at a uniform random number in the range of 1 to  $-1$ , and the proportion of positive values is  $T = 0.6$ . The proportion of positive values is  $T = 0.6$ . The strength of advertising is  $a = 5$ .



**Figure 12.** Polarization of the distribution of opinions in society. (a) Polarization of opinions obtained by the bounded confidence model. The coefficient of trust  $D_{ij} > 0$  for everyone in the pink locus of opinion. (b) Polarization of opinion obtained with the trust-distrust model. The red and blue groups in the locus of opinion are consensus with  $D_{ij} > 0$  within the group and distrust with  $D_{ij} < 0$  between the groups.

shown as 30%, 10%, 5%, and 0.5%. In **Figure 12**, the trajectory of the opinions of those who are influenced by the mass media is depicted in pink, and the trajectory of the opinions of those who are not influenced by the mass media is depicted in blue.

The calculation results show that when people's connections are sparse, some of the people who have not received the influence of mass media do not receive the influence of mass media even though they are connected to people in the society, and their opinions are about  $-40$  and the trajectory of their opinions is horizontal. Even in that case, many people's opinions are moving in the direction influenced by the

mass media, that is, in the positive direction, because of the connections between people in society, even if the influence of the mass media does not reach them.

On the other hand, when people are closely connected in random networks, as seen in the case of 30%, even those who are not reached by mass media influence reach consensus with those who are, indicating that opinions are moving in a positive direction influenced by mass media.

## 7. Division of society

The Trust-Distrust Model takes into account not only trust and consensus among people in a society but also distrust and opposition among people. Thus, phenomena such as social division can be reproduced in the simulation. Social divisions are often caused by serious conflicts in society, which is different from the phenomenon calculated by the Bounded Confidence Model, in which there are multiple consensus opinions because the opinions are far apart. In this sense, the Trust-Distrust Model seems to be a more suitable opinion dynamics theory for dealing with social fragmentation and division.

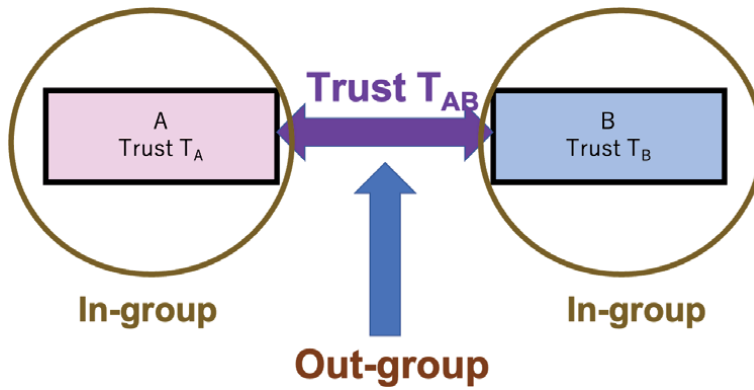
The most typical example of social division would be the American Civil War. The American society at that time was divided into two positions, and the war took the form of a war between two uncompromising and polarized groups. Another example would be the Reformation in Europe in the 16th century. Modern American society also seems to be divided into conservative and liberal, as seen in the 2020 presidential election. In Japan, during the Meiji Restoration in the mid-19th century, Japanese society was divided into conservative and reformist factions, and there was a civil war that lasted over a year. In addition to the past examples of wars, many countries are divided over whether to prioritize medical countermeasures or minimize economic damage in response to the spread of COVID-19 today, for example. Such divisions of opinion in society cannot be handled by the Bounded Confidence Model, since they clearly disagree with each other and with the opinions of others.

In the bounded confidence model, people in the society are basically in a trust relationship. In the bounded confidence model, people in the society are basically in a trusting relationship, and the cause of the polarization of opinions is therefore not affected by distant opinions. In the bounded confidence model, people are not influenced by opinions that are too far apart from their own, so the distribution of opinions in society becomes multipolar and coalesces into multiple opinions [10, 11].

However, in the case of the Trust-Distrust Model, it can be assumed that people in a society are divided into, say, two groups, and the groups are in conflict with each other and distrust each other. **Figure 12** shows the polarization of opinions in the bounded confidence model and in the trust-distrust model. **Figure 13** shows the polarization of opinions in the bounded confidence model and the trust-distrust model. Although they look the same, in the bounded confidence model, all people in society are bound by trust, while in the trust-distrust model, people in society are divided by distrust.

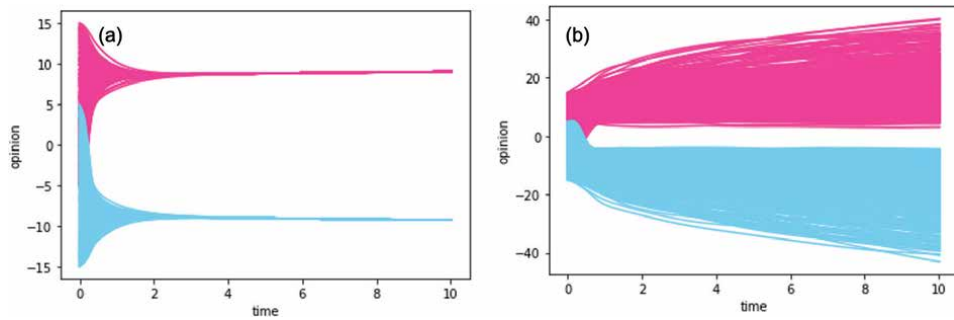
More generally, we think of a society as being divided into multiple endogroups. A distinction is made between the relations between people within an endogroup and the relations between an endogroup and people in another endogroup. Tajfel's idea [32] is to describe the relationship between an in-group and another in-group as an out-group.

This polarization of social opinion based on the Trust-Distrust Model is expressed in the concept of In-group and Out-group proposed by Tajfel [32], and **Figure 13** shows a schematic diagram of the opinions of people in society according to Tajfel's concept. In **Figure 14**,  $T_A$  and  $T_B$  are the proportions of positive values of the coefficient of trust  $D_{ij}$  within groups A and B, and  $T_{AB}$  is the proportion of



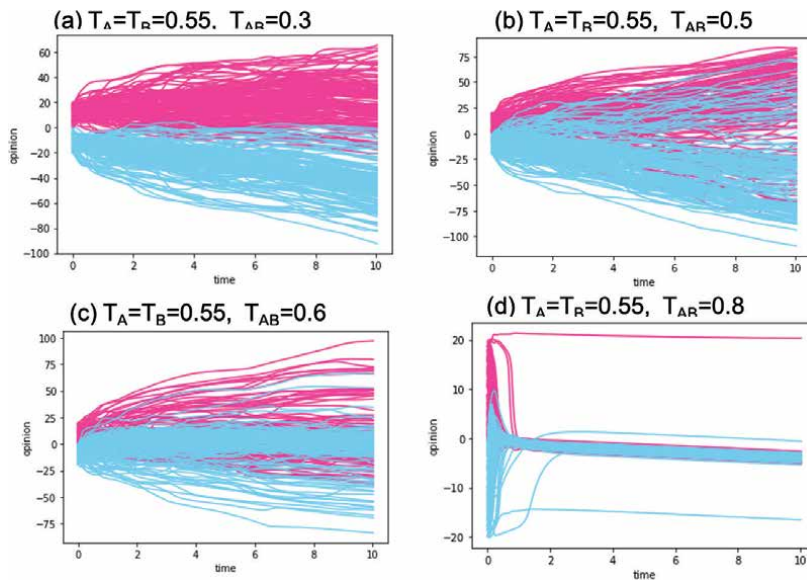
**Figure 13.**

*In-group and out-group based on Tajfel's proposal.  $T_A$  and  $T_B$  are the proportions of positive values of the coefficient of trust  $D_{ij}$  within groups  $a$  and  $B$ , and  $T_{AB}$  is the proportion of positive values of the coefficient of trust  $D_{ij}$  between groups.*



**Figure 14.**

*Two typical examples of the distribution of opinions in a divided society. (a),  $T_A = T_B = 0.8$ ,  $T_{AB} = 0$ . Group A and Group B form a consensus as In-group. However, with  $T_{AB} = 0$ . (b),  $T_A = T_B = 0.5$ ,  $T_{AB} = 0$ .*



**Figure 15.**

*Calculations using the trust-distrust model when society is divided into Group A and Group B.  $T_A = T_B = 0.55$ .  $T_{AB} = 0.3, 0.5, 0.6, 0.8$ . The opinion trajectories of people in Group A are in red and those of people in Group B are in blue.*



positive values of the coefficient of trust  $D_{ij}$  between groups. If  $T_{AB} = 0$ , then the two groups are completely split as in **Figure 13** (b).

**Figure 14** shows two typical examples of the distribution of opinions in a divided society. In (a),  $T_A = T_B = 0.8$ ,  $T_{AB} = 0$ . Group A and Group B form a consensus as In-group. However, with  $T_{AB} = 0$ , the trust between the groups is zero. On the other hand, in (b),  $T_A = T_B = 0.5$ ,  $T_{AB} = 0$ , Group A and Group B do not form a consensus because of insufficient trust in the group, but the trajectories of the two groups are repulsive and do not mix because of distrust in the Out-group.

A typical example of (a) in **Figure 14** would be the American Civil War, where society was completely divided, and war broke out. However, as far as the votes for the 2020 presidential election in the United States are concerned, the two candidates are competing in each state, and there is no regional division.

**Figure 15** shows the results when  $T_A$  and  $T_B$  are fixed at 0.55 and  $T_{AB}$  is varied. Here,  $T_{AB}$  is not zero, so even with  $T_{AB} = 0.3$ , Group A, and Group B mix a little. When  $T_{AB} = 0.8$ , the two groups are in an out-group trust relationship, and they form a single consensus. For these detailed calculations, please refer to References [33, 34].

## 8. Discussion and conclusion

In this paper, we introduced a new theory of opinion dynamics, the Trust-Distrust Model. Trust and mistrust play a very important role in this opinion dynamics theory. Trust brings people to a consensus, while distrust makes people repel. The Trust-Distrust Model is a theory that is suitable for simulating this situation.

The Bounded Confidence Model is a theory of opinion dynamics in which opinions take continuous values, and the Trust-Distrust Model is an extension of the Bounded Confidence Model. The Trust-Distrust Model is an extension of the Bounded Confidence Model in two respects: the coefficient  $D_{ij}$  is seen as the coefficient of trust between people, and when this value is negative, the relationship is distrustful. Also, the influence of mass media was incorporated as an external field to the differential equation that determines opinion. The extension of distrust as negative trust facilitates the simulation of social phenomena such as social divisions. It is possible to simulate consensus building as an In-group for each group in the society, and trust and distrust as Out-group among groups in detail. In this sense, the Trust-Distrust Model is a theory that facilitates the simulation of a real, complex society. The main theme of this paper is the consensus of information: “trust-distrust”, the discussion of social impact through communication by various media formed by implicit understanding is represented by resistance to authority, populism, and risk. The focus tends to be on issues. Depending on the content and nature of the news, positive dissenting or agreeing opinions may have both similar and different tendencies depending on the source and content, and the ability of stakeholders to communicate in the discussion. The simulation results suggest that the network structure is significantly changed by the above. On SNS, we have already gradually introduced a mechanism to anticipate risks, such as (1) a mechanism to prohibit hackers from accessing the system with a system that is increasing in number mechanically, and (2) a mechanism to prohibit accounts due to posted content. Has been done. However, unpredictable behavior can occur. In addition, by accumulating information collectively, patterns for manipulating information will continue to grow. As mentioned above, in the 2020 US presidential election, strict regulations were imposed on large-scale web-based speech control and erroneous information transmission channels including bots. From this research, the network structure changes drastically due to the spread of erroneous information, the participation of untrustworthy information, the balance of the spread of reliable information, and

the construction of the related party network, and the opinion is that phase transition occurs at a certain threshold. It was suggested. Significant changes may occur in the future due to future legislative decisions. Furthermore, we think that it is necessary to have a shared awareness not only of the crime clearance rate offline but also of security awareness in cyberspace as a social convention. In that respect as well, it is important to check facts in an online-offline environment and form a communication community in consideration of the reliability of information for a diverse risk society, or if it is distrustful for a risk society, it is wrong. It is necessary to consider various cases such as discussions when problems are overloaded, and it can be said that it is necessary to learn from past cases and prepare for them from hypothetical simulation results and case studies. In the future, there will be an increase in two-way communication across time and space by anonymizing personal information such as letters and pictograms, and extracting them “as cryptographic asset data” to represent social events. However, there are advantages and disadvantages to using information assets in the form of personalized data, which are excerpts of personal information as described above. In the future, the discussion of trust value in the above data will accelerate in indicators such as personal credit scoring. In this paper, the Trust-Distrust Model will be discussed with respect to theories that also address charismatic people, the effects of advertising, and social divisions. Furthermore, simulations of the Trust-Distrust Model show that 55% agreement is sufficient to build social consensus. By working on this theory, we hope to use it to discuss and predict social risk in future discussions in credit scoring.

## Acknowledgements

This work is supported by JSPS KAKENHI Grant Number JP19K04881.

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# Nigerian Press Coverage of Hate Speeches in the *Daily Trust*, *The Nation* and *The Guardian* Newspapers

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## Abstract

In Nigeria, as well as in modern democratic nations, the press has always functioned as a tool for disseminating information on public affairs, interpreting government policies and programs, and providing a good platform to engage the citizens for discussion on issues affecting society. The media play a powerful role as intermediaries between political leaders and the public. The variables of frequency, location, direction, and journalistic genre were used in the study. Within this context, the study adopts content analysis. The study employs Lazarsfeld and Katz's Two-Step Flow and Castells' Theory of Network Society as theoretical framework. The study uses stratified sampling by days of the week and coding sheet as a method of data collection. The study found that the manifestation of hate speech was frequent in the 2015 general election. The study also found that the manifestation of hate speech had an overbearing on political news by the selected newspapers in the 2015 general election in Nigeria. The study concludes that such publications (hate speech) tend to make electorates have a different connotation to a candidate.

**Keywords:** *Daily Trust*, Hate Speech, *The Guardian*, *The Nation*, Nigeria

## 1. Introduction

Universally, the press and politics are generally believed to enjoy a symbiotic relationship. In Nigeria, as well as in modern democratic nations, the press has always functioned as a tool for disseminating information on public affairs, interpreting government policies and programs, and providing a good platform to engage the citizens for discussion on issues affecting society. The media play a powerful role as intermediaries between political leaders and the public [1]. Xinkum in Suleiman and Owolabi [1] note that the role of the press becomes important, especially in influencing voters' judgments about the candidates and taking an informed decision about them. This perhaps explains why media scholars have accepted the economic and political changes in society [2].

Up till 1922, the election of public office holders was solely determined by the British colonialists. However, the Clifford Constitution altered the democratic process in the Nigerian political space as Nigerians were given the opportunity to vote and be voted for in the House of parliament. Realizing the role of the media in the democratic process is why a good number of the pre-independence political parties had a newspaper as an ally, which was considered imperative to the survival of their organization [2]. Retrospectively, since 1960, when Nigeria gained its independence from the British colonial ruler, to date, various parliamentary, military, and presidential systems of government have existed. In a democratic society, elections are mostly the conventional means of electing people into all political offices in the country. Against this background, Oso [2] observed that the importance attached to the party's newspaper was so enormous that people believed that party organizations were built around the press, rather than around organized members.

In line with Oso's view, the newspaper with its close link to political parties was used to set the political agenda. Newspaper like *Lagos Daily News* (1925) was established by Herbert Macaulay, who formed the Nigeria National Democratic Party (NNDP). Nnamdi Azikwe also used the *West African Pilot* (1937) to propagate the evangelism of NCNC in which he was a key stakeholder. Obafemi Awolowo also floated the *Nigeria Tribune*, which had a close link with the Action Group (AG). In the North, the *Northern People's Congress*, in 1949, took over Hausa language newspaper, *Gaskiya Ta fi Kwabo*, and its English language counterpart, *Nigerian Citizen* (later as *New Nigerian*), to advocate, defend, and advance its interest. The Federal government, under the Northern Peoples' Congress (NPC), established the *Morning and Sunday Post*; the Eastern Region (under NCNC) had the *Eastern Outlook*, while the North controlled *Gaskiya* and the *Nigerian Citizen*. Furthermore, Chief Samuel Ladoke Akintola established the *Morning Star* toward the end of his Premiership in the old Western Region.

With the intervention of the military in Nigerian politics on December 31, 1984, the Nigerian mass media witnessed the establishment of magazines, periodicals, and soft-sell newspapers. These include *The Newswatch*, *The News*, *The Tempo*, and *Tell* magazines. Others were indigenous language newspapers like *Alaroye*, *Gboungboun*, and *Irohin Yoruba*. The magazines in particular concerned themselves with investigative journalism, and they also contributed immensely toward constructive criticism and the democratization processes of the ruling military establishment under Babangida, Abacha, and Abdulsalam Abubakar, respectively. Ever since, the media have regarded the pursuit of full enthronement and sustenance of democracy and democratic institutions and good governance as its abiding responsibilities.

The Independent National Electoral Commission [3] report stated that consequent upon the approval of Saturday, March 28, 2015 as the date for the 2015 presidential and national assembly elections, the campaign exercise began full-blown. In that regard, 14 political parties and presidential candidates were approved by the Independent National Electoral Commission (INEC) in their news release. The parties included Action Alliance (AA), Allied Congress Party of Nigeria (ACPN), African Democratic Congress (ADC), All Progressive Congress (APC), Kowa Party (KP), The National Conscience Party (NCP), Peoples' Democratic Party (PDP), and Progressive People's Alliance (PPA), among others.

At the peak of the electioneering campaign, the two foremost parties (PDP) and (APC) went berserk by taking enmity to the extreme while maligning and attacking the personalities of each other's presidential aspirants through unbridled use of hate speeches. It became so bad that the entire campaign process was almost turned into a harvest of hatred and incitement of one party against the other instead of selling the individual party manifesto [4]. Within this context, this study examined the manifestation of hate speech in Nigeria.

## 2. Motivation of the study

Hate speech is a globally endorsed paradigm, and the press, as an important institution in the democratic process, plays a key role during elections. As the Fourth Estate of the Realm, the press provides the platform for narratives and discourses in the service of elections, political negotiations, and other features of the contestations among politicians and other civil organizations involved in election administration. However, problems associated with election reporting and media role in political contestations and machinations, particularly on the African continent, have been a recurrent clog in the wheel of politics in Africa. For instance, in Nigeria, since the 1950s up to the early 1980s, spiraling into the Fourth Republic that started in 1999 and beyond, several election problems that were rooted in perceived mishandling of the electoral process by the media had occurred in the country. The 1965 parliamentary and 1983 general elections were faced by conflicts with accompanying widespread violence, which resulted in military interventions [5].

Apparently, the 2015 election was very keen to the extent that an alliance of opposition parties was formed to produce All Progressives Congress (APC) in a strong bid to dislodge the Peoples Democratic Party (PDP) that had been in power since 1999. Findings from the monitoring of the media coverage of these elections showed that there were cases of sponsorship of hate advertorials by the then Ekiti State governor, Ayodele Fayose, who, on January 19, 2015, ran adverts on the front pages of national dailies such as *The Daily Sun*, *The Guardian*, and *The Punch* titled “Nigeria Be Warned”. In the advert, satirical reference was made to Buhari, the presidential candidate of the APC, that given his age and speculated illness and frail nature, he might die in office should he win, according to *Sahara Reporters* of January 19, 2015.

Incidentally, Section 95 of the Electoral Act 2010 disapproves of hate campaigns by stipulating that: (1) A political campaign or slogan shall not be tainted with abusive language directly or indirectly likely to injure religious, ethnic, tribal, or sectional feelings. (2) Abusive, intemperate, slanderous, or base language or insinuations or innuendoes designed or likely to provoke violent reactions or emotions shall not be employed or used in political campaigns. Yet, there were other instances of lack of discretion on the part of the media in the countdown to the 2015 and 2019 elections, in terms of inappropriate language use and inciting headlines. This was evident in the outcome of the monitoring of 12 national newspapers like *Daily Trust*, *The Nation*, *The Sun*, *The Punch*, *The Guardian*, *Vanguard*, *Daily Independent*, *National Mirror*, *Leadership*, *Nigerian Tribune*, *ThisDay*, and *Daily Champion* [6].

Findings by IPC [7] revealed that stories capable of inciting one section against the other were recorded 45 times during this monitoring period, while hate speech featured 8 times despite these provisions. A total of 117 reports were recorded in these categories in the six-month period at an average of about 20 per month across the 12 selected national print media. The documented inciting headlines also include the following: APC presidential candidate is a fundamentalist—Clarke (*ThisDay*, Jan. 17, 2015, page 15); will you allow history to repeat history itself? Enough of state burials (*Daily Sun*, Jan. 19, 2015, page 1); we are set for war—PAC (*Nigerian Tribune*, November 22, 2019), among others. Given this scenario, it is important to undertake a study on Nigerian press coverage of hate speeches in the *Daily Trust*, *The Nation*, and *The Guardian* newspapers.

## 3. The basic tool of scientific inquiry

The problem statement informed the basic tool of scientific inquiry in this study as follows:

1. What is the frequency of hate speech in the 2015 general election by the selected newspapers?
2. What is the dominant location for the placement of stories with hate speech in the 2015 general election by the selected newspapers?
3. What is the direction of stories on hate speech in the 2015 general election by the selected newspapers?
4. What journalistic genre was used for hate speech in the 2015 general election by the selected newspapers?

#### **4. Literature review**

In relation to the literature, the study observed that the media did not comply with the code of ethics in publishing and broadcasting advertorials, while hate speech and inciting statements especially by the two major political parties (PDP) and (APC) were used in the media. As a result of the influence of advertising as a source of revenue, owners of newspaper businesses did not subject adverts to necessary checks. The existing literature presupposes that newspapers' coverage of national elections in Nigeria often promotes ethnic, regional, and religious interests. Theoretically, exponents of The Functional Theory of Campaign Discourse argue that the functional theory of campaign discourse renders a helpful scheme to classify and synthesize political advertising. They add that elections are intrinsically competitive; political actors deploy campaign messages that include advertising to present a more preferable image of them. They use political ads to acclaim themselves, positive statements about their credentials as the better candidate; attack an opponent's credentials; or defend with reputations against an opponents' attack through media platforms.

This supports the literature argument [1] that newspaper coverage of general elections and newspapers owned by the leaders of different political parties published negative reports on the opponents and their ethnic groups. In addition, comments deemed as offensive and employing hate speech, threats, abusive language, and assassination of character are published by the media. Corroborating, Ogbuoshi *et al.* [8] observed that hate speech is now a common phenomenon in present day society, and it is mostly made to achieve some sinister goals.

In this repeatedly corroborated incident of hate speech, Critical Race Theory explains the contexts of media use of phrases sponsored by politicians that refer to other opposition groups from descriptions that are not merely rhetorical but also pedestals on which hate speech flourishes. Durkheim's Social Fact and Weber's Social Action or Relations Theory depict that social reality focused attention on individualistic autonomy in terms of ideas and desires vis-à-vis social regularity to achieve sinister goals of hate speech in society.

Similarly, the existing literature attests that hate speech has become more vivid in the successive democratic dispensation than the previous ones, thereby keeping the citizens more divided, as hate speech is now the focal point and the instrument of campaigns. Thus, the parade of hate speeches in several newspapers analyzed showed that the media was used by politicians to stoke up hatred and stimulate violence among ethnic and political groups during the electioneering periods. Critics of Critical Discourse Analysis Theory argue that neutral representations are opposed to ideological representations, which are deemed to 'distort reality. Ideology is, accordingly, conceptualized in negative terms, as the opposite of 'truth',



which systematically connotes how hate speech and language, dialects, and acceptable statements are used in a particular medium across different audiences.

The trend of discussion in the literature is disturbing, as scholars corroborated that commentators employ the use of hate language, verbal assault, name-calling, insults, and derogatory words to describe subjects. In relation to the above, this study armed with Katz and Lazarsfeld's Two-Step Flow theory, which asserts that information from the media moves in two distinct stages. First, individuals (opinion leaders) who pay close attention to the mass media and its messages receive the information. Opinion leaders pass on their own interpretations in addition to the actual media content. The reviewed literature also underscores the findings by the Centre for Information Technology and Development (CITAD) [9] that in the last election in Nigeria, instances of hate speeches were seen on conventional and social media. Largely on conventional media, the speeches were broadcast on certain television stations and published in some newspapers as well.

This coalesces with Castells' Theory of Network Society, which examines the concept of the network to a high level of abstraction, utilizing it as a concept that depicts macro-level tendencies associated with the social organization in informational capitalism. The role of networks in social theory is apt as follows: dominant functions and processes in the information age that are increasingly organized around networks. Within this context, this study examines Nigerian press coverage of hate speeches in the *Daily Trust*, *The Nation*, and *The Guardian* newspapers.

## 5. Theoretical framework

The study adopted Lazarsfeld and Katz's Two-Step Flow and Castells' Theory of Network Society Theories. Lazarsfeld and Katz's Two-Step Flow was first introduced by Lazarsfeld et al. in 1944 to study the process of decision-making during a presidential election campaign. The study found empirical support for the direct influence of media messages on voting intentions. Armed with this data, Katz and Lazarsfeld developed the Two-Step Flow theory of mass communication. This theory asserts that information from the media moves in two distinct stages. First, individuals (opinion leaders) who pay close attention to the mass media and its messages receive the information. Opinion leaders pass on their interpretations in addition to the actual media content. The term 'personal influence' was coined to refer to the process of intervening between the media's direct message and the audience's ultimate reaction to that message. Opinion leaders are quite influential in getting people to change their attitudes and behaviors and are quite similar to those they influence. The Two-Step Flow theory has improved the understanding of how the mass media influence decision-making.

The theory refined the ability to predict the influence of media messages on audience behavior, and it helped explain why certain media campaigns may have failed to alter audience attitudes or behavior. The Two-Step Flow theory gave way to the multi-step flow theory of mass communication. Although the empirical methods behind the two-step flow of communication were not perfect, the theory did provide a very believable explanation for information flow. The opinion leaders do not replace media but rather guide discussions of media, which at times lead to issues of hate speeches. Lazarsfeld et al., in Hassan [10], discovered that most voters got their information about the candidates from other people who read about the campaign in the newspapers, not directly from the media. They concluded that word-of-mouth transmission of information plays an important role in the communication process and that mass media have only a limited influence on most individuals. Since opinion leaders pass on their interpretations in addition to the

actual media content, the manifestation of hate speeches on the pages of newspapers and how the opinion leaders tag meaning to words in Nigeria, like Gandollar instead of Ganduje, would affect the electoral victory when such interpretations are in a negative direction.

Castells' Theory of Network Society examines the concept of the network to a high level of abstraction, utilizing it as a concept that depicts macro-level tendencies associated with the social organization in informational capitalism. He expressed the role of networks in social theory as follows: dominant functions and processes in the information age are increasingly organized around networks. Networks constitute the hate speech morphology in societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture. Understanding the societal context of such networks entails returning to the political economy of the social transformation of capitalist society. An analytical concept network is abstract and thus unable to frame the interpretation of real-life networks, whereas theoretical concept network is an excellent crystallization of the social morphology of informational capitalism [11].

As an upshot of the latter, the concept of network society has a certain intellectual appeal, even if it looks almost as if the formal description of the concept of the network was needed only to legitimate its use as a metaphor. Concerning the hardcore of the metaphor, the study comes to the true message of Castellsian political economy (where politicians metaphorically used negative words to refer to other opposition), and the network in its paradigmatic form is about the nodes and connections of powerful financial and economic institutions, which allow the flows of values in pursuit of the newspapers' accumulation of capital. This implies that 'network' in Castells' social theory is not an analytical concept but rather a powerful metaphor that served to capture the new social morphology of the capitalist system. In this context, the morphological manifestation of hate speech in the discourse of information society gains its momentum; it went out of intellectual fashion as well as political agenda and gave its place to the visions of the creative and or smart society. For instance, in Nigeria, the phrase 'change begins with me' is often used metaphorically and polemical.

Although the critics, who looked at the theories of the information society suspiciously as ideological constructs, created for political decisions, rather than instruments for understanding the social reality. Therefore, Castells believes that McLuhan's dictum, "the medium is the message," could be adequately applied in the way hate speeches flourish in newspapers' content. In this perspective, there is a network (politicians and newspaper organizations) that often creates a powerful metaphor that aptly portrays hate speech as a social morphology of information capitalism [12].

## **6. Research methodology**

The study employed content analysis as a method of data generation. Content analysis is an approach used in social science to examine the manifest content of media messages. According to NPC [13], three hundred and ten Nigerian newspapers exist in the country. Therefore, the population of the study constitutes the 310 newspapers in Nigeria. The sampling technique is stratified sampling. Since the sampling technique is stratified sampling by days of the week, it means that the three newspapers under investigation formed the sample size of the study. Below are the sample editions that were studied from the three newspapers:

January Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

February Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

March Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

April Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

May Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

June Editions: (2, 5, 8, 11, 14, 17, 20, 23, 26,) = 9 days.

The sampling interval starts from the second edition of each month, as January has 31 days, February 28, March 31, April 29, May 31, and June 30. Therefore, the scale for rating the sampling is as follows: (2) + 3 = (5) + 3 = (8) + 3 = (11) + 3 = (14) + 3 = (17) + 3 = (20) + 3 = (23) + 3 = (26) in all the months. This means two months were selected before the 2015 general election, two months during the 2015 general election, and two months after the 2015 general election to determine the manifestation of hate speech by the three newspapers.

The papers are selected because they are among the 12 national papers, which means they share certain characteristics. The study considered the following units of analysis: political news, editorial, cartoons, and advertorial.

1. Political news: These are stories on politics that contained hate speech in the 2015 general election by the selected newspapers.
2. Editorial: This is a newspaper's column that had some elements of hate speech in the 2015 general election by the three newspapers.
3. Cartoons: These are illustrations, which consist of images or photographs that portrayed hate speech in the 2015 general election by the selected newspapers.
4. Advertorial: These are paid contents that had elements of hate speech in the 2015 general election by the selected newspapers.

The content categorization is based on the indicators that are used to identify what constitutes hate speech like offensive, hateful, incisive, pungent, and sarcasm as developed by [11, 14] and moderated by the current study. These forms of hate speech were read and carefully placed into the following categories:

- a. Offensive: Comments that attack personalities in the 2015 general election as published by the selected newspapers.
- b. Hateful: Comments that are insulting of ethnic, religious, or regional groups in the 2015 general election by the sampled newspapers.
- c. Incisive statement: Comments that call for violent attacks against individuals, members of a particular ethnic group, or region in the 2015 general election by the three papers.
- d. Pungent: Comments that are targeted at a person, which are in the form of criticism or humor, in the 2015 general election by the selected newspapers.
- e. Sarcasm: These are utterances that are calculated to mock a person or group in the 2015 general election as published by the three papers.

The data gathering instrument in this study is a coding sheet. Coding is a visible surface in a text; for example, the researcher counts the number of times or phrases that appear in a written text. The study adopted content validity whereby experts in the field of communication ascertained the comprehensiveness and adequacy of the coding sheet [11]. Two coders were trained and trusted to code the selected editions. Data generated were presented using cross-tabulation, frequency, and percentages.

## 7. Findings and discussion

**Table 1** examines the frequency of hate speech in the 2015 general election by the selected newspapers. Based on the data, the manifestation of hate speech in the 2015 by *Daily Trust* accounts for 20% (n = 67) offensive, 24.2% (n = 81) hateful, 17.3% (n = 58) incentive, 15.5% (n = 52) pungent, and 22.10% (n = 77) sarcasm. *The Nation* has 20.9% (n = 57) offensive, 24.3% (n = 66) hateful, 14.3% (n = 39) incentive, 21.3% (n = 58) pungent, and 19.1% (n = 52) sarcasm. *The Guardian* records 18.2% (n = 65) offensive, 27.5% (n = 98) hateful, 15.2% (n = 54) incentive, 17.7% (n = 63) pungent, and 21.3% (n = 76) sarcasm. Cumulatively, the manifestation of hate speech in the *Daily Trust*, *The Nation*, and *The Guardian* newspapers are as follows: 19.6% (n = 189) offensive, 25.4% (n = 245) hateful, 15.7% (n = 151) incentive, 17.10% (n = 173) pungent, and 21.3% (n = 205) sarcasm. The data indicate that the manifestation of hate speech was more frequent in *The Guardian* in the 2015 general election, followed by the *Daily Trust* newspaper. Based on the content categorization, hateful speeches were dominant compared to other categories like offensive, incentive, pungent, and sarcasm in the 2015 general election.

**Table 2** shows the independent sample statistics of 2015 frequency of hate speech (FQHS). The FQHS mean of 2015 (64.20) is significantly high. This indicates that in the selected newspapers, hate speech in the 2015 general election was very high, which validates the findings in **Table 1** above. The IPC report [7] also supported the findings that many of the news reports at the 2015 presidential

Newspapers (2015)	<i>Daily Trust</i>		<i>The Nation</i>		<i>The Guardian</i>		Total	
Categories	No.	%	No.	%	No.	%	No.	%
Offensive	67	20	57	20.9	65	18.2	189	19.6
Hateful	81	24.2	66	24.3	98	27.5	245	25.4
Incentive	58	17.3	39	14.3	54	15.2	151	15.7
Pungent	52	15.5	58	21.3	63	17.7	173	17.10
Sarcasm	77	22.10	52	19.1	76	21.3	205	21.3
Total	335	100	272	100	356	100	963	100

(Source: author's computation, 2022).

**Table 1.**  
Frequency of hate speech in the 2015 general election.

	Year	N	Mean	Std. deviation	Std. error mean
FQHS	2015	15	64.20	14.408	3.720

Source: SPSS version 25.

**Table 2.**  
Independent samples statistics of 2015 frequency of hate speech.

Newspapers (2015)	Daily Trust		The Nation		The Guardian		Total	
Location/Placement	No.	%	No.	%	No.	%	No.	%
Front Page	59	17.6	48	17.6	42	11.8	149	15.5
Inside Page	265	79.1	217	79.8	297	83.4	779	80.9
Back Page	11	3.3	7	2.6	17	4.8	35	3.6
Total	335	100	272	100	356	100	963	100

(Source: author's computation, 2022).

**Table 3.**

*Dominant location for the placement of stories with hate speech in the 2015 general election.*

campaign had dangerous and outrageous headlines. Some of the statements were largely disparaging, while a great number turned out to be a figment of the imagination of politicians. Stories capable of inciting one section of the nation against the other were recorded forty-five (45) times during the 2015 presidential campaign.

**Table 3** ascertains the dominant location for the placement of stories with hate speech in the 2015 general election by the selected newspapers. The rating scale of the front page, inside page, and back pages was used to determine the manifestation of hate speech in the 2015 general election. The data show that in the 2015 general elections, *Daily Trust* has 17.6% (n = 59) stories that contained hate speech on the front page, 79.1% (n = 265) on the inside page, and 3.3% (n = 11) on the back page. *The Nation* accounts for 17.6% (n = 48) stories with hate speech on the front page, 79.8% (n = 217) on the inside page, and 2.6% (n = 7) on the back page.

Similarly, *The Guardian* records 11.8% (n = 42) stories that contained hate speech on the front page, 83.4% (n = 297) on the inside page, and 4.8% (n = 17) on the back page. Cumulatively, in 2015, 15.5% (n = 149) are on the front page, 80.9% (n = 779) on the inside page, and 3.6% (n = 35) on the back page. Based on the result, the manifestation of hate speech by the selected newspapers in 2015 appears more on the inside pages than on front and back pages.

**Table 4** shows the independent sample statistics of 2015 dominant locations for the placement of stories with hate speech (DOML). The DOML mean of 2015 (107.00) is very high. The result is concomitant with the findings in **Table 3**. In another corroborated literature, (CITAD) [9] found that in the last election in Nigeria, instances of hate speeches were seen on conventional and social media. Largely on conventional media, the speeches were broadcast on certain television stations and published in some newspapers as well. In this repeatedly corroborated incident of hate speech in the selected newspapers, Castells' Theory of Network Society examines the concept of the network to a high level of abstraction, utilizing it as a concept that depicts macro-level tendencies associated with the social organization in informational capitalism. He expressed the role of networks in social theory as follows: dominant functions and processes in the information age are increasingly organized around networks where issues of hate speech are dominant.

	Year	N	Mean	Std. deviation	Std. error mean
DOML	2015	9	107.00	117.521	39.174

Source: SPSS version 25.

**Table 4.**

*Independent samples statistics of 2015 dominant location for the placement of stories with hate speech.*

Newspapers (2015)	Daily Trust		The Nation		The Guardian		Total	
Direction	No.	%	No.	%	No.	%	No.	%
Positive	103	30.7	74	27.2	112	31.5	289	30.0
Negative	115	34.3	97	35.7	126	35.4	338	35.1
Neutral	117	34.9	101	37.1	118	33.1	336	34.9
Total	335	100	272	100	356	100	963	100

(Source: author's computation, 2022).

**Table 5.**

Direction of stories on hate speech in the 2015 general election.

**Table 5** identified the direction of stories on hate speech in the 2015 general election by the selected newspapers. The data point that *Daily Trust* has 30.7% (n = 103) in the positive direction, 34.3% (n = 115) in the negative direction, while 34.9% (n = 117) were in the neutral direction. *The Nation* has 27.2% (n = 74) in the positive direction, 35.7% (n = 97) in the negative direction, and 37.1% (n = 101) in the neutral direction. Furthermore, *The Guardian* has 31.5% (n = 112) in the positive direction, 35.4% (n = 126) in the negative direction, and 33.1% (n = 118) in the neutral direction. Cumulatively, 30.0% (n = 289) was in the positive direction, 35.1% (n = 338) in the negative direction, and 34.9% (n = 336) in the neutral direction. The data show that the manifestation of hate speech by the selected newspapers was in the negative direction with 35.1% in the 2015 general election.

**Table 6** shows the independent sample statistics of 2015 direction of stories on hate speech (DIRS). The DIRS mean of 2015 (107.00) is significantly high. This validates the findings in **Table 5** that hate speech was in a negative direction in 2015. This supports the literature argument [15] that although quantitatively, positive comments dominate the study population, qualitatively, the trend of discussion is disturbing, as commentators employ the use of hate language, verbal assault, name-calling, insults, and derogatory words to describe subjects. For example, on the inside page of *The Nation* newspaper of Sunday, March 15, 2015, Patience Jonathan, former First Lady, said “Anybody that come and tell you change (that is, the APC slogan), stone that person ... What you did not do in 1985, is it now that old age has caught up with you that you want to come and change ... You cannot change rather you will turn back to a baby.” Armed with the theoretical postulations of Katz and Lazarsfeld’s Two-Step Flow theory, which asserts that information from the media moves in two distinct stages. First, individuals (opinion leaders) who pay close attention to the mass media and its messages receive the information. Opinion leaders pass on their interpretations in addition to the actual media content.

**Table 7** examines the journalistic genre in which hate speech in the 2015 general election appeared in the selected newspapers. Thus, in the 2015 general elections, *Daily Trust* has 85.1% (n = 285) on political news, 3.6% (n = 12) on editorial, 6.3% (n = 21) on cartoons, while 5.1% (n = 17) on advertorial. Similarly, *The Nation* has 84.9% (n = 231) on political news, 2.9% (n = 8) on editorial, 8.8% (n = 24) on cartoons, while 3.3% (n = 9) on advertorial. Also, *The Guardian* has 86.8% (n = 309)

	Year	N	Mean	Std. deviation	Std. error mean
DIRS	2015	9	107.00	15.460	5.153

Source: SPSS version 25.

**Table 6.**

Independent samples statistics of 2015 direction of stories on hate speech.

Newspapers (2015)	Daily Trust		The Nation		The Guardian		Total	
Journalistic Genres	No.	%	No.	%	No.	%	No.	%
Political News	285	85.1	231	84.9	309	86.8	825	85.7
Editorial	12	3.6	8	2.9	9	2.5	29	3.0
Cartoons	21	6.3	24	8.8	21	5.9	66	6.8
Advertorial	17	5.1	9	3.3	17	4.8	43	4.5
Total	335	100	272	100	356	100	963	100

(Source: author's computation, 2022).

**Table 7.**  
*Journalistic genre for hate speech in the 2015 general election.*

	Year	N	Mean	Std. deviation	Std. error mean
JOUG	2015	12	80.25	118.779	34.288

Source: SPSS version 25.

**Table 8.**  
*Independent samples statistics of 2015 journalistic genre used for hate speech.*

on political news, 2.5% (n = 9) on editorial, 5.9% (n = 21) on cartoons, and 4.8% (n = 17) on advertorial. In the overall journalistic genre, 85.7% (n = 825) was on political news, 3.0% (n = 29) was on editorial, 6.8% (n = 66) was on cartoons, and 4.5% (n = 43) was on advertorial. The data show that *The Guardian* accounts the highest in terms of political news with 86.8%, followed by *Daily Trust* with 85.1% and *The Nation* with 84.9%. This implies that in the 2015 general election, the manifestation of hate speech was on political news by the selected newspapers.

**Table 8** shows the independent sample statistics of the 2015 journalistic genres used for hate speech (JOUG). The JOUG mean of 2015 (80.25) is adequate. This corroborated the findings in **Table 7** that the manifestation of hate speech in the 2015 general election appear more on political news. Rasdaq *et al.* [16] observed that hate speech was the focal point and the instrument of the campaign. Therefore, the parade of hate speeches in several newspapers analyzed showed that media was used by politicians to stoke up hatred and stimulate violence among ethnic and political groups during the electioneering periods as well as in daily life.

## 8. Conclusion

The study examines Nigerian press coverage of hate speeches in the *Daily Trust*, *The Nation*, and *The Guardian* newspapers. The study found that the manifestation of hate speech is frequent in 2015 general election. Such speeches appear more in *The Guardian* in the 2015 general election, followed by *Daily Trust*, and *The Nation* newspaper has fewer stories that contain hate speeches within the period of the study. The study discovered that the manifestation of hate speech by the selected newspapers in the 2015 general election was significantly high on the inside pages than front and back pages. The findings of the study revealed that the manifestation of hate speech by the selected newspapers was in a negative direction in 2015. The study also found that the manifestation of hate speech had an overbearing on political news by the selected newspapers in the 2015 general election in Nigeria. The study concludes that such publications (hate speech) tend to make electorates have a different connotation to a candidate.

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# Trust in the Nonprofit Domain: Towards an Understanding of Public's Trust in Nonprofit Organizations

*Annika Becker*

## Abstract

Trust in the nonprofit domain has been subject to a large interest both among scholars and practitioners over the past few years. Today, we differentiate between a range of different forms of trust, namely, organizational and sectoral trust as well as more generalized and institutional trust. Another differentiation in nonprofit literature relates to the subject that forms trust towards a nonprofit organization, reflected by the strength of the individual-organizational-relationship. In that, two forms of trust, namely, a narrow form of relational trust and broader trust among the public have evolved. While previous research provides varying conceptual approaches for explaining public's trust in the nonprofit sector, most scholars, however, approach public trust from a rather narrow relationship management perspective. This chapter conceptualizes and operationalizes public trust from a broader perspective and emphasizes that to get public support to ultimately further their missions, nonprofit organizations should strive for building, maintaining, and restoring public's trust. This chapter accordingly presents five mechanisms that are associated with public's trust in nonprofit organizations: 1) promise of mission and values, 2) organizational reputation, 3) transparency and accountability, 4) performance and social impact, and 5) use of contributions. Thereby, recent trends in academic literature are identified—nonprofit branding and nonprofit accountability—that have great ability to address these mechanisms to successfully improve public trust. Results from this chapter provide nonprofit scholars with insights into a broader conceptualization and operationalization of public trust in nonprofit organizations, and with future research ideas. Nonprofit managers may benefit by gaining insights into how to sustainably improve trust among the general public by focusing on nonprofit branding and accountability strategies.

**Keywords:** public trust, nonprofit organization, nonprofit branding, nonprofit accountability

## 1. Introduction

“Despite the diversity among NPOs, there is one thing that they have in common—*public trust* is their most valuable asset” ([1]: 265). In that, scholars have highlighted the nonprofit organization's dependency on the public's trust for legitimacy and support, and ultimately for fostering their organizational goals and

missions [2, 3]. Notwithstanding the high importance of public trust for the continuation of nonprofit organizations [4, 5], corresponding research is scattered, and disparate associations have been found. For example, in a recent meta-analysis on trust and giving in the nonprofit domain, Chapman et al. [6] investigate to what extent trust is a prerequisite for giving to nonprofits. The authors confirmed a positive association between both concepts across diverse measures considering 69 effect sizes from 42 studies sampling 81,604 people in 31 countries. Although trust and giving are positively associated, the overall relationship is relatively modest in size, varying by the form of trust, e.g. organizational and sectoral trust are more important compared to generalized and institutional trust. As another point, the authors highlight the lack of experimental and longitudinal research, still leaving open “whether trust really is a prerequisite for or consequence of charitable giving” ([6], p. 18).

Moreover, most studies conceptualize the public’s trust in nonprofit organizations primarily according to a “narrow” relationship management perspective. This perspective equates the general public with nonprofit stakeholders such as donors, volunteers, or public authorities that are directly related to the organization through actual experiences and transactions, and stronger relationships respectively. Bryce [2], for example, argues that “[t]he public’s positive or negative experiences in core transactions with an organization may be the principal bases for the impairment or improvement of the public trust”. To restore and improve public trust in nonprofit organizations, he accordingly suggests the use of relationship marketing concepts. Similarly, Sargeant and Lee [7] put public’s trust at the core of a relational fundraising approach, even though the authors find empirical evidence that “trust may operate at two levels distinguishing donors from non-donors”. However, the very same approaches to address both donor and public trust may not be reasonable.

This chapter calls into question former relationship-focused conceptualizations of public trust. The aim of this chapter is hence to move beyond the narrow trust perspective to conceptualize and operationalize public’s trust in nonprofit organizations in accordance with a broader perspective. That is, the larger public had no or few actual transactions with the organization yet, and rather vague assumptions or interests based on initial points of contact such as through the media, word-of-mouth, or the organization’s fundraising activities. In the case of a series of positive contact points, a stronger relationship might evolve subsequently at a later stage [8]. The nature of public’s trust in nonprofit organizations hence depends upon few contact points between the public and the organization, which are embedded in a comparatively loose connection between those involved. To directly address these contact points, the current chapter suggests that nonprofit organizations can send signals through the implementation of branding and accountability strategies, rather than through relationship management approaches. These strategies arise from the broad trust perspective, and from recent trends in nonprofit trust literature that turned out to be most promising, also as strategies for restoring public’s trust in the case of a scandal as we have seen them repetitively in the nonprofit domain over the past years. As such, they have ability to directly influence the mechanisms that are related to public’s trust in nonprofit organizations.

To fully evolve, this chapter claims public trust to be associated with five mechanisms, including 1) promise of mission and values, 2) organizational reputation, 3) transparency and accountability, 4) performance and social impact, and 5) use of contributions. It follows that public trust depends on how well the organization performs relating to each of these fields that act as mechanisms for strengthening trust. In contrary, if the nonprofit organization blocks one or more of these mechanisms, it impairs this trust; and at its worst, a corresponding scandal is likely to be provoked. Both for the improvement and impairment of public’s trust in nonprofit


organizations, this chapter provides nonprofit scholars and managers with insights into the mechanisms behind it, and provides strategies to successfully build, maintain, and restore public trust.

## **2. Perspectives and definition of public trust in nonprofit organizations**

The nonprofit organizations' very existence is assumed to be based on their greater trustworthiness. Nonprofit organizations are prohibited by law from distributing profits to private parties, and unlike their commercial counterparts, they do not have legal owners with residual claims [5, 9]. The nonprofit character accordingly provides signals of trust that help the public and other nonprofit stakeholders to overcome uncertainty caused by agency problems regarding the organizations' behavior and quality [4, 5, 10]. In view of some of the most recent nonprofit scandals (e.g. SOS-Children Villages or Oxfam's scandals of misconduct), scholars yet question the effectiveness of Hansmann's [9] nondistribution constraint alone to mitigate these scandals' effects [10]. Where the nonprofit character by itself cannot offer assurance regarding the organizations' good intentions, and the public has difficulties assessing the organizations trustworthiness, additional trust signals are vital [2, 11, 12].

According to the narrow perspective, these signals primarily refer to relationship-based management, marketing, and fundraising measures that are suitable to target stakeholders such as donors, or volunteers within a stronger relationship. Bryce [2] suggests sending a series of relationship messages, for example, with the purpose of affirming the ability to make discretionary decisions regarding the use of contributions, or communicating realizable future performances. As such, the narrow perspective assumes a stronger transactional relationship between the public and the organization, expecting the public to be susceptible to these messages. Although someone who has already donated to an organization is expected to value messages on how his or her donation is used, this chapter questions the larger public to be susceptible to corresponding messages. According to the broad perspective, the larger public rather relies on general cues or signals that may be derived from an organization's self-assessments, statements relating to the organizational mission and values as well as fundraising activities, annual reports, or websites. Third-party organizations such as watchdogs and funding agencies, or even word-of-mouth, and the media can provide additional signals to inform the public's assessments of the organization's trustworthiness [13, 14]. It follows that nonprofit organizations, in turn, must be able to identify and communicate trust building signals to stakeholders and the larger public to cultivate trust within their network of relationships [12]. See **Table 1** for a comparison of both perspectives on public's trust in nonprofit organizations.

Within this context, scholars have defined public's trust in nonprofit organizations mainly in accordance with a rather narrow trust perspective, and relating to strong stakeholder relationships (e.g., [1, 2, 7]). They accordingly refer to trust as a two-dimensional construct. The first dimension refers to generally positive trust-related expectations, or specific characteristics of the trustee (the nonprofit organization), such as its ability, benevolence, and integrity. Considering the special features of organizations from the nonprofit sector, the benevolence dimension is particularly dominant in this domain [16, 17]. The second dimension refers to the (nonprofit) stakeholder's willingness to accept vulnerability, which comes with an element of risk [18]. According to the broad perspective, public trust, however, evolves in the context of weak relationships between organizations and the larger public, based on initial points of contact. Such contact points may sufficiently inform the public's assessments of the organization's general trustworthiness, yet,

	“Narrow” perspective	“Broad” perspective
	[2, 7]	(This chapter; [15])
Strength of relationship between NPO and public		
	<ul style="list-style-type: none"> <li>• Strong</li> </ul>	<ul style="list-style-type: none"> <li>• Weak</li> </ul>
Ways to improve public trust	<ul style="list-style-type: none"> <li>• Relationship marketing, management, and fundraising measures</li> </ul>	<ul style="list-style-type: none"> <li>• Nonprofit branding strategies</li> <li>• Voluntary nonprofit accountability strategies</li> </ul>
Dimensions of trust construct	<ul style="list-style-type: none"> <li>• Positive expectations of trustworthiness of NPO</li> <li>• Willingness to accept vulnerability; risk for public</li> </ul>	<ul style="list-style-type: none"> <li>• Positive expectations of trustworthiness of NPO</li> <li>• Weak risk for public</li> </ul>

**Table 1.**  
*Perspectives on public Trust in Nonprofit Organizations.*

do not contain major elements of risk. For example, if an individual from the larger public derives information from an organization’s website, this may shape the individual’s first opinion on the organization’s trustworthiness but he or she does rather face no or a weak risk at this point of (weak) relational involvement with the organization. Therefore, this chapter draws on a definition highlighted by Becker et al. [15], that builds on Morgan and Hunt’s conceptualization ([19]: 23) to explicitly focus on the first dimension, and conceptualize public trust as “existing when one party has confidence in an exchange partner’s reliability and integrity”. Public trust is hence considered an aggregate of each interaction between an individual and the organization, which further reflects the overall public attitude towards an organization [15, 20].

### 3. Five mechanisms associated with public trust

Based on an extensive literature review as well as former trust conceptualizations (e.g., [2]), this chapter presents five mechanisms that are associated with public’s trust in nonprofit organizations. The mechanisms relate to fundamental principles and special features of nonprofit organizations, and corresponding processes in the sector. Following all five mechanisms are explained in detail. That is, the mechanisms’ bases for the development of public trust as well as managerial actions that potentially impair public trust are presented. **Table 2** illustrates the mechanisms in an overview.

#### 3.1 Promise of mission and values

Promise of mission and values is the first mechanism that is associated with public’s trust in nonprofit organizations. An organization’s mission refers to the organization’s long-term objective and determines its strategic direction [21], and is thus also relevant to public trust [2, 7, 22]. Values further range from ethical responsibilities to competitive values, and specify how an organization conducts its activities and strategies [23]. In the nonprofit sector values such as altruism, humanity, equality, helpfulness, but also trustworthiness and honesty are prominent [23, 24], having distinct impacts of public’s trust. Both missions and values can vary considerably across organizations, with substantially different meanings and

Mechanism	Basis for public trust	Managerial action impairing public trust	Strategies to build, maintain, and restore public trust	
			Nonprofit branding	Voluntary nonprofit accountability
1. Promise of mission and values	Adherence to act according to organizational mission and values	<ul style="list-style-type: none"> <li>• Violation</li> <li>• Misrepresentation</li> <li>• Lack of clarity</li> </ul>	Ability to signal the organization's mission and core values	Ability to signal adherence to the organization's mission and core values
2. Organizational reputation	High organizational reputation (competence and likeability)	<ul style="list-style-type: none"> <li>• Incompetence</li> <li>• Non-likeability</li> </ul>	Ability to enhance organizational reputation through shaping single brand images	Ability to contribute to the organizational reputation through joining high-reputational initiatives
3. Transparency and accountability	Compliance with transparency and accountability standards	<ul style="list-style-type: none"> <li>• Lack of transparency</li> <li>• Below legal requirements</li> </ul>	Ability to signal integrity and accountability	Ability to strengthen compliance with transparency and accountability standards
4. Performance and social impact	Financial, stakeholder, market, and mission performance, mission impact	<ul style="list-style-type: none"> <li>• Mal-performance</li> <li>• No impact</li> </ul>	Ability to signal quality regarding performance and impact	Ability to signal quality regarding performance and impact (e.g., performance and impact seals)
5. Use of contributions	Mission-based use, discretion, preservation	<ul style="list-style-type: none"> <li>• Misuse</li> <li>• Misrepresentation</li> <li>• Negligence</li> <li>• Imprudence</li> </ul>	Ability to signal the adequate use of contributions	Ability to (externally) certify the adequate use of contributions

**Table 2.**  
*Five Mechanisms that are Associated with Public Trust in Nonprofit Organizations.*

relevance for the larger public as well as other stakeholders [14, 25]. For example, Oxfam states its organizational mission, as follows “We fight inequality to end poverty and injustice.”, and “commit[s] to living [their] values [in particular, equality, empowerment, solidarity, inclusiveness, accountability, courage] so that [they] can be known for [their] integrity. This means transforming [their] governance, management, and operational structures, and nurturing a culture of continuous learning and reflection” [26]. The principal basis for public trust relates to the organization's adherence to act according to its organizational mission and values. If organizations, however, violate or misrepresent these, public trust is impaired [2]. Also, a lack of clarity in expressions of mission statements and values may impair public trust such that the public perceive nonprofit managers as insincere about their true goals, and therefore assess the organization's trustworthiness as significantly lower [27].

### 3.2 Organizational reputation

The organizational reputation constitutes the second mechanism that is associated with public's trust in nonprofit organizations. Organizational reputation, namely the collectively held mental image of the organization [28, 29], is considered a highly important intangible asset in nonprofit organizations [30]. It consists of

different mental images across various stakeholder groups that can vary highly depending on which assessments are gathered. In view of recent nonprofit scandals, the reputation of nonprofit organizations has been tremendously threatened because it is influenced through monitoring problems. According to Prakash and Gugerty [10], “[i]t is not an exaggeration to say that the negative reputational effects of a few ‘bad apples’ are beginning to undermine the reputation of the sector as a whole”, and the organizational reputation has distinct impacts on public trust [31]. In the nonprofit sector, reputation is conceptualized primarily with respect to the organization’s competences and its likeability that accordingly acts as a basis for public trust [29]. If an organization, in turn, cannot maintain its images as sufficiently competent and likeable across a variety of people, public trust is impaired.

### **3.3 Transparency and accountability**

Transparency and accountability represent the third mechanism that is related to public trust. Its importance is based on the fact that in the nonprofit domain organizations are – dependent on the home countries’ varying regulations – are more or less not obliged to comprehensively report financial and non-financial information publicly. However, we know about the importance of transparency and accountability standards in the sector that is vital to improve public trust [32–34]. That is, nonprofit stakeholders and the larger public face uncertainty because they cannot easily observe the organization’s project and operational expenses, and so its behavior and the quality of services [10]. It follows that high transparency and compliance with transparency and accountability standards build an essential basis for public trust [10, 34, 35]. This basis is threatened through organizations that lack transparency, or (at its worst) do not comply with legal accountability standards and requirements.

### **3.4 Performance and social impact**

The organization’s performance and social impact represent the fourth mechanism that improves public trust. Nonprofit organizations often provide services that are highly intangible and of which the quality is difficult to observe [16]. The organization’s performance in the form of financial, stakeholder, market, and mission performance is hence difficult to verify both for contributors and beneficiaries, and even more so, for the larger public [14]. Achieving and measuring actual impacts has been found to be increasingly important for organizations and their contributors; yet, social impact measurement is still in its infancy, and few organizations have capacities for accordant evaluations [36]. Despite agency problems regarding the organizations’ performances and social impacts, they form the basis to ultimately further the mission. It follows that organizational performance (and to a growing extent, also social impact) are particularly relevant for public’s trust. Impairments of public trust accordingly include organizational mal-performance [2], and no social impact.

### **3.5 Use of contributions**

The use of contributions is the fifth mechanism that is associated to public’s trust in nonprofit organizations. That is, the majority of nonprofit organizations rely on external funding (for example, from private and corporate donors, or public authorities and foundations) to finance the organization’s project and operating expenses, to ultimately ensure the organization’s continuation. The principal basis for improving public trust according to this mechanism is the mission-based use as



well as discretion in the handling of contributions, and its preservation. On the other hand, trust is impaired through managerial actions such as misuse, misrepresentation, negligence, and imprudence in the handling of donations and other contributions [2, 37]. In the past, the unreasonable use of contributions have been particular serious in some cases, and subsequently resulted in a nonprofit scandal that affected not only involved organizations, but questioned the legitimacy also of other organizations in the nonprofit sector. For example, in 2014, Greenpeace International's use of contributions created a scandal because an employee of the organization used large amounts of donated funds for foreign exchange trading [38]. In contrary, it is assumed that nonprofits clearly stating their use of contributions exhibit higher levels of trustworthiness. Some organizations recently started to develop new marketing and fundraising models around this topic. For example, the nonprofit organization *charity: water*, committed to bring clean and safe drinking water to people in developing countries, relies on private donors to fund all overhead costs, so 100% of public donations go directly to fund clean water projects [39].

#### 4. Operationalization of public trust

Pursuant to conceptualizations of the narrow relationship management perspective, scholars rarely distinguish between the larger public and other external stakeholder groups in their operationalizations of public trust. In their study on public's trust in nonprofit organizations, Sargeant and Lee [7] yet found empirical evidence indicating that donors place significantly more trust in charitable organizations than non-donors. Because only few operationalizations and measurement approaches explicitly focus on public trust, this chapter involves also those focusing on donor trust. **Table 3** shows the prevailing trust measurement scales in the nonprofit sector.

The existing operationalizations and measurement approaches relating to (public) trust in nonprofit organizations can be divided into two categories. The first category refers to second-order trust operationalizations, and few scholars operationalize trust in the nonprofit sector by means of second-order-constructs (e.g., [45, 46]). Corresponding operationalizations come from the narrow relationship management perspective such that they focus on trust emerging from stronger relationships between donors and nonprofit organizations. For example, Sargeant and Lee [45, 46] operationalize donor trust with respect to four components: 1) relationship investment, 2) mutual influence, 3) forbearance from opportunism, and 4) communication acceptance. The authors claim this operationalization of trust only to be relevant “in the context of a donor's relationship with a specific organization” ([45]: 618) as the dimensions are based on an existing donor-organization-relationship. The respective first-order dimensions show sufficient high values of Cronbach's alpha, and average variance extracted, exceeding the respective thresholds of .70, and of .50 respectively [40, 43]. It is important to note that the four dimensions do not include any of the two trust dimensions (trustworthiness of NPO and risk for donors), given that the authors rather identified “key behaviors indicative of the presence [of trust]” ([7]: 616).

The second category relates to scale measurement approaches of trust in the nonprofit sector that directly address the trust concept as outlined in this chapter. Most studies fall into this category, and either measure trust according to a narrow or a broad perspective (e.g., [8, 17, 41, 47]). That is, most measurement scales seek to measure donor trust, whereas one prevailing measurement scale is used both in the context of donor and public trust. All scales exhibit sufficient psychometric

First category: Second-order construct operationalizations			
Donor trust			
<i>Sargeant &amp; Lee</i> [40, 41]		$\alpha$	AVE
First-order dimensions and measurement items (7-point scale; anchored at 1 = <i>strongly disagree</i> to 7 = <i>strongly agree</i> )			
1. Relationship investment	1. I read all the materials (this NPO) sends to me. 2. Supporting (this NPO) is very important to me. 3. I would not encourage others to support (this NPO).	.88	.65
2. Mutual influence	1. I share the views espoused by (this NPO). 2. (This NPO) does not reflect my views. 3. I feel I can influence policy in (this NPO). 4. I find myself influenced by (this NPO).	.82	.61
3. Forbearance from opportunism	1. I am very loyal to (this NPO). 2. (This NPO) is one of my favorite charities to support. 3. My giving to (this NPO) is not very important to me. 4. My giving to (this NPO) is high on my list of priorities.	.85	.63
4. Communication acceptance	1. I look forward to receiving communications from (this NPO). 2. I do not enjoy the content of communications from (this NPO). 3. Communications from (this NPO) are always informative.	.76	.56
Second category: Scale measurement approaches			
Donor trust			
<i>MacMillan et al.</i> [30] (7-point scale; anchored at 1 = <i>strongly agree</i> to 7 = <i>strongly disagree</i> )		.87	.53
1. The NPO are very unpredictable. I never know how they are going to act from one day to the next. 2. I can never be sure what the NPO are going to surprise us with next. 3. I am confident that the NPO will be thoroughly dependable, especially when it comes to things that are important to my organization. 4. In my opinion, the NPO will be reliable in the future. 5. The NPO would not let us down, even if they found themselves in an unforeseen situation (e.g., competition from other funders, changes in government policy).			
<i>Naskrent &amp; Siebelt</i> [33] (5-point scale; anchored at 1 = <i>strongly disagree</i> to 7 = <i>strongly agree</i> )			
Ability	1. In my opinion, the NPO is competent. 2. I have the feeling that the NPO knows its business. 3. I believe that the NPO is able to achieve the goals, which it commits itself to. 4. I am convinced that the NPO is able to keep its promises. 5. In my opinion, the NPO has the skills and the qualification to act reliably.	.88	.68
Willingness	1. In my opinion, the NPO is trustworthy. 2. I think that the NPO is honest to its donors. 3. I can rely on the NPO. 4. I am convinced of the NPO's willingness to keep its promises. 5. The NPO acts altruistically.	.87	.65
Public and donor trust			
<i>Sargeant, Ford &amp; West</i> , [42] (7-point scale; anchored at 1 = <i>strongly disagree</i> to 7 = <i>strongly agree</i> )		.94	<i>n.r.</i>
1. I would trust this NPO to always act in the best interest of the cause. 2. I would trust this NPO to conduct their operations ethically. 3. I would trust this NPO to use donated funds appropriately.			

First category: Second-order construct operationalizations		
4. I would trust this NPO not to exploit their donors. 5. I would trust this NPO to use fundraising techniques that are appropriate and sensitive.		
<i>Sargeant &amp; Lee</i> [43] (7-point scale; anchored at 1 = <i>strongly disagree</i> to 7 = <i>strongly agree</i> )	.92	<i>n.r.</i>
1. To always act in the best interests of the cause. 2. To conduct their operations ethically. 3. To use donated funds appropriately. 4. Not to exploit their donors. 5. To use fundraising techniques that are appropriate and sensitive.		
<i>Sargeant &amp; Woodliffe</i> [44]; <i>Becker</i> [4]; <i>Becker, Boenigk and Willems</i> [5] (7-point scale; anchored at 1 = <i>strongly disagree</i> to 7 = <i>strongly agree</i> )	.89	<i>n.r.</i>
	.94	<i>n.r.</i>
	.93	0.82
1. I trust this NPO to always act in the best interests of the cause. 2. I trust this NPO to conduct its operations ethically. 3. I trust this NPO to use donated funds appropriately.		
<i>Note.</i> $\alpha$ = Cronbach's alpha; AVE = average variance extracted; <i>n.r.</i> = values not reported.		

**Table 3.**  
 Operationalizations and measurement approaches of public Trust in Nonprofit Organizations.

properties. The measures explicitly focusing on donor trust emerge from the narrow perspective, such that they include the first dimension of trust, measuring the organization's trustworthiness; to a lesser extent, they also include the risk dimension [17, 47]. The measures to operationalize both donor and public trust have been used in two ways: They include either the measurement items (1)–(3) [41], or all items (1)–(5), which specify additional donor and fundraising aspects [7, 8]. The latter rather emerges from a narrow perspective, and more strongly focuses on trust in the context of donor and fundraising issues. As such, the measure also refers to the potential risk of donors [7, 8]. In contrast, Sargeant and Woodliffe's [41] scale includes the measurement items (1)–(3). The scale explicitly focuses on the first trust dimension, such that corresponding items target the nonprofit organization's trustworthiness, and relate to weaker relationships between organizations and the public. Against this background, and in accordance with the broader perspective, this chapter suggests that Sargeant and Woodliffe's scale is particularly suitable for operationalizing public trust. However, these items still do not address all mechanisms that are associated with public's trust, and the accordant measurement scale is therefore capable of improvement (see future research ideas).

## 5. Nonprofit management strategies to improve public trust

To build and maintain public's trust in nonprofit organizations, this chapter claims strategies from the field of nonprofit branding as well as nonprofit accountability to be of great significance. They are also suitable for restoring public trust, if managerial action has led to its impairment. Of particular importance are these strategies in the case of nonprofit scandals. On the one hand, they can help involved nonprofit organizations to recover from scandals. On the other hand, they have great ability to protect other nonprofit organizations from negative spillover effects in the sector. The underlying rationale of the functioning of these strategies is that external stakeholders face uncertainty regarding the organization's trustworthiness [10], and they "seek assurances beyond those provided by public regulations that organizations are behaving responsibly, following societal expectations and

norms of behavior” ([13]: 1). This is where strategies of nonprofit branding and nonprofit accountability provide assurance for the public, attesting the organization’s trustworthiness [44, 48].

The first strategy of improving public’s trust in nonprofit organizations refers to the field of nonprofit branding. Precisely, the nonprofit brand equals a “shortcut” that provides the general public with valuable information about the nonprofit organization ([49]: 22). In particular, the brand’s signaling function enables organizations to spread signals relating to the organization’s mission and core values [49, 50]. It thus has the ability to clearly inform the public’s assessments of the organization’s trustworthiness with respect to its mission and values as well as its performance. Moreover, branding strategies can effectively target the various mental images of nonprofit stakeholders, to successfully build up a high organizational reputation. A strong brand ultimately has the potential to act as an additional safeguard and reinforcement to the public along with the nondistribution constraint, which may represent a seal of trust [51]. For Sargeant [8], nonprofit brands “are in essence a promise to the public that an organization possesses certain features or will behave in certain ways”. In this line, Laidler-Kylander and Stenzel [49] “believe that the brand is the vehicle for building this trust”. A strong nonprofit brand can accordingly protect the respective organization against negative spillover effects caused by other nonprofit organizations, and they are less susceptible to risk [51]. In their prominent article “The Role of Brand in the Nonprofit Sector”, Kylander and Stone [52] share their results evaluating the brand of one of the biggest nonprofit organizations worldwide, the World Wildlife Fund (WWF), citing Marsh, COO of the WWF, as follows “Our brand is the single greatest asset that our network has, and it’s what keeps everyone together” ([52], p. 5).

The second strategy of improving public’s trust in nonprofit organizations arises from the field of nonprofit accountability. Nonprofit accountability and governance programs and initiatives aim to develop common standards across nonprofit organizations to support good governance in nonprofit sectors worldwide. In particular, voluntary nonprofit accountability in the form of various codes of conduct, self-regulation mechanisms, and certification and accreditation schemes has great potential to improve and restore public’s trust in nonprofit organizations [10, 32, 35, 48, 53]. Slatten et al. [48] argue that “the adoption of standards for ethical and accountable behavior may provide the solution [to the climate of shaken public trust in the non-profit sector]”. First empirical evidence shows that voluntary accountability, and externally certified accountability (including accreditation systems), can enhance public trust in nonprofit organizations [32, 53]. It follows that organizations increasingly devote efforts to demonstrating their trustworthiness with various seals and certifications [2, 34, 51]. Precisely, voluntary nonprofit accountability strategies address the trust-driving mechanisms by their ability to signal adherence to the organization’s mission and core values, and regarding the quality of organizational performance [32]. These strategies further contribute to the organizational reputation by joining high-reputational initiatives [13], and they particularly strengthen compliance with certain transparency and accountability standards, also through (external) certifications that attest the organization’s adequate use of contributions [37, 53].

## **6. Future research ideas**

This chapter also suggests directions for further research regarding public trust in nonprofit organizations. First, although a number of scholars agree that public’s trust in (charitable) nonprofit organizations is under increasing pressure (mainly

caused by public scandals and commercialization issues) [54, 55], other scholars find no empirical evidence for decreased public trust and confidence in the nonprofit sector (e.g., [56]). When related to the important component of giving behavior, a recent meta-analysis by Chapman et al. [6] showed that even though trust is often assumed to affect giving, the body of evidence available for their analysis was rather small. Against this background, a first research idea relates to investigations of public trust among different nonprofit organizations based on, for example, the ICNPO categories, organizational mission categories, or other classifications. Precisely, public trust may be high relating to cultural organizations, but lower in the health sector, and thus vary among the different organizations. Evidence also confirms the link between people's trust and the organizations' mission category. Considering the organizational diversity in the nonprofit sector, scholars, such as Kearns [1] and O'Neill [56], propose a more differentiated perspective to distinguish between several nonprofit industries. Further research should take the organizational diversity in the nonprofit sector into account.

Second, few operationalizations and measurement approaches focus explicitly on the public's trust in nonprofit organizations. Given the high importance of the public's trust for nonprofits and corresponding ways to measure it, the second future research idea relates to scale development processes for public trust. These processes should accordingly be based on the broader trust perspective, such that they relate to weaker relationships between organizations and the general public. On the one hand, scholars could build on Sargeant and Woodliffe's [41] measurement scale, and include additional items that address the five trust driving mechanisms. On the other hand, scholars could operationalize public trust as a second-order construct. The five mechanisms accordingly provide the basis for first-order dimensions, and corresponding measurement items respectively.

Third, nonprofit branding and nonprofit accountability strategies are first attempts to improve and restore public's trust in nonprofit organizations. However, conceptual and empirical research on the link between public trust and accordant research fields and strategies still is limited. Yet, both nonprofit branding and nonprofit accountability have gained increasing importance over the past few years, and scholars have found them to be very promising, in particular in the context of trust research [8, 10, 32, 48, 49]. Another future research idea accordingly refers to this topic, to further investigate the link between these research fields and public's trust. Findings could be used to provide nonprofit managers with more specific recommendations to further improve public's trust in nonprofit organizations. This chapter thus points to the overall need to further the public trust discussion.

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# A Coke by Any Other Name: What New Coke Can Teach about Having Trust, Losing Trust, and Gaining It Back Again

*Martha Peaslee Levine and David M. Levine*

## Abstract

For 99 years, Coca-Cola sold itself as an American icon made with a secret recipe that was locked away in an Atlanta vault. Then, in 1985, in an attempt to compete with Pepsi-Cola, Coca-Cola changed the taste of Coke. After an uproar, the old version of Coke was reissued as Coke Classic; New Coke faded away. Evidence shows that New Coke tasted better, so it should have been eagerly accepted by the public. But it was not. Why did changing a long-term brand to a better-tasting alternative fail? Examining this issue from both the psychological and legal dimensions, we come to understand many aspects of this failed experiment, which can be useful for other brands interested in making transitions. It is clear that if companies use psychological tools to connect consumers to a brand and trademark law tools to strengthen and protect that connection, they risk adverse reactions and criticism if they then change the brand. Tools that can guard a brand from competitors can also lock it into a cage with tightly defined expectations by the public. Because advertising through media and sports generates strong connections with these beverages, health concerns and possible future research on obesogenic behaviors are considered.

**Keywords:** trademark, brand name, psychology of trust, Coca-Cola, icon

## 1. Introduction

There is significant research about brands and how to create customer loyalty. When creating an authentic brand, companies need to consider continuity, integrity, originality, and credibility [1]. These dimensions are all equally important and can suggest why Coca-Cola ran into difficulties when it introduced New Coke. Coca-Cola had been using the same original formula for 99 years. That continuity connected consumers with its brand and ensured those consumers knew what to expect every time they cracked open a bottle or can of Coke. It was made from a closely guarded secret formula. Throughout those 99 years, Coca-Cola acted with credibility and integrity. It gave consumers what they had come to expect in taste at a fair and reasonable price. Consumers remained loyal to the brand and expected the brand to remain loyal to them. They expected Coca-Cola to continue to provide the original and unique taste that they had come to anticipate.

In 1985 a new formula of Coke was introduced. Coca-Cola's brand was being edged out of the market by Pepsi-Cola, which offered a sweeter cola taste. Pepsi-Cola advertised that it beat Coke in blind taste tests [2]. Coca-Cola adjusted its formula to meet this challenge. In blind taste tests, New Coke won over the old Coke version. It also beat Pepsi-Cola. Coca-Cola saw this as a way to take over an even larger share of the market. Yet, all that Coca-Cola received from this effort was significant criticism and controversy. Consumer outcry was so significant that after only 77 days, Coca-Cola had to reissue the original formula as Coca-Cola Classic [3]. This chapter reviews emotional and legal issues related to branding and the psychology of trust to help advance our understanding of what occurred within this failed experiment. Other brands or individuals can use this information to understand the psychology of trust as it relates to products—especially those that during their long history have taken on the status of an icon.

## **2. Methods**

The literature was examined related to the psychology of trust and brands. First, historical data was reviewed to understand the timeline of the Coke/New Coke transition. Without understanding the history of the Coca-Cola brand, it is impossible to understand what occurred when they changed their formula. The authors then reviewed psychological and legal references to examine facets of this case. Psychological and legal arguments help us understand what Coca-Cola did not completely consider and why their new taste experiment failed. The literature also helps us understand how Coca-Cola was able to win back the public's trust. Additionally, from the literature, the authors identify potential future health challenges related to branding and the complicated interaction between individuals and products.

## **3. History**

In Ref. [4], the authors describe how the situation with New Coke occurred. "In the late 1970s and early 1980s, Coca-Cola's market share was falling while Pepsi's was on the rise. These trends were contemporaneous to PepsiCo's 'Pepsi Challenge' national marketing campaign of public blind taste tests.... Even worse, the Coca-Cola Company conducted its own blind taste tests and found that, indeed, consumers preferred Pepsi by margins as high as 10–15 points." [4, p. 1037] Even though the taste tests said that Pepsi was the winner, Coke was still holding strong. However, Coca-Cola worried about losing its market share.

The Coca-Cola Company spent over 2 years and 4 million dollars to develop an improved formula that beat Pepsi in blind taste tests [5]. "The new formula contained less phosphoric acid to give the drink less bite and a smoother taste. In addition, to replace the acidity lost by reducing the phosphoric acid, more citric acid was added; this provided more of a lemon aroma. The new formula also had more fructose and was therefore sweeter." [4, p. 1038].

What did this new formula mean? It meant that in blind taste tests, this new taste of Coke outperformed that of Pepsi and the original Coke. As Levy and Young [4, p. 1038] describe, "The efforts appeared to have paid off: after an exhaustive battery of 190,000 blind taste tests, the new formula was beating Pepsi by a margin of 6–8 points. (It was also beating the original Coca-Cola in these taste tests.) New Coke was introduced with a huge fanfare in New York City on April 23, 1985. It was made clear to consumers that the drink had undergone a substantial quality change." [4, p. 1038].

The public was not impressed.

The Coca-Cola Company even tried to entice consumers with a new ad campaign, using Bill Cosby, who at that time was seen as an attractive, humorous, appealing character. He tried to push the belief that “new is good.” [6] The only individuals who were persuaded that New Coke was good were those who initially had negative or neutral attitudes toward Coke. In taste tests, they liked New Coke. However, individuals who usually drank Coke and held positive feelings toward this product now felt betrayed and rejected New Coke [6].

What was Coca-Cola’s response? They brought back the old formula of Coke rather than risking the loss of even more of the market share. “Less than 3 months—and more than 40,000 letters and 400,000 phone calls from angry consumers—later, Coca-Cola Classic (the original “Secret Formula”) was brought back, while New Coke was gradually pulled off the market.” [4, p. 1032].

This chapter will consider factors in this failed attempt to change a product.

#### **4. Emotional connection**

It is clear that consumers had an emotional connection to Coke. Consumers react to products, such as Coke, in more ways than can be measured by a taste test. Individuals could remember when they had their first Coke. In Ref. [7], the authors worked with individuals to understand memories related to Coke and learned about the many connections that individuals had to Coke. Many had memories of sharing a Coke as a bonding experience with a parent or an older family member. Others spoke of receiving a Coke as a reward for good behavior or grades. “In these special parental bonding experiences, the underlying emotion is love and a feeling of belonging or acceptance.” [7, p. 331] A depth of feeling became connected with Coke.

All brands want to create memorable experiences. Coke did that by creating a wealth of connections between individuals. Even simple moments were imbued with such a rich emotional experience that they took on more than the causal sharing of a drink. It became a “sacred totem.” In Ref. [7], we understand the many mythic images that Coke took on for individuals. It was the transformer—a Coke shared as someone came of age, the hero—always there to give a special boost to parties, and the mother/caretaker—shared at a grandmother’s house, a safe and secure place. It is as if these early emotional experiences were “imprinted” and led to a preference for that beverage later in life. When we connect memories of Coke to the mythic structure, we recognize that Coke moved from being a simple beverage to being a placeholder for many emotions. And like the trauma of losing a treasured teddy bear or blankie, the change to New Coke rocked people emotionally. This is why the reaction against New Coke was so strong.

Even neurobiology demonstrates the emotional connection to Coca-Cola. A study [8] demonstrated that the ventromedial prefrontal cortex (VMPC), which is involved in emotions, affected individuals’ connections to specific brands. They completed a blind taste test with three categories of subjects: (1) normal controls, (2) individuals who had brain damage in their VMPC, and (3) individuals who had experienced brain damage but which did not affect the VMPC area. In blind taste tests between Coke and Pepsi, all of the individuals preferred Pepsi. (This replicates some of the famous taste challenges that prompted Coke to try and redesign its formula.) However, in taste tests that included brand information, only the individuals with damage to the VMPC area kept their Pepsi preference. When brand information was provided, the other two groups switched their preference from Pepsi to Coke. It was believed that since the VMPC is important in emotional processing,

and brands ensure brand loyalty through emotional connections, the individuals with VMPC damage lost that emotional connection to the brand and only the taste itself determined their preference. Another study found more activation in the right amygdala with a Coca-Cola cue versus Pepsi-Cola; again, this is part of the brain that is associated with emotional processing [9]. In their taste test, they used the exact same mixture of colas for every tasting but found a higher rating of pleasantness and a preference for the drink when the taster believed it to be Coca-Cola or Pepsi-Cola (strong brands) when compared with “weaker” or less-well-known brands. One’s emotional connection to a brand affects an individual’s perception of a product.

Individuals connected Coke with certain experiences and emotions. When the taste of Coke was not only changed but the change was advertised and presented as a good thing, those memories were affected. Customers are not just consumers but “complex and multi-dimensional human beings.” [10, p. 1] Products are not just a thing; they create emotional connections. Coca-Cola promised and delivered on many emotional experiences related to its product. It was precisely because of these connections that its customers felt so violated by the change to New Coke. Consider that when a branded product has been around a long time and is heavily advertised, it can pick up emotional freight [11]. With all of that emotional freight, is it any wonder that the change to New Coke derailed?

## **5. Coke as an icon and resistance to change**

Coca-Cola wove itself into the American fabric. When Coke changed, individuals went to great lengths to hold on to their icon. Some stories included grandparents who stocked cases of Old Coke or news announcements on the radio in Georgia announcing what locations still had Old Coke and any restrictions on the amount people could buy [7]. One can hear in these memories the uproar that the change in Coke had on families. That was especially true in the South and even more so in Atlanta, Georgia, home of Coca-Cola headquarters. It prompted individuals to hoard old Coke or go in search of the remaining cases. There are many potential reasons for this almost fanatical devotion to Coke. It could be the fact that Coca-Cola was made in the South, it could be the memories associated with this drink that caused such angst, or it could be the fact that traits associated with a conservative ideology, measured by voting behavior and religiosity, are linked with a preference for established national brands. Individuals with conservative leanings have a lower tendency to buy newly launched products. These individuals prefer tradition and the status quo. They avoid uncertainty and are skeptical about new experiences [12]. Coca-Cola did not factor those tendencies into its decision to make the change from its tried-and-true formula to something new.

Reference [13] considers that there are two types of brands—sincere and exciting. Coca-Cola was and is within the sincere grouping—it is stable and reliable. The exciting brand category includes Mountain Dew, which tries to inspire the rebel spirit. Sincere brands often have stronger relationships with their customer base, which is part of the reason that New Coke stumbled. The consumers placed the original Coca-Cola on a pedestal. It was as American as the Constitution. However, because of this strong and trusting relationship, sincere brands can run into more difficulties than exciting brands if a transgression occurs. In Ref. [13], they found that transgressions (substantial changes) weakened the relationship with a sincere brand. However, the exciting brand not only wasn’t as affected by a change but was also at times reinvigorated. It seems that with the exciting brand, consumers are willing to be more flexible. They are willing to expect the unexpected [13].

Coca-Cola was able to recover from its transgression. Perhaps it was because they acknowledged their mistake and quickly brought back the requested original formula. They had believed from their taste test research that they knew what consumers wanted. When it was clear that they had misinterpreted the evidence, instead of trying to convince the consumer that the new Coke was better, they brought back the original, which had become an icon and was a sincere and stable brand

## 6. Trust and brand

“The brand name is the customer’s guarantee that he will get what he expects.” [11] That is where trademark law comes in. As Bone [14, p. 549] notes, one of the foremost goals of trademark law is “information transmission.” Trademarks are used “as devices for communicating information to the market” and trademark law works to “prevent others from using similar marks to deceive or confuse consumers.” In this conception, trademarks and trademark law serve to both guide and protect consumers [14, pp. 555–56]. Trademarks are guideposts, landmarks that a consumer can look to and rely on when making a purchase. Trademark law is a shield against attempts to deceive consumers into purchasing products based on a false belief that it is the brand they desire. Trademarks also aid consumers by providing incentives to businesses to produce high-quality products, which consumers will know to return to and purchase again because of the reliable association with that business’s trademark. The Supreme Court succinctly summarized this overarching goal when it noted that a trademark “helps consumers identify goods and services that they wish to purchase, as well as those they want to avoid.” [15, p. 1751] Trademark law helps prevent knockoffs that will affect the trust that they (the brands) have worked to establish with the consumer.

Sahin, Zehir, and Kitapçı [16, p. 1297] describe that “brand experience has positive effects on brand satisfaction, trust and loyalty.” Brand experience creates the consumer’s trust with the brand and leads to their loyalty. This idea, too, is accounted for in trademark law through the concept of “goodwill.” Scholars such as Robert Bone have identified tension between the traditional information transmission theory of trademark and the ways in which trademark law has expanded to protect trademarks that are not necessarily required for them to serve their signaling purpose to consumers [14]. In other words, companies defend their trademarks not just to protect against encroachment on their brand by a similar but lesser quality alternative but also to defend the trademark or name of the company itself. This is to ensure that other products cannot weaken the trademark or the emotional connection that consumers have with these brands.

These expansions are a company’s efforts to protect “the special value that attaches to a mark when the seller’s advertising and investments in quality generate consumer loyalty.” [14, p. 549] Companies, recognizing the value that exists in the trust and the goodwill they have built with consumers, zealously protect their trademarks against misappropriation in all circumstances. As Bone notes, “It does not matter whether consumers are confused or even whether the defendant’s use diverts business from the plaintiff.” [14, p. 550]. As the Supreme Court noted, trademark law often intervenes simply when a malfeator attempts to “reap where it has not sown.” [17] As brands and their associated marks become more saturated with goodwill, and thus more and more valuable, these efforts can skyrocket. One need only look to Apple Computer’s challenges to marks ranging from the logo of the school district in Appleton, Wisconsin, to an exploding pineapple grenade logo to see the lengths valuable brands will go to protect their name and goodwill [18]. Even though these products would not be confused with Apple, it defends against

these efforts because it wants to ensure that no one can encroach on its name. It is like a slippery slope. A company defends against any potential encroachment so that another brand cannot gain a foothold and rely on the goodwill that the original company has created with consumers.

While goodwill-based explanations about trademark law are often focused on companies' efforts to protect marks (and associated goodwill) that they view as property, the relationship between trust and brands provides a more public- and consumer-focused rationale. We have seen how individuals' experiences with Coke led to trust in the brand. Trademarks played an important part in this trust-building process. Coke spent decades building consumer trust in its iconic trademarks so that consumers knew what exactly to expect from a bottle (often glass and shaped with iconic contoured lines) that was emblazoned with a recognizable, flowing script spelling a ubiquitous name: Coca-Cola. Trademark law protects these vessels of trust and goodwill from those who would misappropriate them.

But even trademark law cannot protect a company from itself. When Coke was changed, that trust was violated. Reference [16] describes that satisfaction with a brand is part of what determines brand loyalty. When Coca-Cola changed from its classic formula to New Coke, customers were not satisfied. They had pledged their loyalty to Coke and had come to trust and expect a certain taste from Coke. When that was suddenly and unexpectedly changed, consumers felt that Coke had let them down. In many ways, the depth of the reaction was because Coke was felt to be such a part of the American culture [7]. Coca-Cola connected with the American dream through many avenues, including sports, and used these events as an "advertising arena" [19]. Later, they went on to try and conquer the world through the 1970s ad campaign that focused on teaching "the world to sing in perfect harmony." [19] When a company works so hard to build a brand and seep it into a country's culture, it should expect pushback when it then changes that brand.

This emotional attachment, this built-up trust, not just in a brand itself but also in a particular form of a brand, casts complexity into the basic framework of our understanding of trademarks. One could view the standard information transmission model as somewhat paternalistic—trust us, the brand says, because we always deliver quality and will continue to deliver quality (even if that quality comes in a somewhat different form). As long as the consumer knows, trusts, and can seek out a brand, those goals of trademark law are satisfied. The uproar around New Coke casts doubt on this simplistic view. Consumers trusted Coke not just because it was Coke but also because of the core memories and specific attachments they had formed around Coke as it was. As Desai [20, p. 985] notes, "Consumers often buy branded goods not for their quality but as badges of loyalty, ways to express identity, and items to alter and interpret for self-expression." A brand, and the trademarks that often sit at the heart of that brand, do more than the mechanical task of directing customers to good companies and products and away from bad ones. Instead, brands and the specific products they embody often become organically entwined in the hearts and minds of consumers and our culture as a whole.

Later, long after the New Coke debacle, Coke seemed to recognize this fact and became attuned to the attachment consumers had to both the brand and the taste of Coke. A 2007 humorous ad campaign focused on the idea of "taste infringement" to highlight the similarity between Coke Zero and Coca-Cola [21]. Now, instead of wanting to change the flavor of Coke, the company wanted to link a new product to the iconic original.



## 7. Implicit contract

Reference [4] discusses how Coca-Cola had entered into an implied contract with the American public over the 99 years that it produced its drink using its secret formula. “An implicit contract is an unwritten, legally non-binding understanding that all parties have incentives to preserve.” [4, p. 1033] Coke had used its brand and trademark to lead to consumer expectation. It felt like an implied contract—you are buying Coke and will get the same product that we have provided for the last 99 years. When Coca-Cola completely changed its formula and taste, it broke its side of the deal. The consumers had the option of walking away from the product (and many did boycott Coca-Cola) or voicing their displeasure. Loyal customers did not feel like they had other good cola options; they did not want to exit. They wanted their original Coke back. And so they voiced their opinions!

Here are some examples from reference [22, pp. 335–336]:

*My littele sisther is cring because coke changed and she sayed that shed is not going to stop cring every day until you chang back.... I am getting tryer of hearing her now if you do not chang I'll sue evne if I'm just 11.*

*Changing Coke is like breaking the American dream, like not selling hot dogs at a ball game.*

*For years, I have been what every company strives for: a brand-loyal consumer. I have purchased at least two cartons of Coke a week for as long as I can remember.... My “reward” for this loyalty is having the rug pulled out from under me. New Coke is absolutely AWFUL.... Do not send me any coupons or any other inducement. You guys really blew it.*

*Millions of dollars worth of advertising cannot overcome years of conditioning. Or in my case, generations. The old Coke is in the blood. Until you bring the old Coke back, I'm going to drink RC.*

*Would it be right to rewrite the Constitution? The Bible? To me, changing the Coke formula is of such a serious nature.*

As Levy and Young [4, p. 1047] describe, “The Coca-Cola Company assumed that its brand equity would transfer to New Coke; instead, the replacement of the original Coca-Cola was harmful to that equity.” The authors go on to say [4, p. 1047], “This was true because that brand equity was based, in large part, on an implicit promise of constant quality; and after nearly a century, that promise was reneged on.” The key word here is “*constant* quality.” For 99 years, Coke had offered an original and authentic product, gained loyalty, and then suddenly announced that the original product was gone and being replaced by New Coke, which was supposed to taste better. That is what the taste tests showed.

This can become complicated. Certainly, there are times that products can be upgraded and improved and the consumers are happy for the change instead of fighting against it. This case allows us to consider the other side of innovation. Taste is, after all, subjective and thus features an emotional component. Even if a certain taste is “better” objectively in tests, the lack of that emotional resonance can make it subjectively worse. If the culture aligns itself with the product, there will be the expectation by many that it should remain stable. Also, as we will see below, there was an element of the consumer immediately losing the old product, which

triggered a psychological reaction. The taking away of something can feel like an assault especially when significant emotions are connected to that product.

## **8. Recovering from the error**

In many ways, Coca-Cola was fortunate. As LaTour, LaTour, and Zinkhan [7, p. 329] describe, “The success of Coca-Cola following the New Coke debacle may be due in part to the brand’s personality as well as fitting a defined myth (American dream). The brand was able to recover so quickly because the market ‘knew’ the brand to be sincere and when the company apologized for their ‘marketing mistake’ consumers not only forgave them, but came back to them with reinvigorated passion.” In many ways, they wanted to return to the myth. They had used their American gumption and brought an American company back to heel. Once they got their original Coca-Cola back, they were willing to look past that transgression. It has been pointed out that although Coca-Cola lost the millions of dollars that it invested in research, through the whole debacle, it may have gained three times as much in free advertising [3].

Coke had tried to do its homework before introducing New Coke. One thing that they forgot is that the lab is not life. In blind taste tests, New Coke outperformed Pepsi and Old Coke [2]. Reference [23] reminds us that in the past, Coke had changed its formula without fanfare or pushback. In the 1960s, Coke slowly and subtly reduced its caffeine content to 1/3 its previous level. At additional times, minor changes were made either because they were legally mandated or to maintain quality. In 1942 a small amount of saccharine was added and the amount of caffeine and coca leaves decreased because of WWII and rationing [4]. However, none of those changes were major or were announced to the public.

Could Coke have gradually changed the taste such that the consumer did not notice and eventually have gotten from Old Coke to New Coke? In [23], the authors discuss this prospect and suggest that it could have been accomplished. Part of the issue for Coca-Cola was that they changed Coke’s taste drastically, announced the change so that individuals had an emotional reaction, and took away Old Coke. Undoubtedly, Coke officials were worried that if they started tampering with the Coke formula and that came to light, it could also destroy the trust in Coke completely.

It wasn’t just taste that was the issue. The Coke experience held emotion and myth. Coca-Cola did not consider “how groupthink could poison individuals into thinking that the new product was actually inferior, and that taking away the old formula was a mistake.” [5, p. 3] Even though the taste tests suggested that New Coke was superior, once negative emotion got stirred up and related to New Coke, it was seen as inferior. Newspapers and radio stations bemoaned the fact that old Coke had been replaced.

It does seem that one of the main reasons for the consumer discontent was that old Coke was *replaced* by New Coke. If New Coke had been introduced alongside and not instead of old Coke, consumers might not have had such a strong reaction [5]. This was demonstrated with later introductions of flavors and with the addition of Diet Coke and then Coke Zero. Diet Coke was not eliminated when Coke Zero was introduced. Psychologists and Ringold [24] define a reactance effect—that when something is taken away, it leads to a potential negative response for a few reasons. One, individuals do not like to be restricted. Replacing something that you are using with something else is essentially taking away the individual’s choice. In addition, once something is gone, there is a yearning for what cannot be had. This increases the negative response. These emotional responses can lead to aggression

against the perpetrator in an attempt to restore the previous freedom. We have discussed that consumers did turn their aggression against the Coca-Cola Company when the New Coke phenomenon occurred.

## **9. Possible future research: Branding concerns as related to negative health effects**

This chapter shows the power of brands and the dangers to companies when they break from the brand that they created. Brands can become emotionally intertwined with our lives, our self-perception, and our daily behaviors. Brands can connect with public consciousness and our individual sense of self. Companies welcome that attachment to their brand. It ensures loyalty.

As individuals, clinicians, and consumers, we must recognize the other side of the coin. In the end, the public influenced Coke's behavior. Yet there are many more times that soft drink and snack food companies influence consumers' behaviors. We see the potential risks of branding and loyalty as societies battle the negative health risks of obesity.

In particular, there are concerns about how branding (where and how it is presented) might impact individuals, especially children and teens. In Ref. [25], the authors considered recent PR campaigns of Coca-Cola, which were designed to target teenagers and their mothers. These campaigns are a significant concern from the public health arena because of rising obesity rates. Authors in Ref. [26] found that a child's ability to recognize food brands predicted health outcomes such as a preference for foods that are obesogenic and lead to children being at an increased risk to be overweight. In particular, children who watch more TV advertisements develop a more positive association to certain food and drink brands. This attachment was not seen for children who did not watch the commercials—either watched broadcasts with no advertisements or skipped through the commercials [27]. Clearly, there is a concern. As children and adolescents are exposed to unhealthy products and develop a connection to these brands, they start to desire them and demand them. This can start unhealthy food-and-drink patterns from an early age.

When non-nutritious foods are targeted to adolescents, they develop a desire for these substances, and that can fuel soda consumption and weight gain and affect health. Studies have looked at the prevalence of food-and-drink marketing on livestreaming platforms and have raised concerns about the potentially negative effect on overall health. Energy drinks dominate the brands mentioned, but soda and snacks are also prevalent. There was also a huge growth in the use of these platforms during the Covid-19 pandemic, thereby targeting more consumers, many who are young adults [28]. YouTube video bloggers (influencers) who are popular with children often present unhealthy foods in a positive way by describing them more positively as compared to healthy foods, inserting specific brands into their videos, and being engaged in marketing campaigns [29]. Other influencers, music celebrities who are popular with adolescents, often endorse energy-dense, nutrient-poor products, with specifically full-calorie soft drinks being highly endorsed [30]. A study in Australia looked at Facebook and found that energy-dense, nutrient-poor foods, including high-calorie soft drinks, were frequently marketed and integrated seamlessly with online social networks [31]. The authors found that adolescents and young adults engaged with these products almost daily and willingly shared the messages, which continued to spread this relationship to non-nutritious foods and drinks [31]. We see that Coke and other sodas are integrating into these new cultural experiences, connecting with children and teens, and fostering a brand loyalty that can lead to increased soda consumption.

We discussed previously that Coke helped connect itself to the American dream through its selling of the drink in different venues, such as athletic arenas. We see ongoing concerning challenges in this area as well. In Ref. [32], the authors looked at sponsorships of US sports organizations and found that food and beverage were the second largest category of sponsors and the majority of the products in sponsorship commercials were unhealthy. Other studies also demonstrate that sponsorship of sports by brands that sell unhealthy products is common. They advise that this creates an association for fans that links potentially unhealthy products, such as fast food and high-calorie soft drinks, with specific sports, making these products even more appealing [33]. All of these authors express concerns that these brands are being pushed to millions of viewers and urge that marketing pledges should be expanded to limit these potentially negative effects.

Reference [34] looks at the placement of soft drinks in movies and especially the effect of actor endorsement, showing an actor consuming the product. This is a concern because as reference [34] describes, if healthy and physically fit individuals on screen are demonstrated as having a preference for a soft drink and have no negative consequences for repeatedly drinking the soft drink, the message conveyed is that this is a normal and healthy behavior. Public health officials worry about these messages especially in light of the obesity challenges that many Americans face. Often these product placements are in children's movies. They are often prominently and positively displayed and are shown as being consumed more often than healthy alternatives. These images are present for all age-rated movies, with no effect of the year (1991–2015) or country of production [35]. As Ref. [36, p. 468] describes, "Movies are a potent source of advertising to children, which has been largely overlooked"

Will this be one of the future challenges of trust in messaging and trust in brands? When loyalty to certain brands occurs because of their connection to movie stars, social media, sports, and other leisure activities, we can see the huge impact that brands and branding can have on the consumer. At times, our trust in brands can lead us astray to nonhealthy behaviors. As we examine the history of Coca-Cola, we see the effect that the public can have on a large corporation. The public brought back the old Coke. Perhaps, public outcry is currently needed to highlight and defeat this current health risk—the subtle marketing of brands that bond children and teens to obesogenic drinks and foods. We know that once someone is firmly connected to a brand, it can, for better or worse, be a significant influence in their life. The way sodas are portrayed in movies, on social media, and through sporting events can clearly foster an unquestioning loyalty that can lead to increased health risks.

## **10. Limitations**

Even though both the psychological and legal literature were used to examine this topic, it is not an exhaustive treatise on the topic of brands as they relate to the psychology of trust. The authors used this one case example to look at many factors that can come into play in the relationship between consumers and brands, especially when brands are changed. The authors also started the conversation of looking at the effect that branding can have on negative health outcomes, such as obesity. This is an area that would benefit from further exploration.

## **11. Conclusion**

Walking down a store aisle, surrounded by product after branded product, it is easy to believe that each brand is simply an attempt by a company to attract your

attention and, ultimately, your money. What we know is that brands matter—not just to companies but also to us. A brand like Coca-Cola can work its way into the framework of our lives, into some of our fondest memories. We grow to trust the brand and view it as a friend more than a product or company. That trust has significant implications if a brand tries to change or reshape the terms of that trusting relationship. As New Coke shows, when that trust is broken, it can verge on disaster. With many of the brands that have a constant presence in our life, the attachment is emotional, not logical. That reality has a significant impact on how brands interact with the law, our culture, and ultimately the psychology of how, why, and who we trust.

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*Edited by Martha Peaslee Levine*

Trust has always been complicated. This book works to examine aspects and theories of trust. Chapters look at trust in the workplace. It considers types of leadership and how that influences the trust of employees. As workplaces and societies become more diverse, there can be an impact on trust. Many times, individuals will have implicit biases that can influence their perception of others and their ability to trust. Trust has also become more complicated with the advent of the internet. We can now connect with more ideas and individuals. Yet, is the person who communicates back with us real? Is it someone with a fake account or maybe not even a person at all, but a robot? Even though trust is complicated and we can sometimes be taken advantage of, we still need to find ways to trust others in our lives. Trust allows us to develop a community. We have always needed the community to be safe, both physically and emotionally.

This book allows you to connect with new ideas and aspects of trust.

Published in London, UK

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