BETTER SAFE THAN SORRY

A QUANTITATIVE STUDY ON PSYCHOLOGICAL SAFETY, MEDIA RICHNESS, AND TRUST IN WORKGROUPS

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Better Safe than Sorry – A Quantitative Study on Psychological Safety, Media Richness, and Trust in Workgroups

Abstract:

In the contemporary landscape, virtual work has become an increasingly prevalent phenomenon, persisting even in the post-pandemic era. By virtue of its implications on team performance, psychological safety has become one of the most important concepts in the managerial biosphere; a concept which has further been closely linked to trust. As such, understanding the implications of virtual work on psychological safety along with trust is critical. This thesis integrates existing theories and prior research on psychological safety, media richness, and trust in work teams to explore the research questions: *"How does the perceived level of psychological safety relate to the different levels of media richness in the workgroup?"*, as well as the pertinent sub-question "*How does the degree of perceived team trust affect this relationship?"*. A quantitative study, analyzed through OLS-regressions along with Baron & Kenny's mediation analysis, involving 288 self-surveyed office workers across five Sweden-based firms pursuing consulting- or managerial practices serves as a basis to answer the research questions. The thesis concludes an intricate inverse U-shaped relationship between media richness and perceived psychological safety. These nuanced findings, along with complementary analysis, suggest that the highest levels of perceived psychological safety are achieved when there is a balanced combination of both rich and lean media. In terms of the mediation analysis, complete mediation of team trust is observed for two of the four media richness variables (face-to-face and video conferencing). However, concerns arise regarding the high correlations between team trust and psychological safety; ergo necessitating further studies. These findings hold significance for both researchers and management practitioners, providing valuable and new insights into the intricate dynamics of virtual work, psychological safety, and trust within workgroups.

Keywords: Psychological Safety, Virtual teams, Media Richness, Trust, Workgroups

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Abbreviations & Definitions

Term	Abbreviation	Description
Psychological Safety	PS	"[...] *the [individual] belief that the work [group] environment is safe for interpersonal risk taking"* (Edmondson, 2018, p.8)
Media Richness Theory	MRT	A theoretical framework suggesting all communication media lie on a spectrum from lean to rich, where face-to-face is the richest medium (Daft & Lengel, 1984; 1986).
Media Richness	MR	A medium's ability to communicate effectively, determined by four factors: feedback capacity, number of cues and channels, degree of personalization, and ability to communicate via natural language (Daft & Lengel 1984; 1986).
Face-to-Face	F2F	Richest Medium: Face-to-Face interactions in a co-located setting, e.g. a setting in which work occurs at the default workplace or within physical proximity to one's team members.
Video Conferencing	VC	2nd Richest Medium: Communication occurring virtually, at any given location, but where constituents interact visually and auditorily; e.g. Zoom.
Calls with Audio	CWA	3rd Richest Medium: Virtual interaction, but with auditive communication only, i.e. the visual element from VC is omitted; e.g. phone calls.
Text Communication	TC	Leanest Medium: Virtual communication only occurring via text; e.g. Slack and Email.
Independent Variable	IV	A variable which is utilized to predict an outcome.
Dependent Variable	DV	The variable being predicted from the IV.
Mediator	…	An intervening variable which is thought to account for the relationship between the IV and DV.
Ordinary Least Squares	OLS	A model of a relationship between one or more explanatory variables and a continuous or at least interval outcome variable that minimizes the sum of square errors, where an error is the difference between the actual and the predicted value of the outcome variable (Zdaniuk, 2011).

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1. Introduction

1.1 Background

"*No passion so effectively robs the mind of all its powers of acting and reasoning as fear"* (Burke, 1757, p.74). Fear has long been an integral part of human societies as it has shaped the way humans act in order to avoid loathing (Heß & Adams, 2015), and has in later years brought a new concept to the fore: *psychological safety*. Gaining its momentum through numerous contemporary studies flourishing in the academic world (Frazier et al., 2017), an environment fostering psychological safety has been shown to enhance performance-related measures in teams such as creativity (Kim et al., 2019) and knowledge-sharing (Siemsen et al., 2009). As such, psychological safety has become one of the most prominent concepts in the managerial biosphere (Edmondson, 2018).

With its roots in the studies of Schein and Bennis (1965), Amy Edmondson developed and coined the most commonly acceptable definition of what constitutes psychological safety as *"...the belief that the work environment is safe for interpersonal risk taking"* (Edmondson, 2018, p.8). Throughout the literature, one concept that is recurring in relation to psychological safety is *trust*. The relation and distinction of the concepts have been highlighted on numerous occasions both by Edmondson herself (Edmondson, 1999; 2004; 2018) and other researchers (e.g. Frazier et al., 2017; Oh et al., 2023; Triplett & Loh, 2018). Trust has therefore become essential in explaining how psychological safety affects other aspects of work and life; hence bridging Edmondson's concept together with other researchers (Aranzamendez et al., 2015).

As the COVID-19 pandemic shifted the workplace climate, the normative conceptualizations of what constitutes accustomed work arrangements have been subverted (Parker et al., 2022; Kramer & Kramer, 2020). Next to these shifts, questions on how to reach a psychologically safe environment within the workgroup have emerged (Dollard & Bailey, 2021). As the post-pandemic effects of COVID-19 are still present and remote work is predicted to regain in the coming decades (Hansen et al., 2023), questions of uncertainty at the workplace are brought forth (Wells et al., 2023).

Despite the prominence of psychological safety, the novelty of remote work has rendered research on different communication methods and their effects on psychological safety scarce (Edmondson & Bransby, 2023). Analyzing communication media, one of the most common

theories is *media richness theory* (Daft & Lengel, 1984; 1986; Ishii et al., 2019), a tool which facilitates the understanding of the dynamics of virtual and physical work. Given the predicted increase of virtual work (Hansen et al., 2023), organizations must comprehend the implications of these increasingly popular, yet quite novel, work arrangements (Chafi et al., 2022), and not the least when it comes to forming psychological safety (Edmondson & Daley, 2020; Lechner & Mortlock, 2022). Through research on virtual work settings, management practitioners can improve their understanding of how virtual work affects psychological safety within teams; a type of safety that has come of age and turned into one of the most crucial aspects of work performance (Edmondson, 2018).

1.2 Aim and Research Question

The primary aim of the study is to enhance the body of research on virtual work, with a specific focus on closing the current research gap regarding communication media's effects on psychological safety. This is done in order to aid researchers and management practitioners in enhancing their understanding of the implications of the increasingly virtual work environment on psychological safety.

To understand such a relationship, the thesis adopts several frameworks and concepts. Firstly, the seminal work of Edmondson is utilized to understand which components of psychological safety could be affected by virtual work. Secondly, in order to grasp remote work, media richness theory is used to analyze how information amongst colleagues varies by different degrees of media richness.

Furthermore, the aim of the study is also to investigate whether the effects of different types of communication tools, i.e. media richness, on psychological safety are intrinsically affected by the levels of perceived trust in the workgroup. For this relationship, the possible mediating effect of perceived team trust on media richness and psychological safety is examined.

In order to achieve the aforementioned purpose, the thesis will answer the following research questions:

How does the perceived level of psychological safety relate to different levels of media richness in the workgroup?

- *How does the degree of perceived team trust affect this relationship?*

1.3 Delimitation

This thesis examines the perceived level of psychological safety and trust in the participants' respective work teams. Furthermore, the data collection is done through five medium-sized Swedish corporations which all work within consulting- and managerial practices.

As the examined firms are all based in Sweden, observations of virtual work do not include global tasks covering multiple time zones or extensive socio-cultural differences, which could otherwise affect psychological safety (Edmondson, 2018). Only firms from similar industries are included to ensure no extensive cultural differences are present (Appendix 8).

Lastly, adding control for the possibility of the participants working remotely is deemed necessary to gain insights both from people working in- and out-of-office, i.e. across the whole media spectrum.

2. Theory & Literature Review

2.1 Psychological Safety

2.1.1 Defining Psychological Safety

In order to understand the literary background of psychological safety (PS), reverting to the definition of the concept becomes relevant. Building on Schein and Bennis's (1965) studies, Edmondson defined PS as "*the belief that the work environment is safe for interpersonal risk taking"* (Edmondson, 2018, p.8). Interpersonal risk-taking stems from the degree to which team constituents can raise questions or concerns without fearing potential repercussions. The concept also pertains to how people should be able to freely interpose with personal remarks without possible retention from the workgroup (Edmondson, 1999; 2018). Based on this, the following definition of what PS is in terms of interpersonal risk-taking can be constructed:

- *Psychological safety is an environment in which it is safe to raise issues and speak up as well as take risks without fear of repercussions*.

2.1.2 Conceptualizing Psychological Safety

With its strong roots in the studies of Edmondson (1999; 2018), the most commonly utilized perspective has been concerning the individual perception of PS toward the closest work team

(Edmondson & Bransby, 2023; Newman et al., 2017). However, there have been some deviations from this team-perspective. For instance, research has also been drawn from Baer and Frese's studies (2003) in which the referent team was substituted with the organization (Baer & Frese, 2003; Carmeli, 2007). Furthermore, PS has also been decomposed to the individual-level by examining PS in dyadic relationships (Tynan, 2005).

While deviations from the team-stance have been seen in literature, there are concerns when analyzing PS both on the organizational- and the individual-level. As PS is highly influenced by specific team characteristics, analysis at the organizational-level becomes faulty as it is deemed difficult to ensure that PS within one group reflects the whole organization (Chen & Tjosvold, 2012; Newman et al., 2017). Therefore, adopting an organizational-perspective is not relevant to this thesis. Furthermore, as many of the individual-level survey items include in-house scales, the degree of validity of the research tools is lower (De Vellis, 2003, in Newman et al., 2017); hence also rendering individual-level constructs non-relevant.

2.1.3 Measuring Psychological Safety

When it comes to measuring PS, the majority of the work has mostly been conducted utilizing direct elements of Edmondson's (1999) 7-item and 7-point Likert scale questionnaire (Edmondson & Bransby, 2023). Furthermore, the findings of PS have been robust regardless of the Likert scale used (Edmondson, 2018), as long as the numbering is odd to allow for a neutral choice, not forcing indifferent respondents to take a specific side (Kusmaryono et al., 2022).

2.1.4 Research Findings on Psychological Safety

2.1.4.1 Psychological Safety and Team Performance

Since Edmondson (1999) instigated the conclusion about the intrinsic positive relationship between PS and team performance, multiple studies have confirmed this relationship. For instance, PS has been shown to prevent performance barriers (e.g. Chen et al., 2017; Malhotra, 2017), improve individual efficiency (e.g. Espedido & Saerle, 2021; Singh et al., 2013), and enhance creativity (e.g. Castro et al., 2018; Han et al., 2019). While these studies elucidate the great importance of fostering a psychologically safe environment to achieve team performance, associations between PS and other constructs are also relevant to emphasize.

2.1.4.1 Psychological Safety, Knowledge-Sharing, and Team Identity

In order to learn, employees must continually expand their capabilities to understand and improve shared mental models through knowledge-sharing (Senge, 1990), which is an important component in fostering PS (Edmondson, 2018; Yin et al., 2020). Further, knowledge exchanges positively affect shared images within the group through improved team identity (Van Der Vegt & Bunderson, 2005). For a positive team identity to emerge, transparency within the team is also vital (Tesfa, 2013). As such, the relationships between PS and employee-voice behaviors (Walumbwa & Schaubroeck, 2009) as well as transparency (Yi et al., 2017) are relevant to emphasize.

2.1.4.2 Psychological Safety and Job Satisfaction

PS is also assumed to positively affect employee well-being (Hasan & Kashif, 2021) and job satisfaction through the mediation of trust (Mitterer & Mitterer, 2023). These relationships are important to note as job satisfaction is also highly regarded to elevate team performance (Braun et al., 2013).

2.2 Trust

2.2.1 Defining Trust

"Perhaps there is no single variable which so thoroughly influences interpersonal and group behavior as does trust" (Golembiewski and McConkie, 1975, p.131, in Mayfield et al., 2016). Although viewed as an elusive concept with no single consensual definition (Welter, 2012), a prominent conceptualization of trust is made by Mayer et al. (1995) where they emphasize two central components: *positive expectations* and *willingness to be vulnerable*. *Positive expectations* refer to the belief of one party (trustor) that another party's (trustee's) action will be beneficial or not harmful for the trustor (De Jong & Elfring, 2010). *Willingness to be vulnerable* refers to the behavioral consequences of trust, i.e. actions taken by the trustor based on his or her set beliefs about the trustee (Costa & Anderson, 2011).

2.2.2 Team Trust & Research Findings

Team trust denotes the shared generalized perceptions of trust that team members have in each other (De Jong & Elfing, 2010). In opposition to interpersonal trust, team trust is based on the overall quality of the shared individual perceptions of trust between group members (Mayfield & Tombaugh, 2016). These shared perceptions emerge naturally from team membership and social categorization processes (Williams, 2001), contextual factors that constrain and reassure team member's interactions (McKnight et al., 1998), as well as from the collective sense-making of group members' shared experiences (Shamir & Lapidot, 2003). Team trust has been shown to positively influence knowledge-sharing (Staples & Webster, 2008; Zhang et al., 2010), job satisfaction together with team performance (Robertson et al., 2013), and relationship commitment (Costa et al., 2001), among others.

2.2.3 Measuring & Conceptualizing Trust

Along with the proliferation of trust, multiple ways to measure the concept have emerged (Feitosa et al., 2020). However, the most commonly utilized measures pertain to close-ended survey items which have also been proven most robust (Brosius et al., 2022). As trust can reside at different levels of analysis (individual, team, and organizational), it is important to align the measurements of trust with that of the target conceptualization (Fulmer & Gelfand, 2012). Given the arguments for conceptualizing PS at the team-level (section 2.1.2), adopting the team-stance for trust as well becomes validated.

2.3 Virtual Work in Teams

2.3.1 Defining Virtual Teams

While several definitions of what constitutes virtual teams exist, this thesis adopts Dulebohn & Hoch's (2017, p.569) definition of virtual teams as *"[...] work arrangements where team members are geographically dispersed, have limited face-to-face contact, and work interdependently through the use of electronic communication media to achieve common goals"*. This thesis's delimited focus on local virtual teams emphasizes employees who still have the flexibility to choose work locations freely, but are still based on the same default location, i.e. the main office space.

2.3.2 Media Richness Theory

With increases in virtual work along with technological advancements, new methods of conveying information have emerged (Oba & Berger, 2023). This development necessitates a model to distinguish the variation of media usage in virtual teams and one of the most prominent such theories is Daft & Lengel's (1984; 1986) media richness theory (MRT) (Ishii et al., 2019). Daft & Lengel's central idea of MRT is that communication media can be categorized based on their richness, i.e. capacity to convey information. The theory suggests that different types of information require different levels of media richness (MR). Based on these factors, MRT suggests that for information that is uncertain or equivocal, rich media like face-to-face (F2F) communication is more effective. For routine and well-structured tasks or information, less rich media such as text communication (TC) suffice.

However, while still maintaining popularity, MRT has received criticism. Along with technological advancements, new digital communication tools have emerged; hence making critics affirm that richer media, such as F2F communication, might not always be most optimal even for equivocal information (Ishii et al., 2019).

2.3.3 Measuring Media Richness

While there are contentions of the prescriptive effectiveness of MRT it still posits valuable distinctions between different scales of MR (Sheer, 2020) as these differentiations are highly applicable to the ubiquitous aspects of the contemporary world (Ishii et al., 2019). For this reason, adopting scales that have been used in up-to-date renditions of Daft & Lengel's (1984) MR continuum to include modern communication tools is essential (Sheer, 2020).

2.4 Research Gap & Intersecting Research

This section (summarized in *Figure 1*) presents the a priori research of this thesis in chronological order.

1) First, a research gap between virtual work and PS was discovered.
2) Further studies of PS yielded the discovery of the relationship to trust, which was then studied.
3) Trust was then discovered to have linkages to virtual work.
4) Lastly, the above sections were summed together to develop the questions at issue.

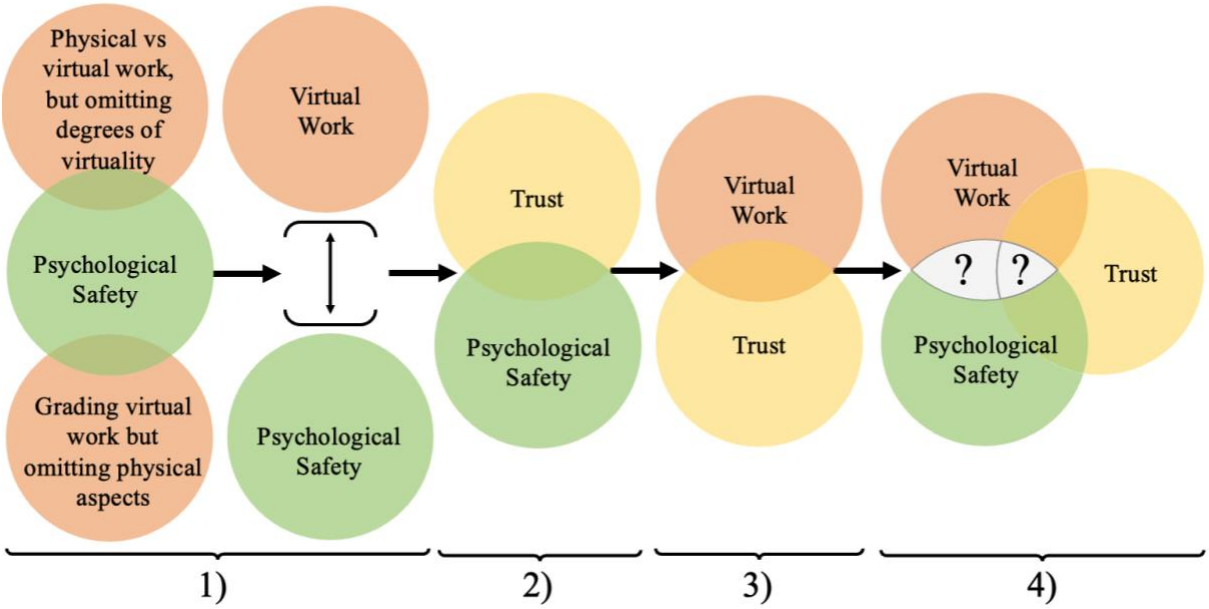


Figure 1: Deductive Research (Hofvander & Hydén Karlsson, 2023)

2.4.1 Research Gap: Psychological Safety and Virtual Work

Research based on Edmondson's studies (1999; 2018) has its foundation in more traditional work teams that interact F2F, whereas the question regarding the virtual workplace emphasizes a differentiated work setting (Edmondson & Bransby, 2023). This has made it laborious to capture the relational dynamics within these virtual teams as people are not situated in the same manner as before, which has resulted in limited research on how virtual work affects PS (Edmondson, Bransby 2023). Instead, contemporary research has focused on how PS can be obtained in virtual work settings, rather than the implications of virtual work on PS (e.g. Barton, 2021; Edmondson & Daley, 2020; Lechner & Mortlock, 2022; Lim, 2022).

However, a few studies which have drawn on the implications of virtual work on PS have been carried out. Rivera (2022) isolated remote work in groups by degrees of virtuality through the inclusion of the following media: Text Communication (TC), Calls with Audio (CWA), and Video Conferencing (VC). Others have instead compared on-site to remote individuals and omitted the different degrees of virtuality within work teams (Lindell & Ahlborg, 2022; Tkalich, 2022). There is hence a lack of research that captures both the degrees of virtuality and F2F interactions simultaneously, something that would require methodological innovation to capture the effects of virtual work on PS within teams (Edmonsson & Bransby, 2023). In

order to obtain such innovation, further research is thus necessitated to springboard the understanding of the novel dynamics of virtual work and its effects on PS.

2.4.2 Intersection: Psychological Safety and Trust

Edmondson's research (1999) focuses on the importance of trust and also extends the definition of PS as a situation where: "*[...] colleagues trust and respect each other and feel able – even obligated – to be candid."* (Edmondson 2018, p.8). Furthermore, the intersection of trust and PS has been regarded in several other studies, motivating the relationship between the concepts (Basit, 2017; Edmondson, 2004; Triplett & Loh, 2018). Lastly, some trust frameworks have even adopted Edmondson's conceptualization of interpersonal risk-taking to form linkages between PS and team trustworthiness (e.g. Breuer et al., 2020).

While having similarities with PS, there are differences separating the concepts (Edmondson, 2004; Frazier et al., 2017; Lechner & Mortlock, 2022; Oh et al., 2023). Trust emphasizes the willingness to be vulnerable to others based on positive expectations, i.e. giving *other people* the benefit of the doubt in expressing confidence that they won't cause harm (Frazier et al., 2017). Conversely, PS focuses on the extent to which one believes that *others will give them* the benefit of the doubt when taking risks, creating an environment to voice thoughts without fear of harm within the group (Lechner & Mortlock, 2022).

2.4.3 Intersection: Trust and Virtual Work

Virtual work has been deemed the greatest challenge for achieving trust within workgroups (Richnau & Sjölander, 2021). For instance, remote working has been shown to lead to decreased trust-building opportunities in workgroups (Vealey, 2016). There are also concerns about employees indulging in social loafing while working remotely, resulting in an unpredictable atmosphere marked by unreliability and a lack of trust (Mangla, 2021). Further, many of the difficulties in creating virtual trust arise due to the absence of non-verbal cues, such as body language (Szeqc, 2014).

2.4.4 Tying it all together

The scarcity of research on the implications of virtual work on PS in teams calls for further investigation. Moreover, by virtue of the intersection of PS and trust, as well as the negative relationship between trust and virtual work, it also becomes relevant to understand any

potential linkages of trust in the possible relationship between virtual work and PS. As such, a rationale to investigate for possible mediating effects of trust in this relationship exists (Baron & Kenny, 1986).

3. Theoretical Frameworks

3.1 Psychological Safety

Given the high agreement on the definition and measures of PS throughout the literature, together with frequent cross-referencing and points of broad agreement, PS is said to qualify as a mature theory (Edmondson & Bransby, 2023). Since Edmondson's work has influenced the majority of both prior and contemporary research revolving around PS (Edmondson & Bransby, 2023; Newman et al., 2017), diverging from this framework would pose a risk of the dissertation not having a sound academic fitting. The adopted framework therefore consists of:

- The definition of PS as: "[...] *the [individual] belief that the work [group] environment is safe for interpersonal risk taking"* (Edmondson, 2018, p.8).
- Proxy terms that have been studied in relation to virtual work in order to form appropriate hypotheses, e.g. trust, knowledge-sharing, and job satisfaction. (section 3.4).
- Edmondson's 7 survey items which utilize a 5-point Likert scale (Appendix 1).

3.2 Media Richness Theory

The framework is adopted to distinguish between different degrees of MR from the different types of communication tools used by the respondents (Appendix 1). MRT is therefore used to capture both how the physical and virtual work environment factor into perceived PS, in order to fill the current research gap. The framework is thus used to differentiate between different levels of MR to understand the implications and effects of richer (e.g. F2F) and leaner (e.g. TC) media on perceived PS within workgroups.

Furthermore, to fill the current research gap (2.4.1), using MRT to construct appropriate survey items that distinguish between different degrees of MR both in terms of the physical and virtual aspects, is appropriate. This utilization of the framework is supported by researchers such as Sheer (2020, p.1) who claims that "*The greatest contribution of MRT stems from the construct*

of media richness[...]". As for the measures adopted in this thesis, the 3 three virtual items have been used in other studies (e.g. Rivera, 2022), while Arnesson and Erlandsson (2021) also included the F2F component. As such, the 4 MR items adopted in the survey (Appendix 1) have been used and validated in previous research.

3.3 Trust

Given the importance of aligning the conceptualization of trust with the targeted measure (Feitosa et al., 2020), i.e. team-level for this thesis, a delimitation on the concept of trust has been made. The developed survey items by De Jong and Elfring (2010) focus on the individual perception of trust at the team level. The 5 survey items have been used in studies where perceived PS and team trust were measured in the same context (e.g. Mayfield et al., 2016), motivating the item selection. Continuing upon the work of De Jong & Elfring (2010) give the following:

- The definition of trust as a:
    - *"[...] psychological state of individuals involving confident, positive expectations of one another".* (De Jong & Elfring, 2010, p.536)
- The definition of team trust as the:
    - *"[...] shared generalized perceptions of trust that team members [individuals] have in their fellow teammates [group]"*. (De Jong & Elfring, 2010, p.536)
- The tools on which to measure comparable variables of team trust to that of PS:
    - The 5 survey items using a 5-point Likert scale (Appendix 1).

Furthermore, while perhaps not an explicit theory, Breuer et al.'s (2020) *Taxonomy of Perceived Trustworthiness Factors and Risk-Taking Behaviors* (TPT) provides insights into facets of trust within teams and their effects on interpersonal risk-taking behaviors. This could factor into any potential mediating empirics as interpersonal risk-taking is highly emphasized in relation to PS by Edmondson (1999; 2018).

3.4 Hypotheses Formulation

3.4.1 Direct Relationship Hypothesis

To develop a hypothesis, the authors matched the adjacent concepts related to PS (2.1.4)–all mentioned to positively affect PS by Edmondson (1999; 2018)–with external studies. These

studies indicated an inverse relationship between MR and the proxies of PS. The proxies include but are not limited to:

- Knowledge sharing, feedback, and learning (Kirchner et al., 2022)
- Job satisfaction (Guo, 2022)
- Trust and trust aspects (Larsson & Revland, 2023)
- Creativity (Rubin & Svensson, 2022)

Along with these proxy studies, the difficulties of obtaining PS in virtual teams have also been highlighted by e.g. Edmondson & Daley (2020) as well as Lechner & Mortlock (2022). The hypothesis (H1) aimed at the direct relationship between PS and MR is thus formed accordingly:

Direct Relationship Hypothesis

H1	The degree of media richness is **positively** related to the perceived level of psychological safety.

3.4.2 Mediation Hypotheses

Furthermore, with regard to the potential mediation of team trust in the relationship stated in H1, the authors have opted to derive the logic of the mediation hypotheses from section 2.4. As the literature has suggested an extensive intersection between trust and PS (section 2.4.2), and other studies have concluded mediating relationships between these topics (Mitterer & Mitterer, 2023), proceedings with the mediation hypotheses are validated (Baron & Kenny, 1986). The reason behind multiple hypotheses is due to the multivariate nature of the model (with 4 degrees of MR); hence the thesis adopts component mediation hypotheses for each MR variable as well as an aggregate hypothesis:

Component Mediation Hypotheses

H2	Employee perception of trust **mediates** the relationship between face-to-face communication and perceived psychological safety.
H3	Employee perception of trust **mediates** the relationship between video conferencing communication and perceived psychological safety.
H4	Employee perception of trust **mediates** the relationship between calls with audio communication and perceived psychological safety.
H5	Employee perception of trust **mediates** the relationship between text communication and perceived psychological safety.

Aggregate Mediation Hypothesis

H6	Employee perception of trust **mediates** the relationship between media richness and perceived psychological safety.

4. Method

4.1 Research Approach

While both PS and trust as concepts reside on high levels of subjective perceptions, this thesis was conducted from a positivist stance in which ontologically objectivistic views were considered. This said, the study embraced realism and universalism where one truth to reality was attempted to be found. Furthermore, in epistemological terms, the study endeavored to find the true reality of the subjective matter of PS and trust in relation to MR by measuring quantifiable facts about PS, MR, and trust (Saunders et al., 2019).

Originally, a deductive approach was taken to predict the effects of virtual work on PS in conjunction with the effects of trust within the workgroups, which yielded the hypotheses (section 3.4). After the empirical findings, the pre-examined theories and literature required complementary additions, which called for an abductive stance through alternation between theory, literature, and empirics.

4.2 Research Design

The thesis adopted quantitative studies in which a cross-sectional observational questionnaire was used to analyze the general perception of PS and trust within the workgroups at one point in time. As both PS and trust are concepts that can be built and shift over time (Edmondson, 2018; Feitosa et al., 2020), the thesis could have gained more insight into these dynamics through longitudinal studies (O'Neill et al., 2019). However, due to time constraints, longitudinal studies become inadequate for this thesis as insufficient observed time-points or time-periods yield incongruous findings in multi-time analysis (Wang et al., 2017). Lastly, as anonymity is regarded to have significant effects on responses to sensitive questions (Ong & Weiss, 2006) the authors could provide means to reduce the risk of sensitive information bias by anonymizing the survey.

4.3 Research Method

4.3.1 Sample Selection

When deciding upon a sample to utilize, the authors took a priori precautionary measures to gain adequate control of the sample and make it valid. The following logic lies behind the author's purposive selection:

- As team culture is highly influenced by the characteristics of the industry (Chatman & Jehn, 1994) and cultural differences affect the perceived PS (Edmondson, 2018), the authors decided only to include firms pursuing consulting- and managerial practices (Appendix 8).
- As organizational size also affects culture (Connell, 2001), the authors further only selected companies with similar sizes (Appendix 8).
- The firms and the respective teams studied had to have the option of conducting work both at home and at the office to ensure spread across the MR continuum.
- Lastly, to avoid geographical influences on culture, all firms included had to operate in Sweden.

4.3.2 Survey Construction

The survey (Appendix 1) included 21 questions with the following question structure:

- 2 participation-control
- 1 attention-control
- 2 pertained to individual- and team characteristics (age & workgroup size)

- 4 MR-related (Arnesson & Erlandsson, 2021; Rivera, 2022)
- 7 PS-related (Edmondson, 1999)
- 5 trust-related (De Jong & Elfring, 2010)

The independent variable (IV) of MR was divided into four separate levels all of which had varying degrees of MR. The continuum is drawn from highest (F2F) to lowest (TC) richness in conformity with Daft & Lengel's studies (1984) together with modern adaptations (Arnesson & Erlandsson, 2021). The other distinction made was in terms of time spent (in hours) across these different levels per typical workday.

The dependent variable (DV) of PS was used in direct conformity with Edmondson's research (1999). Despite psychometric studies providing conclusions of reliability optimization being reached at a 7-point Likert scale (Colman et al., 1997), the authors opted for a 5-point scale. The choice was made to increase response rates (Babakus & Mangold, 1992) as well as decrease respondent frustration (Buttle, 1996), and has also been stated by Edmondson (2018) not to affect measures of PS. The mediating variable of trust was adopted from De Jong and Elfring's studies (2010) in which all 5 items were included, and a 5-point scale was utilized to ensure comparability with the PS measures.

As the firms operated in Sweden, the survey was also translated into Swedish. Precautions had to be taken as deviations in terminology, derived from faulty translation, might lead respondents not comprehending the questions as intended (Sha & Immerwahr, 2018). Hence, the authors decided to translate the survey themselves and let four linguistically adept contacts review it.

4.3.3 Pilot testing and survey modification

In order to warrant survey quality, a reviewed draft survey was sent out to each of the five firms' respective HR-representatives who reviewed and gave feedback on the survey. One firm had rendition suggestions which were adhered to. A second draft was later sent out to the representatives and after receiving no additional feedback, the surveys were ultimately distributed to the employees of the response companies.

4.3.4 Data Distribution and Collection

For distributional channels, 3 out of the 5 companies utilized an anonymous link directly provided by the researchers, whereas the other two firms used their own internal communication system and questionnaire tool. For the first 3 firms, the data was collected and gathered directly by the authors through Qualtrics^{XM}, and for the remaining firms, the data was sampled from the representatives who provided the data through Excel files.

4.3.5 Data Analysis

The data was first stored in Excel where the appropriate coding took place (Appendix 2). The data was later transferred into the statistical program Stata® in which the Ordinary Least Squares (OLS)-regressions were conducted. As standard OLS-regressions do have explicit assumptions, tests were carried out (Appendix 3). While the Breush-Pagan test indicates no residual homoscedasticity (Appendix 3.2), and the VIF-test shows no intrinsic multicollinearity amongst the IVs (Appendix 3.3), the subjective normality test (histogram) does however indicate no clear normal distribution of the error terms (Appendix 3.1). While having theoretical limitations, the violation of the normality assumption is rarely a problem in practice (Schielzeth et al., 2020); ergo supporting proceeding with the OLS-model.

Firstly, to test for the direct relationship between PS and MR, the latter was decomposed into 4 separate MR IVs to create a multivariate linear regression analysis. The DV of PS was constructed as the mean of all 7 PS-related items from the survey (Appendix 2). Furthermore, team-specific characteristics (workgroup size) captured in θ_i and individual-specific (age) characteristics captured in μ_i, were added to the model below to establish potential divergences in the estimates.

$$y_i = \beta_0 + \delta_1 Time_{FTF} + \delta_2 Time_{VC} + \delta_3 Time_{\mathrm{CWA}} + \delta_4 Time_{TC} + \theta_i + \mu_i + \varepsilon_i \quad (1)$$

The mediation hypotheses were tested through a multivariate meditation regression (Baron & Kenny, 1986). This included the mediation variable (*M*) of team trust calculated as the mean scores of the 5 trust-related items (Appendix 2).

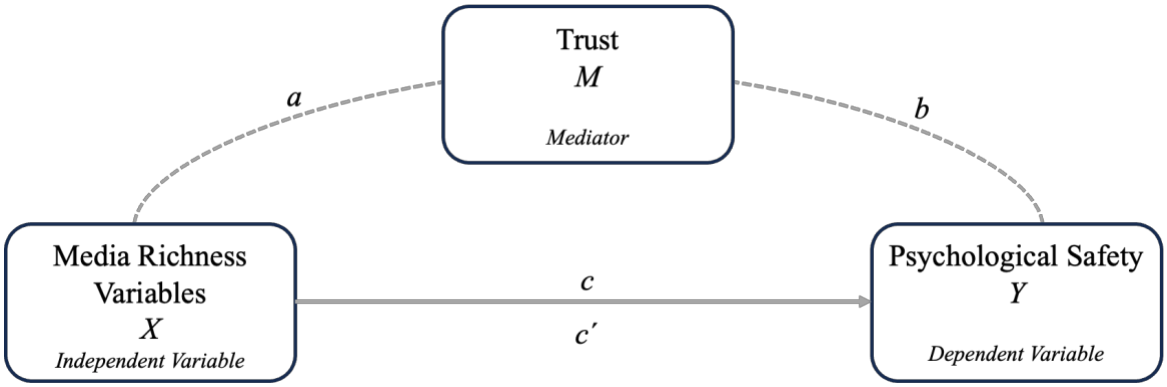


Figure 2: Mediation Model (Baron & Kenny, 1986)

4.4 Method Discussion

4.4.1 Method Validation

Although quantitative data may not provide as in-depth insights as qualitative, the collection of extensive data enhances the likelihood of identifying relationship patterns (Blackstone, 2012). Given that the study used pre-existing, validated, and tested measures based on theory, the reliability could be increased. In this thesis, the emphasis was placed on exploring the relationship between PS and the degree of MR, together with the mediating effects of trust. Moreover, as the measures of MR were constructed in conformity with Daft & Lengel's (1986) research, and similar items and scales have been used in previous research (Arnesson & Erlansson, 2021), the validity of MR was also enhanced.

Furthermore, while purposive sampling could give more sample control, some challenges also come as an effect of this methodology. For instance, generalizing the results beyond the selected industries warrants caution. There is however opportunity for transferability to firms within similar industries given the cross-sectional and quantitative nature of the data sampling.

4.4.2 Ethical Discussion

Given that PS and trust include personal and sensitive components, conducting interviews might pose the risk of respondents withholding their genuine perceptions. (Saunders et al., 2019). Utilizing self-completion questionnaires ensures anonymity, thereby safeguarding individuals' ability to express their opinions without the fear of judgment. Furthermore, due to the encapsulation of sensitive information, the data collection aligned with current regulations of the Stockholm School of Economics and GDPR.

5. Empirics

5.1 Descriptive Statistics

The survey yielded 307 responses from 637 possible respondents from five companies operating within consulting- and managerial practices in Sweden. The study ergo yielded a mean response rate of approximately 48%.

Due to a fallout of 19 non-usable answers, the following survey sample could be deduced:

	Sample Size (n)
Original Sample	307
Omission of non-complete answers	-15
Omission of non-consent to participation	-2
Omission of non-virtual workers	-2
Final Analysis Sample	288

Table 1: Analysis Sample

All control variables from the survey (Appendix 1) were considered in the regression in case some had implications on the results, hence giving the following control statistics:

	Frequency (n)	**Percentage (%)**	**Cumulative (%)**
Age Span			
18-29	23	7.99	7.99
30-39	89	30.90	38.89
40-49	89	30.90	69.79
50-59	73	25.35	95.14
60-69	14	4.86	100.00
Team Size			
2 people	10	3.47	3.47
3-4 people	81	28.13	31.60
5-9 people	127	44.10	75.70
10+ people	70	24.30	100.00

Company Statistics[1]			
Company A (CR)	72	25.00	25.00
Company B (RC)	40	13.89	38.89
Company C (HR)	59	20.49	59.38
Company D (MC)	78	27.08	86.46
Company E (MC)	39	13.54	100.00

Table 2: Control Measures

The correlations for the depicted control variables in *Table 2* can be found in Appendix 4.1 and range from 0.005 to 0.062. As for interitem statistics of the companies, the mean working tenure (numbers provided by firm representatives) ranges from 3.5 to 7.5 years, with an approximate average of 5.2 years (Appendix 8).

	Frequency (n)	**Percentage (%)**	**Cumulative (%)**
Face-to-Face			
Never	28	9.73	9.73
Less than 1 hour per day	110	38.19	47.92
1-2 hours per day	83	28.82	76.74
3+ hours per day	67	23.26	100.00
Video Conferencing			
Never	29	10.07	10.07
Less than 1 hour per day	122	42.36	52.43
1-2 hours per day	78	27.08	79.51
3+ hours per day	59	20.49	100.00
Call with Audio			
Never	86	29.86	29.86
Less than 1 hour per day	140	48.61	78.47
1-2 hours per day	52	18.06	96.53
3+ hours per day	10	3.47	100.00

[1] See Appendix 8 for code specifics

Text Communication			
Never	2	0.69	0.69
Less than 1 hour per day	118	40.97	41.66
1-2 hours per day	120	41.67	83.33
3+ hours per day	48	16.67	100.00

Table 3: MRT Measures

Table 3 depicts the descriptives of the dependent MR variables, with correlations found in Appendix 4.2 ranging from 0.012 to 0.352. No dependent variables were omitted from the analysis due to all degrees of MR generating adequate responses on the higher end of the usage-spectrum (i.e. 1-2 hours per day or more).

	Obs.	**Mean**	**St.Dev**	**Min**	**Max**
Psychological Safety	288	3.81845238	1.0584772	1	5
PS_1 (R)	288	3.9549	1.0827	1	5
PS_2	288	3.7674	1.0007	1	5
PS_3 (R)	288	4.0174	1.0171	1	5
PS_4	288	3.5347	1.0081	1	5
PS_5 (R)	288	3.7813	1.1312	1	5
PS_6	288	3.9097	1.0750	1	5
PS_7	288	3.7639	1.0257	1	5
Trust	288	3.8014	0.9509	1	5
Trust_1	288	4.0174	0.9200	1	5
Trust_2	288	3.6424	0.9630	1	5
Trust_3	288	3.6944	0.9204	1	5
Trust_4	288	3.7986	0.9113	1	5
Trust_5	288	3.8542	0.9980	1	5

Table 4: Dependent and Mediator Variables

Lastly, independent variables of PS along with the mediator variable of trust are presented, both on component and aggregate level. The interitem correlations of PS (Appendix 4.3) range from 0.483 to 0.753, whereas Cronbach's Alpha (Appendix 5) varies from 0.9017 to 0.9206;

hence suggesting strong reliability of the aggregate PS variable (Taber, 2018). Furthermore, correlations of the mediation variables of trust (Appendix 4.4) range from 0.605 to 0.810. Intersection correlations between trust and MR (Appendix 4.5) range from -0.043 to 0.500; ergo also suggesting necessary differences but also similarities between the mediator and the IV. From *Table 4,* the general mean and standard deviation scores of both PS and trust appear to be relatively in parity with one another, which factors into the intersection correlations between the two (Appendix 4.6) ranging from 0.444 to 0.783.

5.2 Empirics on Psychological Safety's Relationship with Media Richness

5.2.1 Data Empirics

Regression (#)	(1)
VARIABLES	Psychological Safety (PS)
Face-to-Face (F2F)	0.308***
	(0.0482)
Video Conferencing (VC)	0.384***
	(0.0490)
Calls With Audio (CWA)	-0.114**
	(0.0551)
Text Communication (TC)	0.0301
	(0.0610)
Workgroup Size	0.0428
	(0.0498)
Age	0.0386
	(0.0399)
Constant	1.618***
	(0.158)
Observations	288
R-squared	0.388

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Direct Relationship of Media Richness on Psychological Safety

From the above table it becomes apparent that increases in communication via F2F interactions as well as through VC were positively related to higher levels of perceived PS within the workgroup, with coefficients of 0.308*** and 0.384*** respectively. As such, decreases in MR (from F2F to VC) appear to yield higher levels of perceived PS. However, as the other significant indication was that of the negative relationship between CWA and perceived PS (-0.114**), this indicates a reversed relationship where decreases in MR instead yield lower levels of perceived PS. Lastly, the results of TC were insignificant. This nonlinear result between MR and perceived PS instead suggests an inverted U-shape relationship between the concepts (Appendix 6 for visualization).

Furthermore, from Appendix 4.2, it also becomes evident that the two most closely linked media were F2F and VC, the two richer media, which had a correlation of 0.352. Moreover, the two leaner media of CWA and TC had the second highest correlation (0.321). This, along with the empirics from table 5, suggests that the employees from the sample who indicated higher levels of perceived PS tended to use the two richer media more than the lower ones.

5.2.2 Testing Hypothesis 1

Reverting to H1, the 4 levels of MR presented in this thesis have been graded from least (TC) to most rich (F2F). From regression 1, only the three richer media yielded significant outcomes (considering a confidence level of 5%); hence TC was omitted from this analysis. Comparing the three remaining significant variables of MR, the first apparent result is the negative effect of CWA (-0.114**). Based on Akoglu's (2018) correlation definition, this indicative relationship suggests a weak negative effect of lean auditory media on perceived PS. Furthermore, concerning the two moderately positive significant effects, VC yielded the highest coefficient of 0.384***, compared to F2F's 0.308***.

While there are moderate positive relations between F2F interactions and perceived PS, the effects of VC on perceived PS are stronger. Despite the weak negative effects of CWA on perceived PS, the higher coefficient of VC than that of F2F contradicts the stated hypothesis. Thus, H1 is rejected:

Hypothesis Result 1

H1	The degree of media richness is **positively** related to the perceived level of psychological safety.	***Not Supported***

5.3 Empirics on Mediation of Trust

For the mediation empirics, a consummate mediation model appropriated from the studies of Baron and Kenny (1986) has been developed. From this conceptual model, the mediation analysis on the multivariate regression (Eq.1) is made.

5.3.1 Baron and Kenny's (1986) Method for Mediation

Proceeding the mediation model, *Figure 2* in section 4.3.5 functions as a reference. The authors have opted for Baron and Kenny's four-step mediation model (1986) in which all four paths will be tested separately in due order. The key equations for the four paths are as follows:

Step #	Visual Depiction	Equation
1	Media Richness X —c→ Psychological Safety X	$Y = \beta_Y + c_{F2F}X_1 + c_{VC}X_2 + c_{CWA}X_3 + c_{TC}X_4 + \theta_Y + \mu_Y + \varepsilon_Y$ (2)
2	Media Richness X —a→ Trust M	$M = \beta_m + \alpha_{F2F}X_1 + \alpha_{VC}X_2 + \alpha_{CWA}X_3 + \alpha_{TC}X_4 + \theta_M + \mu_M + \varepsilon_M$ (3)
3	Trust M —b→ Psychological Safety Y	$Y = \beta_Y + bM + \theta_Y + \mu_Y + \varepsilon_Y$ (4)
4	Trust M —b→ Psychological Safety Y; Media Richness X —c′→ Psychological Safety Y	$Y = \beta_Y + c'_{F2F}X_1 + c'_{VC}X_2 + c'_{CWA}X_3 + c'_{TC}X_4 + bM + \theta_Y + \mu_Y + \varepsilon_Y$ (5)

Figure 3: Baron and Kenny's Mediation Process (1986) (Hofvander & Hydén Karlsson, 2023

5.3.2 Mediation Empirics

As step 1 was already tested in regression 1 from the direct analysis in *Table 1* (section 5.2.1), the following section will analyze step 2, 3, and 4 separately.

As stated by Baron and Kenny (1986), there has to be an intrinsic direct relationship between the IV (MR variables) and DV (PS) to validate proceedings with the mediation model. As the mediation hypothesis has been decomposed to a component level (section 3.4), proceedings with the mediation analysis are validated for the three significant IVs (F2F, VC, and CWA) in regression 1 (Baron & Kenny, 1986). The following consummate model of mediation is thus proposed:

Regression (#)	(2)	(3)	(4)
VARIABLES	Trust	PS	PS
F2F	0.314***		0.0216
	(0.0454)		(0.0266)
VC	0.353***		0.0610**
	(0.0461)		(0.0274)
CWA	-0.0537		-0.0644**
	(0.0519)		(0.0281)
TC	-0.0200		0.0484
	(0.0575)		(0.0311)
Trust (Aggregate)		0.968***	0.914***
		(0.0260)	(0.0323)
Workgroup Size	0.0291	0.0168	0.0162
	(0.0469)	(0.0256)	(0.0254)
Age	0.0658*	-0.0263	-0.0215
	(0.0375)	(0.0205)	(0.0204)
Constant	1.644***	0.124	0.115
	(0.149)	(0.0891)	(0.0965)
Observations	288	288	288
R-squared	0.399	0.834	0.842

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6. Model of Mediation (Step 2-4)

5.3.2.1 Baron and Kenny Step 2

Analyzing the prediction analysis on the three significant IVs from regression 1 (F2F, VC, and CWA), all variables have different effects on the outcome of trust. In regression 2, F2F (0.314***) as well as VC (0.353***) significantly and positively predict trust; ergo said variables can be further analyzed. However, for CWA, the indicative effect is non-significant; consequently supporting the omission of CWA in further proceedings of the mediation model (Baron & Kenny, 1986).

5.3.2.2 Baron and Kenny Step 3

Regression 3 provides indications of the intrinsic relationship between the mediator trust as an IV and PS as a DV. Here, there exists a strong significant effect of trust as a predictor of PS (0.968***); ergo supporting proceedings to step 4 (Baron & Kenny, 1986).

5.3.2.3 Baron and Kenny Step 4

In the last step of the Baron and Kenny model (1986), each of the two remaining MR variables (F2F and VC) has to be studied independently. In regression 4, F2F's effects on PS are now insignificant, while VC's effect is significant but reduced to below 0.1; ergo suggesting full mediation for both variables (Awang, 2016).

Component Mediation Hypotheses

H2	Employee perception of trust **mediates** the relationship between face-to-face communication and perceived psychological safety.	***Supported***
H3	Employee perception of trust **mediates** the relationship between video conferencing communication and perceived psychological safety.	***Supported***
H4	Employee perception of trust **mediates** the relationship between calls with audio communication and perceived psychological safety.	***Not Supported***
H5	Employee perception of trust **mediates** the relationship between text communication and perceived psychological safety.	***Not Supported***

Despite the support of two of the component hypotheses H2 & H3, the rejection of the two latter results in a rejection of the mediation hypothesis at the aggregate level:

Aggregate Mediation Hypothesis

H6	Employee perception of trust **mediates** the relationship between media richness and perceived psychological safety.	***Not Supported***

Despite the acceptance of full mediation for F2F and VC, the high coefficient of trust on PS at 0.968*** (regression 3) necessitates further analysis and will be discussed in section 6.2.2.

6. Analysis & Discussion

6.1 Direct Relationship Analysis & Discussion

From the empirics in section 5.2.1, as the leaner medium of VC (0.384***) had a stronger effect on perceived PS than F2F (0.308***), this contradicts the hypothesis suggesting that perceived PS should be strongest in co-located workgroup settings. However, the even leaner medium of CWA had a negative effect on perceived PS (-0.114***), thus indicating a more intricate inverse U-shaped relationship between MR and perceived PS. These empirical findings therefore necessitate a two-folded analysis to provide an in-depth review:

- Firstly, the moderately positive effects of the two richest media (F2F and VC) are analyzed in conjunction with the theoretical frameworks supporting such relationships.
- Secondly, the suggested intricate inverted U-shape relationship, with stronger effects of VC in comparison to both the richer F2F and leaner CWA medium on perceived PS, will be discussed with complementary literature (6.1.2).

6.1.1 Direct Relationship Analysis

Analyzing Edmondson's seminal research, communication frequency and quick reciprocal feedback loops among coworkers are stated to be essential aspects in creating higher levels of PS (Edmondson, 1999; 2018). This aligns with MRT as one of the four characteristics used to measure MR is feedback (Daft & Lengel, 1984). According to MRT, the higher the need for feedback frequency the higher the need for richer media. This would, in Edmondson's terms (1999; 2018), suggest that many instances vital to form PS would benefit from situations in

which more efficient feedback loops are available, which according to MRT is allowed for through richer communication (Daft & Lengel, 1986). As the empirics suggest moderate explanatory power of both F2F and VC (the two richer media) on PS, MRT along with Edmondson's research can therefore partially explain the results.

However, as the empirics also indicate the negative effects of increased MR between F2F and VC, MRT falls short in capturing the whole empirical picture. This is in line with the criticism of MRT originally not capturing all aspects of newer types of communication, such as VC (Ishii et al., 2019). Furthermore, this also aligns with Edmondson's suggestions that the difference between virtual and physical team constructs calls for methodological innovation to encapsulate any clear indications of PS with regard to virtual work (Edmondson & Bransby, 2023).

6.1.2 Complementary Litterature to the Direct Relationship

Since the stronger effect of VC than F2F on perceived PS contradicts pre-examined theories, the analysis pertaining to these empirical findings is retrofitted with a combination of pre-stated and complementary literature.

6.1.2.1 Direct Relationship – Media Richness & Social Information Processing

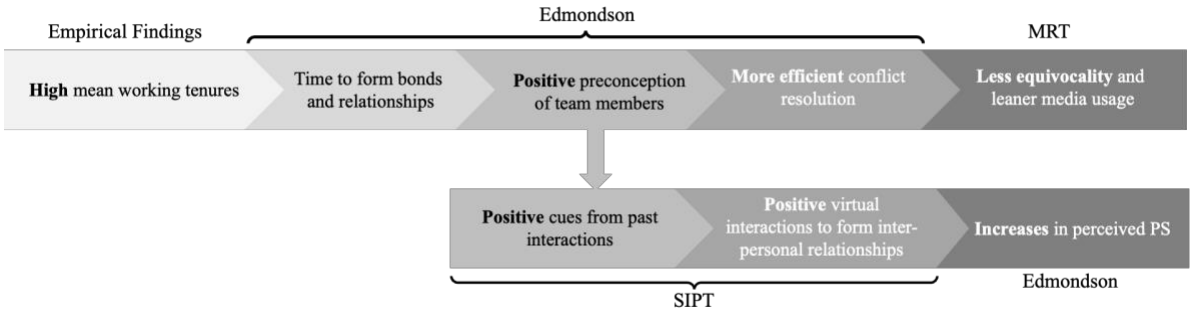


Figure 4: Direct Relationship – MRT, PS, & SIPT (Hofvander & Hydén Karlsson, 2023)

Given the high average mean tenure of all firms at approximately 5.2 years (Appendix 8), employees have had more time to build stronger relationships within the teams. This gives more time to form bonds and positive impressions about co-workers' judgment which should allow for more efficient conflict resolution (Bradley et al., 2012; Edmondson, 2018). More efficient conflict resolution, according to MRT, should imply lower warrants for rich media as information equivocality is decreased (Daft & Lengel, 1984); hence possibly factoring into

why the leaner media of VC yielded more prominent effects on perceived PS than F2F within the workgroups.

The process of more efficient conflict resolution through relationship-forming in the team can also be explained through *Social Information Processing Theory (SIPT)* (Walther, 1992). In theory, conflict resolution and risk-taking, which are essential concepts for PS (Edmondson, 1999; 2018), include convoluted cues that would prosper in richer media (Daft & Lengel, 1986). These complex cues could, however, according to SIPT be replaced by endogenous and non-verbal impressions in more virtually-based settings with lower MR (Walther et al., 2015). Since VC is somewhat limited when it comes to non-verbal cues compared to F2F interactions, uncertainty reduction is made by the processor through other means to close the gap left by the omitted cues (Walther & Tong, 2014). Primarily, SIPT suggests that such means would be based on verbal cues for unacquainted participants (Walther & Burgon, 1992). However, external research affirms that if given adequate time to form bonds prior to any current interaction, social processing is instead made by reverting to impressions of past relational interactions (Baldwin, 1992). This, once again applies to the empirics as the high mean tenures can be indications of more prominent past interactions between the co-workers and team members of the sample firms.

Furthermore, the creation of endogenous cues (based on impressions from past interactions) in leaner media is also dependent upon people's coding and judgment toward their respective team members (Zalesny & Ford, 1990). Walther and Burgon (1992) state that according to SIPT, external factors affecting team members' judgments and internalized cues positively could for instance be candor among team members. These positive factors, according to SIPT, could further lead to internalized cues capturing positive preconceptions of one's team members (Walther et al., 2015). As such, virtual communication through leaner media can instead positively affect interpersonal communication and relational attributions (Walther & Tong, 2014), an important factor in creating PS (Edmondson, 1999; 2018). This could ultimately factor into the results as the high mean tenures indirectly lead to positive cues from past interactions, which yield positive virtual interactions that ultimately lead to higher levels of perceived PS within the workgroups. However, further analysis is needed to explain why decreases in MR and perceived PS are reversed to being negative from VC to CWA, forming the suggested inverted U-shaped relationship between MR and perceived PS.

6.1.2.2 Direct Relationship – Balanced Work

The correlations between CWA and F2F (0.162) as well as CWA and VC (0.012) (Appendix 4.2) indicate that people who communicated via CWA did not interact extensively through the F2F and VC media. On the other hand, the higher correlation between F2F and VC (0.352) suggests many respondents balanced their work between these media; a type of balance that through external literature can factor into the empirics.

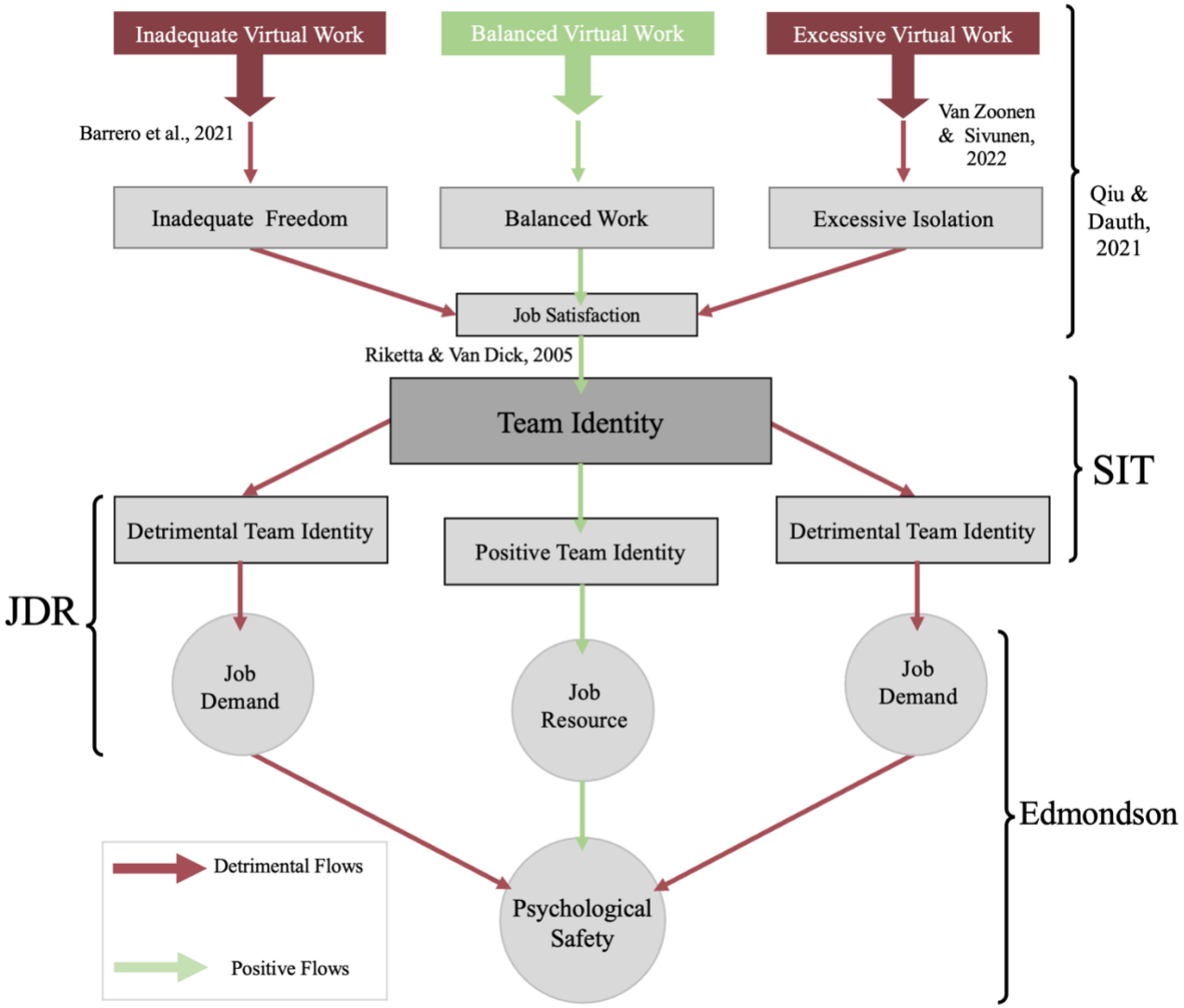


Figure 5: Direct Relationship– Balanced Work (Hofvander & Hydén Karlsson, 2023)

While excessive virtual work has been suggested to increase employee isolation (Van Zoonen & Sivunen, 2022), inadequate virtual work might instead lead to poor flexibility arrangements (Barrero et al., 2021), which both lead to job dissatisfaction. From the empirics (section 5.2), indications of an inverted U-effect in the relationship between MR and perceived PS within the

workgroups became apparent. Similarly to these findings, Qiu and Dauth (2021) found that the aforementioned inverted U-shaped relationship exists between virtual work intensity and job satisfaction, with mediating effects of work-family balances. Similarly, work flexibility also leads to higher job satisfaction through an improved work-life balance (Casey & Grzywacz, 2008; Tapas & Pana-Cryan, 2021). Furthermore, job satisfaction has also been regarded to positively affect team identity (Riketta & Van Dick, 2005, in Van Dick et., al. 2008), which emphasizes the role of balanced work in creating positive team identities through job satisfaction. This could play a role in the indicative balance between F2F and VC-communication from the empirics as employees through mixed physical and virtual interventions found the ideal balance Qiu & Dauth (2021) suggested, ultimately leading to improved job satisfaction and team identity.

Given the relationship between team identity and working balances, its implications on the empirics through *Social Identity Theory (SIT)* are relevant. SIT suggests that individual and group conceptions align so conforming group identity is achieved (Tajfel 1978, in Ball & Branscombe, 2019). This way, people attempt to form a team identity based on positive distinctness from other groups so that the ingroup is always perceived as superior, regardless of the consequences of the group's actions (Tajfel & Turner, 1986, in Ramasubramanian & Murphy, 2014). As social identity is contingent upon group mechanisms (Charness & Chen, 2020), team identities can either help or harm team performance through proxies of PS such as e.g. trust (Tanis & Postmes, 2005) and job satisfaction (Galang & Jones, 2016). This is further corroborated by Bakker & Demerouti's *Job Demands-Resources model (JD-R)* (2007). The model postulates that any given mechanism within a team can either yield strenuous structures leading to negative job demands, or supportive structures which create positive job resources (Bakker & Demerouti, 2017). Job resources that are associated with positive supportive structures include for instance, flexible and balanced working arrangements (Tummers & Bakker, 2021), which, as mentioned, are obtainable through virtual work (Meluso et al., 2022; Qiu & Dauth, 2021). Lastly, unison and positive team identities have also been regarded to yield job resources and supportive structures (Barbier et al., 2013, in Bentein et al., 2017), something that, according to Edmondson (2018), ultimately leads to increases in PS.

The suggested balance, derived from the section above, between physical and virtual work, could be attributed to the empirics such that the analyzed sample finds more flexibility through balanced F2F and VC-interactions. This balance is further corroborated by the high correlations between F2F and VC communication (0.352) and the positive effects of both F2F (0.308***) and VC (0.384***). These empirics therefore suggest that those who balanced F2F and VC-interactions also obtained higher levels of perceived PS within their workgroups.

6.2 Mediation Analysis & Discussion

6.2.1 Mediation Analysis

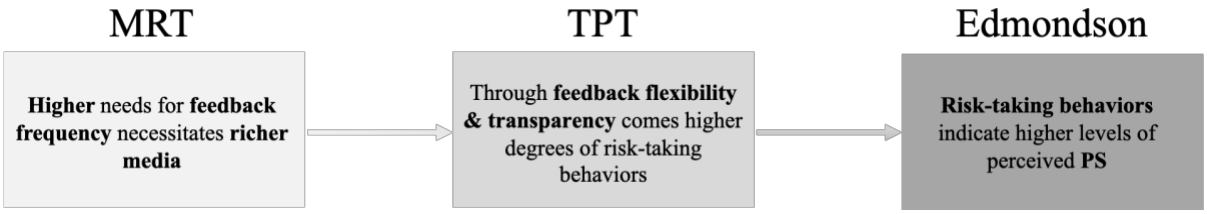


Figure 6: Mediation Analysis (Hofvander & Hydén Karlsson, 2023)

As the mediation empirics (section 5.3) suggest complete mediation of trust on the relationship between both F2F and VC, there is a strong indirect effect of trust on perceived PS for the stated MR measures. This conforms to Edmondson's work (1999; 2018) as similarities of trust are reiterated and prominent. Furthermore, Breuer et al. (2020) through their *Taxonomy of Perceived Trustworthiness (TPT)* framework suggest that transparency, learning support, and other similar proxies of PS mentioned by Edmondson (1999; 2018) further yield increased levels of team trust which effectively leads to higher degrees of risk-taking. This could factor into the mediation empirics–and the link between trust and PS particularly–as firms with inherent trustworthiness amongst team members feel more inclined to take risks within the group; hence leading to higher levels of perceived PS within the workgroup (Edmondson, 2018).

However, as only the two richer media indicated full mediation, the analysis has to be expanded to include feedback frequency. As feedback transparency and flexibility factor into risk-taking through TPT, the arguments can also be extended to align with MRT's emphasis on feedback frequency (Daft & Lengel, 1986). Feedback frequency could, according to TPT, lead to risk-taking behaviors which are indications of higher levels of PS according to Edmondson (1999;

2018). Since the empirics suggest that the mediation is only limited to the two richer media (F2F and VC) and not the two leanest (CWA and TC), this aligns with MRT as increased feedback frequency is optimized on the richer MR spectrum.

6.2.2 Mediation Discussion

Despite the explanatory power of the adopted frameworks in the mediation analysis, the mediation results require further in-depth review due to the intersection of trust and PS.

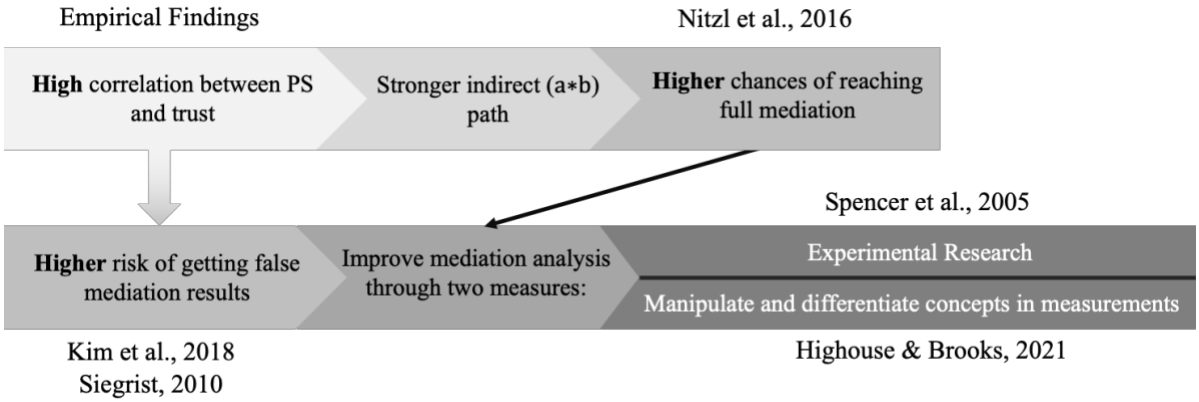


Figure 7: Mediation Discussion (Hofvander & Hydén Karlsson, 2023)

As the empirics from regression 3 (*Table 6*, 5.3.2), as well as the cross-component correlations (Appendix 4.5), indicate high correlations between PS and team trust, i.e. similar response patterns for the participants, this would result in a stronger path b^2. This ultimately increases the indirect pattern (path $a * b$); hence ultimately leading to increased chances of obtaining full mediation results (Nitzl et al., 2016). Through the reversed mediation regression (Appendix 10), similar results (full mediation on F2F as well as VC) are achieved, which is normal when correlations between the mediator and DV are high (Kim et al., 2018). Earle (2010) suggests that measuring trust in conjunction with confidence is difficult as respondents are at risk of not being able to distinguish between the two similar concepts. According to Siegrist (2010), this failure to ensure participants' ability to distinguish between items used in a survey might yield spurious paths of association. While confidence and PS are not interchangeable, the emphasized intersection of PS and trust (e.g. Edmondson, 2004; Frazier et al., 2017) highlights similar tendencies to the findings of Earle (2010) between trust and confidence. This could factor into the high correlations between PS and trust (Appendix 4.5) and thus the empirics

[2] See *Figure 2,* 4.3.5 for reference

such that the full mediation comes as an effect of the respondents not being able to distinguish between the concepts.

While the high correlations between PS and team trust do not have to be problematic, there is, as mentioned, a risk of faulty indicative relationships derived from participants' failure to differentiate similar concepts (Siegrist, 2010). Highouse and Brooks (2021) suggest that one solution to this is to manipulate the mediator so it becomes conceptually distinct from the DV in the measurements. Spencer et al. (2005), instead, suggest that experimental research and testing for paths of association between easily manipulated and highly correlated psychological concepts, such as trust and PS, are preferred.

7. Conclusion

7.1 Answering the Research Question

By surveying 5 Sweden-based firms, this thesis has studied the effects of different degrees of media richness, in both face-to-face and virtual work settings, on perceived psychological safety within work teams. The thesis also included the variable of trust, as it has been closely linked to, yet separated from, psychological safety in order to investigate whether trust bridges media richness and psychological safety together. This helped answer the following research questions:

How does the perceived level of psychological safety relate to different levels of media richness in the workgroup?

- *How does the degree of perceived team trust affect this relationship?*

From the empirics, the thesis concludes that while the richest medium of face-to-face interactions has moderately positive effects on perceived psychological safety (0.308***), the leaner medium of video conferencing holds the strongest positive effect (0.384***). This suggests that to some degree, leaner media is more efficient in creating psychologically safe environments within workgroups. However, the even leaner medium of calls with audio has negative effects (-0.114**) and the leanest medium of text communication had insignificant effects on perceived psychological safety within the workgroups. This instead suggests that decreases in media richness negatively affect perceived psychological safety. In conjunction with the empirics of the two richest media (face-to-face and video conferencing), this confirms that there appears to be an inverted U-shape relationship between media richness and perceived psychological safety (Appendix 6). As the highest interitem correlation among the media richness variables was between face-to-face and video conferencing (0.352), these two media were also most commonly used together by the respondents. The findings therefore suggest that a balance between rich (face-to-face) and somewhat lean (video conferencing) media was optimal for obtaining perceived psychological safety within workgroups.

As for the effects of team trust in the relationship between media richness and psychological safety, the results suggest full mediation. However, due to high correlations between psychological safety and team trust (Appendix 4.6), proceedings with these findings warrant caution. Instead, the thesis proposes that further conceptual distinctions between trust and

psychological safety (that are captured not only in theory but also in the practical measurement items), or experimental research, are both justified methods to gain further understanding of any potential paths of association.

7.2 Study Contributions

7.2.1 Research Implications

Along with technological advancements and a post-pandemic revolution, work conduct has shifted. Now, existing research on the implications of virtual work on not only psychological safety, but also on similar topics, needs to be questioned. Given the findings of this thesis, new light can be cast on the implications of virtual work on perceived psychological safety. While previous research on the topic of psychological safety has mostly focused on the juxtaposition of virtual and physical work, these empirics instead convey the two work modes as mutually inclusive by bringing a more nuanced approach to the fore. This indicative balance between physical and virtual work ultimately decreases the current research gap between psychological safety and remote work.

Lastly, the findings of mediation also contribute not only to the work concerning the connection of trust and psychological safety but also to other adjacent themes. Although many psychosocial concepts have theoretical distinctions, many fail to capture these differentiations in practice by the way they are portrayed in the measurements to respondents. This conclusively leads to results indicating certain relationships that might only exist because respondents mix different concepts. These implications contribute to research by highlighting the need for differentiation of concepts that are separate in theory, but adjacent in practice.

7.2.2 Practical Implications

With predicted increases in virtual work, management practitioners can gain insight from the findings in this thesis as the nuanced balance between physical and virtual work is highlighted. The findings can help management practitioners not to view virtual and physical work as mutually exclusive, but rather to tailor a balance between these two modes of working.

7.2.3 Future Research

Despite the positive relationship between two of the richer media, this thesis guides future research, rather than contributing with any revolutionary findings. The direct relationship

between media richness and psychological safety concluded by the thesis has to be further investigated to generalize them over a broader scope. Moreover, the intricate findings also open up for future research to investigate what the ideal balance of physical and virtual work might be for workgroups to reach optimal psychological safety, something that could be obtained through concurrent mixed future studies.

Furthermore, to consider possible mediation of team trust in the relationship between media richness and psychological safety, future studies could for instance benefit from clearer distinctions between trust and psychological safety. Moreover, research done from a longitudinal stance, through e.g. an experimental methodology, could instead provide a more in-depth conclusion to any such relationship.

7.3 Final Thoughts

As humans venture into a new era of work arrangements, firms and individuals might wonder what awaits them in terms of different job-related metrics, with psychological safety being one. As the indications of the study both have practical and theoretical implications on psychological safety and trust in relation to virtual work, new insights are by virtue of the empirics brought forth. These insights can function as a springboard for future research to take the necessary leap into the still novel realm of virtuality at work; a chapter of working arrangements which is yet to be fully written in the book of management practice.

Bibliography

Akoglu, H. (2018). User's guide to correlation coefficients.
Turkish journal of emergency medicine, 18(3), 91-93.
doi: 10.1016/j.tjem.2018.08.001

Aranzamendez, G., James, D., & Toms, R. (2015). Finding Antecedents of Psychological Safety: A Step Toward Quality Improvement.
Nursing forum (Hillsdale), 50(3), 171-178.
doi: 10.1111/nuf.12084

Arnesson, V., & Erlandsson, M. (2021). Inclusion from a distance - Virtual work and work group inclusion.
Stockholm School of Economics. Retrieved through: SSE Library

Awang, Z. (2016). Analyzing the mediating variable.
A Handbook on SEM 2nd edition, 6, 101-133.
Retrieved through:
https://www.researchgate.net/publication/299440879_10_Chapter_6_Analyzing_the_mediating_variable

Babakus, E., & Mangold, W. G. (1992). Adapting the SERVQUAL scale to hospital services: an empirical investigation.
Health Serv Res., 26(6), 767-786.
Retrieved through: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1069855/

Baer, M., & Frese, F. (2003). Innovation is not enough: climates for initiative and PS, process innovations, and firm performance.
Journal of organizational behavior, 24(1), 45-68.
doi : 10.1002/job.179

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art.
Journal of Managerial Psychology, 22(3), 309–328.
doi: 10.1108/02683940710733115

Bakker, A. B., Demerouti, E., & Chen, P. Y. (2017). Job demands–resources theory: Taking stock and looking forward.
Journal of occupational health psychology. 22(3), 273-285.
doi: 10.1037/ocp0000056

Baldwin, M. W. (1992). Relational Schemas and the Processing of Social Information.
Psychological Bulletin, 112, 461-484.
doi: 10.1037/0033-2909.112.3.461

Ball, T.C., & Branscombe, N.R. (2019). 4 - When do groups with a victimized past feel solidarity with other victimized groups?
Confronting Prejudice and Discrimination, The Science of Changing Minds and Behaviors 2019, [Book], 73-92.
doi: 10.1016/B978-0-12-814715-3.00004-7

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations.
Journal of Personality and Social Psychology, 51(6), 1173–1182.
doi: 10.1037/0022-3514.51.6.1173

Barrero, J. M., Bloom, N., & Davis, S. J. (2021). Let Me Work From Home, or I Will Find Another Job.
University of Chicago, Becker Friedman Institute for Economics Working Paper, 2021-87.
doi: 10.2139/ssrn.3890988

Barton, C. (2021). Embedding social pedagogy and psychological safety with virtual teams.
International journal of social pedagogy, 10(1), 13.
doi: 10.14324/111.444.ijsp.2021.v10.x.008

Basit, A. A. (2017). Trust in Supervisor and Job Engagement: Mediating Effects of Psychological Safety and Felt Obligation.
The journal of psychology, 151(8), 701-721.
doi: 10.1080/00223980.2017.1372350

Bentein, K., Garcia, A., Guerrero, S., & Herrbach, O. (2017). How does social isolation in a context of dirty work increase emotional exhaustion and inhibit work engagement? A process model.
Personnel review, 46(8), 1620-1634.
doi: 10.1108/PR-09-2016-0227

Blackstone, A. (2012). Principles of Sociological Inquiry – Qualitative and Quantitative Methods. Blackstone, A.
Saylor Foundation. Retrieved through:
https://resources.saylor.org/wwwresources/archived/site/textbooks/Principles%20of%20Sociological%20Inquiry.pdf

Bradley, B. H., Postlethwaite, B. E., Klotz, A. C., Hamdani, M. R., & Brown, K. G. (2012). Reaping the benefits of task conflict in teams: The critical role of team psychological safety climate.
Journal of Applied Psychology, 97(1), 151–158.
doi: 10.1037/a0024200

Braun, S., Peus, C., Weisweiler, S., & Frey, D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust.
The Leadership quarterly, 24(1), 270-283.
doi: 10.1016/j.leaqua.2012.11.006

Breuer, C., Hüffmeier, J., Hibben, F., & Hertel, G. (2020). Trust in teams: A taxonomy of perceived trustworthiness factors and risk-taking behaviors in face-to-face and virtual teams.
Human relations (New York), 73(1), 3-34.

doi: 10.1177/0018726718818721

Brosius, A., Hameleers, M., & Van Der Meer, T. G. L. A. (2022). Can we trust measures of trust? a comparison of results from open and closed questions.
Quality & quantity, 56(5), 2907-2924.
doi: 10.1007/s11135-021-01250-3

Burke, E. (1757) A Philosophical Inquiry into the Origin of Our Ideas of the Sublime and Beautiful [Book].
Lincolniana. Retrieved through:
https://ia800208.us.archive.org/16/items/philosophicalinq00burk/philosophicalinq00burk.pdf

Buttle, A. F. (1996). SERVQUAL: review, critique, research agenda
European journal of marketing, 30(1), 8-32.
doi: 10.1108/03090569610105762

Carmeli, A. (2007) Social capital, psychological safety and learning behaviours from failure in organisations.
Long range planning 2007, 40(1), 30-44.
doi: 10.1016/j.lrp.2006.12.002

Casey, P. R., & Grzywacz J. G. (2008). Employee Health and Well-Being: The Role of Flexibility and Work–Family Balance.
The Psychologist-Manager Journal, 11(1), 31-47.
doi: 10.1080/10887150801963885

Castro, D. R., Anseel, F., Kluger, A. N., Lloyd, K. J., Turjeman-Levi, Y., Goldstein, T., & Vartanian, O. (2018). Mere Listening Effect on Creativity and the Mediating Role of Psychological Safety.
Psychology of aesthetics, creativity, and the arts,12(4), 489-502.
doi: 10.1037/aca0000177

Chafi, M.B., Hultberg, A., & Yams, N. B. (2022). Post-pandemic office work: Perceived challenges and opportunities for a sustainable work environment.
Sustainability (Basel, Switzerland), 14(1), 294.
doi: 10.3390/su14010294

Charness, G., & Chen, Y. (2020). Social Identity, Group Behavior, and Teams.
Annual review of economics, 12(1), 691-713.
doi: 10.1146/annurev-economics-091619-032800

Chatman, J. A., & Jehn, K. A. (1994). Assessing the Relationship between Industry Characteristics and Organizational Culture: How Different Can You Be?
Academy of Management journal, 37 (3), 522-553.
doi: 10.5465/256699

Chen, G., & Tjosvold, D. (2012). Shared rewards and goal interdependence for psychological safety among departments in China.
Asia Pacific journal of management, 29(2), 433-452.
doi: 10.1007/s10490-010-9201-0

Chen, L., Wadei, K. A., Bai, S., & Liu, J. (2020) Participative leadership and employee creativity: a sequential mediation model of PS and creative process engagement
Leadership & organization development journal 2020, 41(6), 741-759.

Chen, S., Wang, D., Zhou, Y., Chen, Z., & Wu, D. (2017). When too little or too much hurts: Evidence for a curvilinear relationship between team faultlines and performance.
Asia Pacific journal of management, 34(4), 931-950.
10.1007/s10490-017-9510-7

Colman, A. M., Norris, C. E., & Preston, C. C. (1997). Comparing Rating Scales of Different Lengths: Equivalence of Scores From 5-Point and 7-Point Scales.
Psychological Reports, 80(2), 1-15.
doi: 10.2466/pr0.1997.80.2.355

Connell, J. (2001). Influence of Firm Size on Organizational Culture and Employee Morale. *Journal of management research*, 1(4), 220-232.
Retrieved through: SSE Library

Costa, A. C., & Anderson, N. (2011). Measuring trust in teams: Development and validation of a multifaceted measure of formative and reflective indicators of team trust. *European journal of work and organizational psychology*, 20(1), 119-154.
doi: 10.1080/13594320903272083

Costa, A. C, Roe, R. A., & Taillieu, T. (2001). Trust within teams: The relation with performance effectiveness. *European journal of work and organizational psychology*, 10(3), 225-244.
doi: 10.1080/13594320143000654

Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behavior and organizational design. *Research in Organizational Behavior*, 6, 191–233.
Retrieved through: https://www.researchgate.net/publication/235200674_Information_Richness_A_New_Approach_to_Managerial_Behavior_and_Organization_Design

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32, 554-571.
doi: 10.1287/mnsc.32.5.554.

De Jong, B. A., & Elfring, T. (2010). How Does Trust Affect the Performance of Ongoing Teams? The Mediating Role of Reflexivity, Monitoring and Effort. *Academy of Management journal,* 53(3), 535-549.
doi: 10.5465/AMJ.2010.51468649

De Vellis, R. F. (2003). Scale Development: Theory and Applications (2nd ed., Vol. 26). [Book] *Thousand Oaks, CA: Sage Publications.* Retrieved through:

https://www.academia.edu/42875983/Scale_Developm_ent_Theory_and_Applications_Second_Edition

Dollard, M. F., & Bailey, T. (2021). Building psychosocial safety climate in turbulent times: The case of COVID-19.
Journal of Applied Psychology, 106(7), 951–964.
doi: 10.1037/apl0000939

Earle, T. C. (2010). Distinguishing Trust from Confidence: Manageable Difficulties, Worth the Effort Reply to: Trust and Confidence: The Difficulties in Distinguishing the Two Concepts in Research.
Risk Analysis, 30(7), 1025-1027.
doi:10.1111/j.1539-6924.2010.01456.x

Edmondson, A. C. (1999). Psychological Safety and Learning Behavior in Work Teams.
Administrative science quarterly, 44(2), 350-383.
doi: 10.2307/2666999

Edmondson, A. C. (2004). Psychological Safety, Trust, and Learning in Organizations: A Group-Level Lens.
R. M. Kramer & K. S. Cook (Eds.), Trust and distrust in organizations: Dilemmas and approaches, 239–272.

Edmondson, A. C. (2018). The Fearless Organization Creating Psychological Safety in the Workplace for Learning, Innovation and Growth [Book].
John Wiley & Sons. Retrieved through: https://chools.in/wp-content/uploads/2021/03/The-Fearless-Organization_-Creating-Psychological-Safety-in-the-Workplace-for-Learning-Innovation-and-Growth.pdf

Edmondson, A. C., & Bransby, D. P. (2023). Psychological Safety Comes of Age: Observed Themes in an Established Literature.
Annual review of organizational psychology and organizational behavior, 10(1), 55-78.
doi: 10.1146/annurev-orgpsych-120920-055217

Edmondson, A. C., & Daley, G. (2020). How to Foster Psychological Safety in Virtual Meetings.
Harvard Business Review. Retrieved through: https://hbr.org/2020/08/how-to-foster-psychological-safety-in-virtual-meetings

Espedido, A., & Searle, B. J. (2021). Proactivity, stress appraisals, and problem-solving: A cross-level moderated mediation model.
Work and stress, 35(2), 132-152.
doi: 10.1080/02678373.2020.1767723

Feitosa, J., Grossman, R., Kramer, W. S., & Salas, E. (2020). Measuring team trust: A critical and meta-analytical review.
Journal of organizational behavior, 41(5), 479-501.
doi: 10.1002/job.2436

Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A., & Vracheva, V. (2017). Psychological Safety: A Meta-Analytic Review and Extension.
Personnel psychology, 70(1), 113-165.
doi: 10.1111/peps.12183

Fulmer, C. A., & Gelfand, M. J. (2012). At What Level (and in Whom) We Trust: Trust Across Multiple Organizational Levels.
Journal of management, 38(4), 1167-1230.
doi: 10.1177/0149206312439327

Galang, M., & Jones, S. (2016). Keeping a distance: Social identity, workplace bullying, and job satisfaction.
Social Psychological Review, 18(1), 31-38.
Retrieved through: https://eresearch.qmu.ac.uk/handle/20.500.12289/9388

Golembiewski, R. T., & McConkie, M. (1975). The centrality of interpersonal trust in group processes. *Theories of group processes*, 131(1), 131-185.

In: Mayfield et al., (2016).

Guo, K. (2022). The Relationship Between Ethical Leadership and Employee Job Satisfaction: The Mediating Role of Media Richness and Perceived Organizational Transparency.
Frontiers in psychology, 13, 1-13.
doi: 10.3389/fpsyg.2022.885515

Hansen, S., Lambert, P. J., Bloom, N., Davis, S. J., Sadun, R., & Taska, B. (2023). Remote Work across Jobs, Companies, and Space.
Nber Working Paper Series, 31007.
doi: 10.3386/w31007

Han, S., Lee., Y., & Bayerlein, M. (2019) Developing Team Creativity: The Influence of Psychological Safety and Relation-Oriented Shared Leadership
Performance Improvement Quarterly, 32(2), 159-182.
doi: 10.1002/piq.21293

Hasan, F., & Kashif, M. (2021). Psychological safety, meaningfulness and empowerment as predictors of employee well-being: a mediating role of promotive voice.
Asia-Pacific journal of business administration, 13(1), 40-59.
doi: 10.1108/APJBA-11-2019-0236

Heß, C., & Adams, J. (2015). Fear and Loathing in the North: Jews and Muslims in Medieval Scandinavia and the Baltic Region.
Berlin, München, Boston: De Gruyter.
doi: 10.1515/9783110346473

Highouse, S., & Brooks, M. E. (2021). A simple solution to a complex problem: Manipulate the mediator!
Industrial and Organizational Psychology, 14(4), 493-496.
doi: 10.1017/iop.2021.117

Ishii, K., Lyons, M. M., & Carr, S. A. (2019). Revisiting media richness theory for today and future.
Human behavior and emerging technologies, 1(2), 124-131.
doi: 10.1002/hbe2.138

Kim, B-J., Park, S., & Kim, T-H. (2019). The effect of transformational leadership on team creativity: sequential mediating effect of employee's psychological safety and creativity
Asian journal of technology innovation, 27(1), 90-107.
doi: 10.1080/19761597.2019.1587304

Kim, J., Hwang, E., Phillips, M., Jang, S. Kim, J. E., Spence, M. T., & Park, J. (2018). Mediation Analysis Revisited: Practical Suggestions for Addressing Common Deficiencies.
Australasian Marketing Journal, 26 (1), 59-64.
doi: 10.1016/j.ausmj.2018.03.002

Kirchner, K., Ipsen, C., & Andersen, A. R. (2022). Knowledge sharing challenges in hybrid knowledge work: Lessons from Denmark.
European Conference on Knowledge Management, 23(1), 638-645.
doi: 10.34190/eckm.23.1.323

Kramer, A., & Kramer, K. Z. (2020). The potential impact of the Covid-19 pandemic on occupational status, work from home, and occupational mobility.
Journal of vocational behavior, 119 (103442).
doi: 10.1016/j.jvb.2020.103442

Kusmaryono, I., Wijayanti, D., & Maharani, H. R. (2022). Number of Response Options, Reliability, Validity, and Potential Bias in the Use of the Likert Scale Education and Social Science Research: A Literature Review.
International journal of educational methodology, 8(4), 625-637.
doi: 10.12973/ijem.8.4.625

Larsson, J., & Revland, S. (2023). Trust and Knowledge Sharing in Hybrid Project Teams.

Linköping Universitet, Retrieved through: https://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-198149

Lechner, A., & Mortlock, J. T. (2022). How to create psychological safety in virtual teams. *Organizational Dynamics,* 51(2), 100849.
doi: 10.1016/j.orgdyn.2021.100849.

Lim, J. Y. (2022). Gender and psychological safety in virtual teams: the role of awareness types enabled by information technologies.
Team performance management, 28(5/6), 351-366.
doi: 10.1108/TPM-01-2022-0006

Lindell, A., & Ahlborg, E. (2022). Is one plus one really greater than two? A qualitative study on how virtual work has impacted teamwork in management consulting.
Stockholm School of Economics. Retrieved through: SSE Library

Malhotra, M. K., Ahire, S., & Shang, G. (2017). Mitigating the Impact of Functional Dominance in Cross-Functional Process Improvement Teams.
Decision sciences, 48(1), 39-70.
doi: 10.1111/deci.12217

Mangla, N. (2021). Working in a pandemic and post-pandemic period – Cultural intelligence is the key.
International journal of cross cultural management, 21(1), 53-69.
doi: 10.1177/14705958211002877

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust.
The Academy of Management Review, 20(3), 709–734.
doi: 10.2307/258792

Mayfield, C. O., Tombaugh, J., & Lee, M. (2016). Psychological collectivism and team effectiveness: Moderating effects of trust and psychological safety.

Journal of Organizational Culture Communications and Conflict, 20(1), 78-94.
Retrieved through: SSE Library

McKnight, D. H., Cummings, L. L., & Chervany, N. L. (1998). Initial trust formation in new organizational relationships.
The Academy of Management review, 23(3), 473-490.
doi: 10.5465/AMR.1998.926622

Meluso, J., Johnson, S., & Bagrow, J. (2022). Flexible Environments for Hybrid Collaboration: Redesigning Virtual Work Through the Four Orders of Design.
Design issues, 38(1), 55-69.
doi: 10.1162/desi_a_00670

Mitterer, Dennis M., & Mitterer, Heather E. (2023). The Mediating Effect of Trust on Psychological Safety and Job Satisfaction.
Journal of behavioral and applied management, 23(1), 29-41.
doi: 10.21818/001c.73642

Nembhard, I. M., & Edmondson, Amy C. (2012)
Psychological Safety: A Foundation for Speaking Up, Collaboration, and Experimentation in Organizations.
The Oxford handbook of positive organizational scholarship. Oxford: Oxford University Press, 491–504.
doi: 10.1143/oxfordhb/9780199734610.013.0037

Newman, A., Donohue, R., & Eva, N. (2017). Psychological safety: A systematic review of the literature.
Human resource management review, 27(3), 521-535.
doi: 10.1016/j.hrmr.2017.01.001

Nitzl, C., Roldan, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models.
Industrial management + data systems, 2016, 116 (9), 1849-1864.

doi: 10.1108/IMDS-07-2015-0302

Oba, D., & Berger, J. (2023). How communication media shape the message.
Journal of consumer psychology
doi: 10.1002/jcpy.1372

Oh, S-H. D., Dong, L., Nahm, A.Y., & Yu, G-H. (2023). Fostering innovation and involvement among Korean workers in problem solving through trust and psychological safety: the role of paradoxical leader behaviours.
Asia Pacific business review, 29(3), 701-718.
doi: 10.1080/13602381.2021.1941529

O'Neill, D., Benzeval, M., Boyd, A., Calderwood, L., Cooper, C., Corti, L., Dennison, E., Fitzsimons, E., Goodman, A., Hardy, R., Inskip, H., Molloy, L., Sacker, A., Sudlow, A., Sullivan, A., & Park, A. (2019). Data Resource Profile: Cohort and Longitudinal Studies Enhancement Resources (CLOSER).
International journal of epidemiology, 48(3), 675-676i.
doi: 10.1093/ije/dyz004

Ong, A. D., & Weiss, D. J. (2006). The impact of anonymity on responses to sensitive questions.
Journal of Applied Social Psychology, 30(8), 1691-1708.
doi: 10.1111/j.1559-1816.2000.tb02462.x

Parker, K., Horowitz, J., & Minkin, R. (2022). COVID-19 Pandemic Continues To Reshape Work in America.
Pew Research Center. Retrieved through: https://www.pewresearch.org/social-trends/2022/02/16/covid-19-pandemic-continues-to-reshape-work-in-america/

Qiu, F., & Dauth, T. (2022). Virtual work intensity, job satisfaction, and the mediating role of work-family balance: A study of employees in Germany and China.
German Journal of Human Resource Management, 36(1), 77-111.
doi: 10.1177/2397002221998227

Ramasubramanian, S., & Murphy, C. J. (2014). Experimental Studies of Media Stereotyping Effects.
Laboratory Experiments in the Social Sciences, 2, 385-402.
doi: 10.1016/B978-0-12-404681-8.00017-0

Richnau, M., & Sjölander, L. (2021). In Teams We Trust - A Qualitative Study Exploring Industrial Differences in Virtual Team Trust.
Stockholm School of Economics. Retrieved through: SSE Library

Rivera, M. (2022). Team Virtuality and Psychological Safety: An Experiment.
University of Central Florida. Retrieved through: https://stars.library.ucf.edu/etd2020/1082/

Robertson, R., Gockel, C., & Brauner, E. (2013). Trust your teammates or bosses? Differential effects of trust on transactive memory, job satisfaction, and performance.
Employee relations, 35(2), 222-242.
doi: 10.1108/01425451311287880

Rubin, S., & Svensson, W. (2022). Creativity in the 21st Century - Exploring Differences in Creative Virtual and Face-to-Face Meetings.
Stockholm School of Economics. Retrieved through: SSE Library.

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students 8th Ed. [Book].
Pearson Education, Limited. Retrieved through: Amazon.com

Schein, E. H., & Bennis, W. G. (1965). Personal and Organizational Change Through Group Methods: The Laboratory Approach. New York, NY: Wiley. [Book]
doi: 10.1177/074171366701700211

Schielzeth, H., Dingemanse, N. J., Nakagawa, S., Westneat, D. F., Allegue, H., Teplitsky, C., Réale, D., Dochtermann, N. A., Garamszegi, L. Z., Araya-Ajoy, Y. G., Sutherland, C., &

Sutherland, C. (2020). Robustness of linear mixed-effects models to violations of distributional assumptions.
Methods in ecology and evolution,11(9), 1141-1152.
doi: 10.1111/2041-210X.13434

Senge, M. P. (1990). The Fifth Discipline: The Art & Practice of The Learning Organization (1st edition) [Book].
The Crown Publishing Group. Retrieved through: SSE Library.

Sha, M., & Immerwahr, S. (2018). Survey translation: Why and how should researchers and managers be engaged?
Survey Practice, 11(2), 1-10.
doi: 10.29115/SP-2018-0016

Shamir, B., & Lapidot, Y. (2003). Trust in Organizational Superiors: Systemic and Collective Considerations.
Organization studies, 24(3), 463-491.
doi: 10.1177/0170840603024003912

Sheer, V. C. (2020). Media Richness Theory.
John Wiley & Sons.
doi: 10.1002/9781119011071.iemp0118

Siegrist, M. (2010). Trust and Confidence: The Difficulties in Distinguishing the Two Concepts in Research.
Risk Analysis, 30 (7), 1022-1024.
doi: 10.1111/j.1539-6924.2010.01454.x

Siemsen, E., & Roth, A. V., Balasubramanian, S., & Anand, G. (2009). The Influence of Psychological Safety and Confidence in Knowledge on Employee Knowledge Sharing.
Manufacturing & service operations management, 11(3), 429-447.
doi: 10.1287/msom.1080.0233

Singh, B., Winkel, D. E., & Selvarajan, T. T. (2013). Managing diversity at work: Does psychological safety hold the key to racial differences in employee performance?: Getting diversity at work to work.
Journal of occupational and organizational psychology, 86, 242-263.
Retrieved through: SSE Library

Spencer, S. J., Zanna, M. P. & Fong, G. T. (2005). Establishing a Causal Chain: Why Experiments Are Often More Effective Than Mediational Analyses in Examining Psychological Processes.
Journal of Personality and Social Psychology, 89(6), 845–851.
doi: 10.1037/0022-3514.89.6.845

Staples, D. S., & Webster, J. (2008). Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams.
Information systems journal (Oxford, England), 18(6), 617-640.
doi: 10.1111/j.1365-2575.2007.00244.x

Szeqc, J. (2014). Selected Success Factors of Virtual Teams: Literature Review and Suggestions for Future Research.
International Journal of Management and Economics, 38(1), 67-83.
doi: 10.2478/ijme-2014-0015

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education.
Research in science education (Australasian Science Education Research Association), 48(6), 1273-1296.
doi: 10.1007/s11165-016-9602-2

Tapas, K. R., & Pana-Cryan, R. (2021). Work Flexibility and Work-Related Well-Being.
International journal of environmental research and public health, 18, 3254.
doi: 10.3390/ijerph18063254

Tanis, M., & Postmes, T. (2005). Short communication a social identity approach to trust: Interpersonal perception, group membership and trusting behaviour.
European journal of social psychology, 35(3), 413-424.
doi: 10.1002/ejsp.256

Tesfa, G. (2013). Lack of Transparency: The Darkness That Leads to Failure.
Academia.edu. Retrieved through:
https://www.academia.edu/4773490/Lack_of_Transparency_The_Darkness_That_Leads_to_Failure

Tkalich, A., Smite, D., Andersen, N. H., & Moe, N. B. (2022). What Happens to Psychological Safety When Going Remote?
IEEE software, 1-9.
doi: 10.1109/MS.2022.3225579

Triplett, S. M., & Loh, J. M. I. (2018). The moderating role of trust in the relationship between work locus of control and psychological safety in organisational work teams.
Australian journal of psychology, 70(1), 76-84.
doi: 10.1111/ajpy.12168

Tummers, L. G., & Bakker, A. B. (2021). Leadership and Job Demands-Resources Theory: A Systematic Review.
Frontiers in Psychology, 12(722080).
doi: 10.3389/fpsyg.2021.722080

Tynan, R. (2005). The Effects of Threat Sensitivity and Face Giving on Dyadic Psychological Safety and Upward Communication.
Journal of applied social psychology, 35(2), 223-247.
dio: 10.1111/j.1559-1816.2005.tb02119.x

Van Der Vegt, G.S., & Bunderson, J. S. (2005). Learning and Performance in Multidisciplinary Teams: The Importance of Collective Team Identification.
Academy of Management journal, 48(3), 532-547.

doi: 10.5465/amj.2005.17407918

Van Dick, R., van Knippenberg, D., Kerschreiter, R., Hertel, G., & Wieseke, J. (2008). Interactive effects of work group and organizational identification on job satisfaction and extra-role behavior.
Journal of vocational behavior, 72(3), 388-399.
doi: 10.1016/j.jvb.2007.11.009

Van Zoonen, W., & Sivunen, A. E. (2022). The impact of remote work and mediated communication frequency on isolation and psychological distress.
European journal of work and organizational psychology, 31(4), 610-621.
doi: 10.1080/1359432X.2021.2002299

Vealey, K. P. (2016). The Shape of Problems to Come: Troubleshooting Visibility Problems in Remote Technical Communication.
Journal of technical writing and communication, 46(3), 284-310.
doi: 10.1177/0047281616639478

Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations.
Human Resource Management Review, *27*(4), 569-574.
doi:10.1016/j.hrmr.2016.12.004

Walther, J. B., & Burgon, J. K. (1992). Relational Communication in Computer-Mediated Interaction.
Human communication research, 19(1), 50-88.
doi: 10.1111/j.1468-2958.1992.tb00295.x

Walther, J. B., & Tong, S. T. (2014). Inventing Partners in Computer-Mediated Communication: How CMC Sustains Self-fulfilling Prophecies and Relational Attributions. In: Meiselwitz, G. (eds) Social Computing and Social Media.
Lecture Notes in Computer Science, 8531, 517-527.
doi: 10.1007/978-3-319-07632-4_49

Walther, J. B., Van Der Heide, B., Ramirez, A., Burgoon, J. K., & Pena, J. (2015). Interpersonal and hyperpersonal dimensions of computer-mediated communication. *The handbook of the psychology of communication technology, 1st Ed. [Book]*, 3-22. Retrieved through: https://www.researchgate.net/publication/303150934_Interpersonal_and_hyperpersonal_dimensions_of_computer-mediated_communication

Walumbwa, F. O., & Schaubroeck, J. (2009) Leader Personality Traits and Employee Voice Behavior: Mediating Roles of Ethical Leadership and Work Group Psychological Safety. *Journal of applied psychology*, 94(5), 1275-1286. doi: 10.1037/a0015848

Wang, M., Beal D. J., Chan, D., Newman D. A., Vancouver, J. B., & Vandenberg, R.J. (2017). Longitudinal Research: A Panel Discussion on Conceptual Issues, Research Design, and Statistical Techniques. *Work, Aging and Retirement*, 3(1), 1–24. doi: 10.1093/workar/waw033

Wells, J., Scheibein, F., Pais, L., Rebelo dos Santos, N., Dalluege, C. A., Czakert, J. P., & Berger, R. (2023). A Systematic Review of the Impact of Remote Working Referenced to the Concept of Work–Life Flow on Physical and Psychological Health. *Workplace Health & Safety*, 71(11), 507-521. doi: 10.1177/21650799231176397

Welter, F. (2012). All you need is trust? A critical review of the trust and entrepreneurship literature. *International small business journal*, 30(3), 193-212. doi: 10.1177/0266242612439588

Williams, M. (2001). In whom we trust: Group membership as an affective context for trust development. *The Academy of Management review*, 26(3), 377-396.

doi: 10.5465/AMR.2001.4845794

Yi, H., Hao, Po., Yang, B., & Liu, W. (2017). How Leaders' Transparent Behavior Influences Employee Creativity: The Mediating Roles of Psychological Safety and Ability to Focus Attention.
Journal of leadership & organizational studies, 24(3), 335-344.
doi: 10.1177/1548051816670306

Yin, J., Ma, Z., Yu, H., Jia, M., & Liao, G. (2020). Transformational leadership and employee knowledge sharing: explore the mediating roles of psychological safety and team efficacy.
Journal of knowledge management, 24(2), 150-171.
doi: 10.1108/JKM-12-2018-0776

Zalesny, M. D., & Ford, J. K. (1990). Extending the social information processing perspective: New links to attitudes, behaviors, and perceptions.
Organizational behavior and human decision processes, 47(2), 205-246.
doi: 10.1016/0749-5978(90)90037-A

Zdaniuk, B. (2014). Ordinary Least-Squares (OLS) Model.
Michalos, A.C. (eds) Encyclopedia of Quality of Life and Well-Being Research, 4515.
doi: 10.1007/978-94-007-0753-5_2008

Zhang, Y., Fang, Y., Wei, K., & Chen, H. (2010). Exploring the role of psychological safety in promoting the intention to continue sharing knowledge in virtual communities.
International journal of information management, 30(5), 425-436.
doi: 10.1016/j.ijinfomgt.2010.02.003

Appendices

Appendix 1: Survey (English & Swedish)

(Code Name) **Question** • Question 1 • Question 2 … **English Version**	**(Code Name)** **Question** • Question 1 • Question 2 … **Swedish Version**
We invite you to take part in this survey, which is a component of a research project conducted by Adam Hofvander and Edwin Hydén Karlsson, students at the Stockholm School of Economics. This research aims to examine employees' perceptions of Psychological Safety and Trust within their workgroups, particularly in relation to communication methods. The findings from this survey will contribute to our bachelor thesis in Management and will be shared with the public upon its completion. Completing the survey should take approximately 5 minutes, and it comprises multiple-choice questions. Your valuable input is greatly appreciated. Information regarding data protection: All information shared in this survey is strictly anonymous and confidential. The thesis based on this survey will not contain any information that could lead to participants being identified. Your employer will not be able to identify you as a participant. Participation in this survey is voluntary and can be canceled at any time. At cancellation of participation, your data will be deleted permanently. All data is stored and managed in a secure way by the Stockholm School of Economics and will be	Vi inbjuder dig att delta i denna undersökning, som är en del av ett forskningsprojekt utfört av Adam Hofvander och Edwin Hydén Karlsson, studenter vid Handelshögskolan i Stockholm. Målet med denna forskning är att undersöka anställdas uppfattningar om Psykologisk Trygghet och Förtroende/Tillförlitlighet inom deras arbetsgrupper, särskilt med avseende på kommunikationsmetoder. Resultaten från denna undersökning kommer att bidra till vår kandidatuppsats inom ledarskap och kommer att delas med allmänheten efter avslutat arbete. Undersökningen tar cirka 5 minuter att fylla i och den består av flervalsfrågor. Ditt värdefulla bidrag uppskattas mycket. Information om dataskydd: All information som delas i denna undersökning är anonym och konfidentiell. Uppsatsen som kommer att baseras på denna undersökning kommer inte innehålla någon information som kan leda till att deltagare identifieras. Din arbetsgivare kommer inte kunna identifiera dig som deltagare. Deltagande i denna undersökning är frivilligt och kan avbrytas när som helst. Vid avbrytande av deltagande kommer din data att raderas permanent. All data lagras och hanteras på ett säkert sätt av

permanently deleted after completion of the project. No personal data will be published. If you want to read more about how the Stockholm School of Economics enforces your rights according to GDPR, please visit https://www.hhs.se/gdpr	Handelshögskolan i Stockholm och kommer att raderas permanent efter projektets avslutande. Ingen personlig information kommer att publiceras. Om du vill läsa mer om hur Handelshögskolan i Stockholm säkerställer dina rättigheter enligt GDPR, besök gärna https://www.hhs.se/gdpr
(GDPR) I have read the information regarding data protection and agree to participate in the study. ● Yes, continue to the study. ● No thanks, I do not want to.	(GDPR) Jag har läst informationen om dataskydd och samtycker till att delta i studien. • Ja, fortsätt till enkäten • Nej tack, jag vill inte fortsätta med enkäten
(Location of Work) Since we are investigating the relationship between remote work and Psychological Safety, it is necessary for the participant in this survey to have the opportunity to carry out the work remotely as well as in-office. This leads to the question: Do you have the opportunity to perform work-tasks physically as well as remotely? ● Yes ● No	(Arbetsplats) Eftersom vi undersöker sambandet mellan distansarbete och psykologisk trygghet, är det nödvändigt att deltagaren i denna undersökning har möjlighet att utföra arbetet på distans såväl som på kontoret. Detta leder till följande fråga: Har du möjlighet att utföra arbetsuppgifter fysiskt såväl som på distans? • Ja • Nej
(Age) What is your age? • 18-29 • 30-39 • 40-49 • 50-59 • 60-69 • 70+	(Ålder) Hur gammal är du? • 18-29 • 30-39 • 40-49 • 50-59 • 60-69 • 70+

(Workgroup Size) How big is your closest workgroup (including yourself)? *If you work an equal amount in several groups, please choose one of them.* • 2 people • 3-4 people • 5-9 people • 10+ people	(Arbetsgrupps-storlek) Hur stor är din närmaste arbetsgrupp (inklusive dig själv)? *Om du arbetar lika mycket i flera olika grupper, vänligen välj en av dem.* • 2 människor • 3-4 människor • 5-9 människor • 10+ människor
Section 2: Work Settings The following questions concern the contact with your closest workgroup during the past month. Only include the time you have spent interacting with this workgroup and not communication with people outside your workgroup or independent work. Choose the option that best suits your experience. If no alternative suits you, choose the alternative closest to your experience.	**Del 2: Arbetsförhållanden** Följande frågor gäller din kontakt med din närmaste arbetsgrupp under den senaste månaden. Inkludera endast den tid du har spenderat på interaktion med denna arbetsgrupp och inte kommunikation med personer utanför din arbetsgrupp eller oberoende arbete. Välj det alternativ som bäst beskriver din upplevelse. Om inget alternativ passar dig, välj det alternativ som ligger närmast din upplevelse.
When interacting with your closest workgroup during the past month, how much have you used the following types of communication? • Never • Less than 1 hour per workday • 1-2 hours per workday • 3+ hours per workday *One Answer per alternative below* ● *Face-to-face* (meetings and conversations at a physical office) - Code Name: *F2F* ● *Video meetings with both sound and image* (Zoom, Teams)	När du har interagerat med din närmaste arbetsgrupp under den senaste månaden, hur mycket har du använt följande typer av kommunikation? • Aldrig • Mindre än 1 timme per dag • 1-2 timmar per dag • 3+ timmar per dag *Ett svar per nedanstående alternativ* ● *Fysiskt arbeten* (möten och konversationer på din fysiska arbetsplats) - *F2F* ● *Videomöten med både ljud och bild*

- Code Name: *VC* ● *Phone calls or digital meetings with only sound* - Code Name: *CWA* ● *Text-based communication* (email, chat, sms, Slack) - Code Name: *TC*	(t.ex Zoom & Teams) - *VC* ● *Telefonsamtal eller digitala möten med bara ljud* - CWA ● *Textbaserad kommunikation* (email, chat, sms, slack, etc.) - TC
The following questions concern the contact with your closest workgroup during the past month.	Följande frågor berör den kontakt du haft med din närmaste arbetsgrupp under den senaste månaden.
Section 3: Psychological Safety Rate to what extent you agree with the following statements (One answer per question below).	**Del 3: Psykologisk Trygghet** Betygsätt i vilken utsträckning du håller med om följande påståenden (Ett svar per fråga nedan).
PS_1(R) *If you make a mistake on this team, it is often held against you*. ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_1(R) *Om du begår ett misstag i ditt arbetslag hålls det ofta emot dig.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
PS_2 *Members of this team are able to bring up problems and tough issues.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_2 *Medlemmar i ditt arbetslag kan samtala om problem och svåra ämnen.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
PS_3(R) *People on this team sometimes reject others for being different.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree ●	PS_3(R) *Det händer att personer i ditt arbetslag utesluter andra för att de är annorlunda.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt

PS_4 *It is safe to take a risk on this team.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_4 *Det är tryggt att ta risker i ditt arbetslag.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
PS_5(R) *It is difficult to ask other members of this team for help.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_5(R) *Det är svårt att be andra medlemmar i ditt arbetslag om hjälp.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
PS_6 *No one on this team would deliberately act in a way that undermines my efforts.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_6 *I ditt arbetslag skulle ingen avsiktligt agera på ett sätt som underminerar dina ansträngningar.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
PS_7 *Working with members of this team, my unique skills and talents are valued and utilized.* ● Strongly Disagree ● Disagree ● Neutral ● Agree ● Strongly Agree	PS_7 *Dina unika färdigheter och talanger värdesätts och tas till vara när du arbetar med medlemmar i ditt arbetslag.* ● Håller inte alls med ● Håller inte med ● Neutral ● Överensstämmer ● Överensstämmer helt
Part 4: Trust Rate to what extent you agree with the following statements (One answer per question below).	**Del 4: Tillförlitlighet** Betygsätt i vilken utsträckning du håller med om följande påståenden (Ett svar per fråga nedan).
Trust_1 *I am able to count on my team members for help if I have difficulties with my job.* ● Strongly Disagree ● Disagree ● Neutral ● Agree	Trust_1 *Jag kan lita på medlemmarna från mitt arbetslag för hjälp om jag har svårigheter med mitt jobb.* ● Håller inte alls med ● Håller inte med ● Neutral

• Strongly Agree	• Överensstämmer • Överensstämmer helt
Trust_2 *I am confident that my team members will take my interests into account when making work-related decisions.* • Strongly Disagree • Disagree • Neutral • Agree • Strongly Agree	Trust_2 *Jag är övertygad om att medlemmarna från mitt arbetslag kommer att ta hänsyn till mina intressen när de fattar arbetsrelaterade beslut.* • Håller inte alls med • Håller inte med • Neutral • Överensstämmer • Överensstämmer helt
Trust_3 *I am confident that my team members will keep me informed about issues that concern my work.* • Strongly Disagree • Disagree • Neutral • Agree • Strongly Agree	Trust_3 *Jag är övertygad om att medlemmarna från mitt arbetslag kommer hålla mig informerad om problem eller frågor som angår mitt arbete.* • Håller inte alls med • Håller inte med • Neutral • Överensstämmer • Överensstämmer helt
Trust_4 *I can rely on my team members to keep their word.* • Strongly Disagree • Disagree • Neutral • Agree • Strongly Agree	Trust_4 *Jag kan lita på att medlemmarna från mitt arbetslag håller sina löften.* • Håller inte alls med • Håller inte med • Neutral • Överensstämmer • Överensstämmer helt
Trust_5 *I trust my team members.* • Strongly Disagree • Disagree • Neutral • Agree • Strongly Agree	Trust_5 *Jag litar på medlemmarna från mitt arbetslag.* • Håller inte alls med • Håller inte med • Neutral • Överensstämmer • Överensstämmer helt
Control_Q *What has the theme of this survey been?* • Time spent online • Virtual work and its effect on psychological safety and trust	Control_Q Vad har temat för enkäten varit? • Tid som spenderats online • Distansarbete och dess effekt på psykologisk trygghet & tillit

• Affection for your work	• Tillgivenhet för ditt arbete

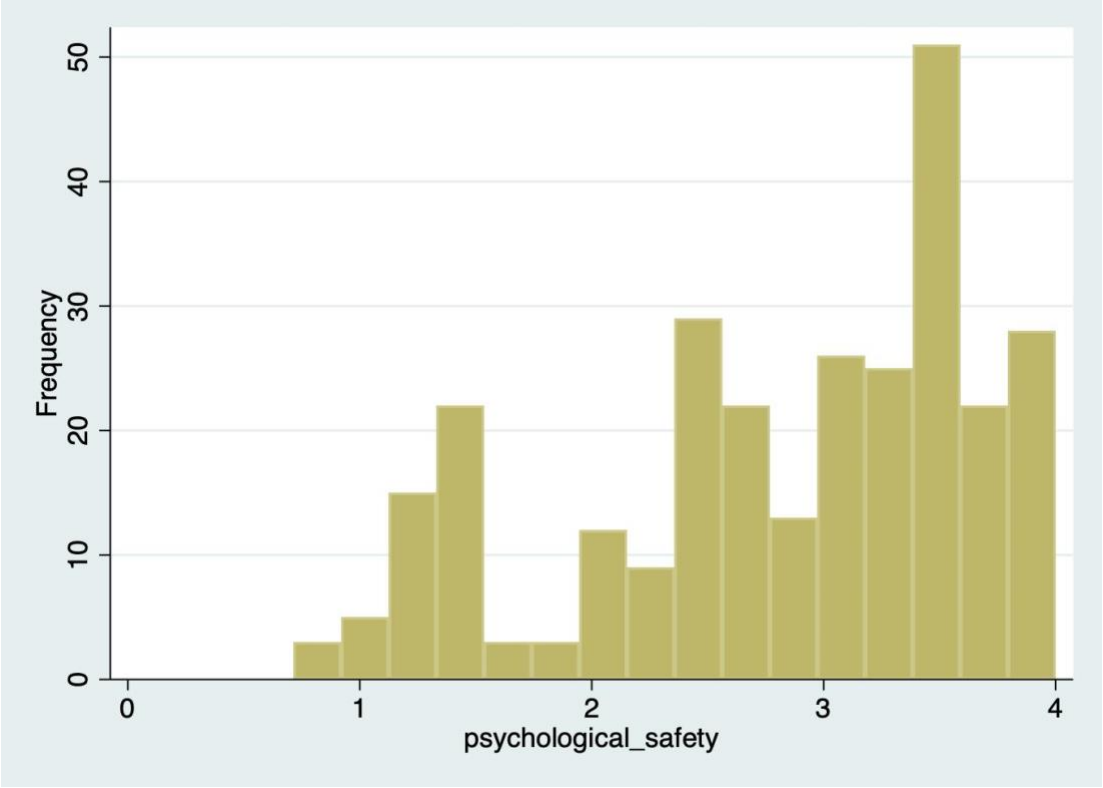
Appendix 2: Code Specifics

Variable Name	Variable Type	Coding
Age	Ordinal	18-19 = 0 30-39 = 1 40-49 = 2 50-59 = 3 60-69 = 4 70+ = 5
Workgroup Size	Ordinal	2 people = 0 3-4 people = 1 5-9 people = 2 10+ people = 3
Company Control	Categorical	Company A = 0 Company B = 1 Company C = 2 Company D = 3 Company E = 4
Time F2F	Ordinal	Never = 0 Less than 1 hour per workday = 1 1-2 hours per workday = 2 3+ hours per workday = 3
Time VC	Ordinal	Never = 0 Less than 1 hour per workday = 1 1-2 hours per workday = 2 3+ hours per workday = 3
Time CWA	Ordinal	Never = 0 Less than 1 hour per workday = 1 1-2 hours per workday = 2 3+ hours per workday = 3
Time TC	Ordinal	Never = 0 Less than 1 hour per workday = 1 1-2 hours per workday = 2 3+ hours per workday = 3
PS variables positive variables, e.g PS_2	Ordinal	Strongly Disagree = 1 Disagree = 2

		Neutral = 3 Agree = 4 Strongly Agree = 5
PS reversed positive variables, e.g PS_1(R)	Ordinal	Strongly Agree = 1 Agree = 2 Neutral = 3 Disagree = 4 Strongly Disagree = 5
Psychological Safety (Aggregate Mean)	Ordinal	$\frac{PS\_1(r) + PS\_2 + PS\_3(r) + PS\_4 + PS\_}{7}$
Trust Variables, e.g. Trust_1	Ordinal	Strongly Disagree = 1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5
Trust (Aggregate Mean)	Ordinal	$\frac{Trust\_1 + Trust\_2 + Trust\_3 + Trus}{5}$

Appendix 3. OLS Assumptions

3.1 Histogram for Normality Checking of DV



3.2 Breusch-Pagan Test for Homoscedastic Errors

	Psychological Safety
Chi2(1)	2.55
Prob Chi(1) > Chi (2)	0.1102

H_0 Homoscedasticity is present

3.3 VIF-Test for Multicollinearity

VARIABLE	**VIF**	**1/VIF**
Face-to-Face	1.244	.804
Text Communication	1.233	.811
Video Conferencing	1.226	.816
Calls with Audio	1.150	.87
Age	1.048	.954
Workgroup Size	1.026	.975
Mean VIF	1.366	.

3.4 OLS (Non-Parametric) Bootstrapping for Validification

	Observed		Bootstrap			Normal-based
Psychological Safety	coefficient	std.	err.	z	P>z	[95% Conf. Int.
Face-to-Face	0.308	0.054	5.700	0.000	0.201	0.412
Video Conferencing	0.384	0.048	7.930	0.000	0.285	0.471
Calls without Video	-0.114	0.060	-1.830	0.067	-0.226	0.008
Text Communication	0.027	0.060	0.450	0.655	-0.091	0.144
Constant	1.573	0.175	8.970	0.000	1.230	1.917
Workgroup Size	0.043	0.050	0.860	0.388	-0.055	0.141
Age	0.038	0.042	0.900	0.367	-0.044	0.120

Number of obs = 288
Replications = 1,000
Wald chi2(7) = 224.92
Prob > chi2 = 0.0000
R-squared = 0.3914
Adj R-squared = 0.3762
Root MSE = 0.6818

Appendix 4. Matrices of Correlation

4.1 Control Variables Correlations

Variables	(1)	(2)
(2) Age	0.023	1.000
(3) Work_Group_Size	0.005	0.062

4.2 Independent (MR) Variables Correlations

Variables	(1)	(2)	(3)	(4)
(1) Face-to-Face	1.000			
(2) Video Conferencing	0.352	1.000		
(3) Calls with Audio	0.162	0.012	1.000	
(4) Text Communication	0.220	0.269	0.321	1.000

4.3 Dependent (PS) Variables Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) PS_1(R)	1.000						
(2) PS_2	0.717	1.000					
(3) PS_3(R)	0.678	0.654	1.000				
(4) PS_4	0.718	0.701	0.622	1.000			
(5) PS_5(R)	0.583	0.521	0.561	0.501	1.000		
(6) PS_6	0.583	0.606	0.585	0.588	0.483	1.000	
(7) PS_7	0.750	0.693	0.655	0.753	0.565	0.584	1.000

4.4 Mediator (Trust) Variables Correlations

Variables	(1)	(2)	(3)	(4)	(5)
(1) trust_1	1.000				
(2) trust_2	0.605	1.000			
(3) trust_3	0.640	0.607	1.000		
(4) trust_4	0.661	0.648	0.728	1.000	
(5) trust_5	0.747	0.689	0.737	0.810	1.000

4.5 Independent (MR) and Mediation (Trust) Variables Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Face-to-Face	1.000								
(2) Video Conferencing	0.352	1.000							
(3) Calls with Audio	0.162	0.012	1.000						
(4) Text Communication	0.220	0.269	0.321	1.000					
(5) Trust_1	0.398	0.394	-0.018	0.095	1.000				
(6) Trust_2	0.365	0.490	-0.043	0.093	0.605	1.000			
(7) Trust_3	0.472	0.396	-0.023	0.082	0.640	0.607	1.000		
(8) Trust_4	0.465	0.441	0.022	0.186	0.661	0.648	0.728	1.000	
(9) Trust_5	0.475	0.500	0.099	0.190	0.747	0.689	0.737	0.810	1.000

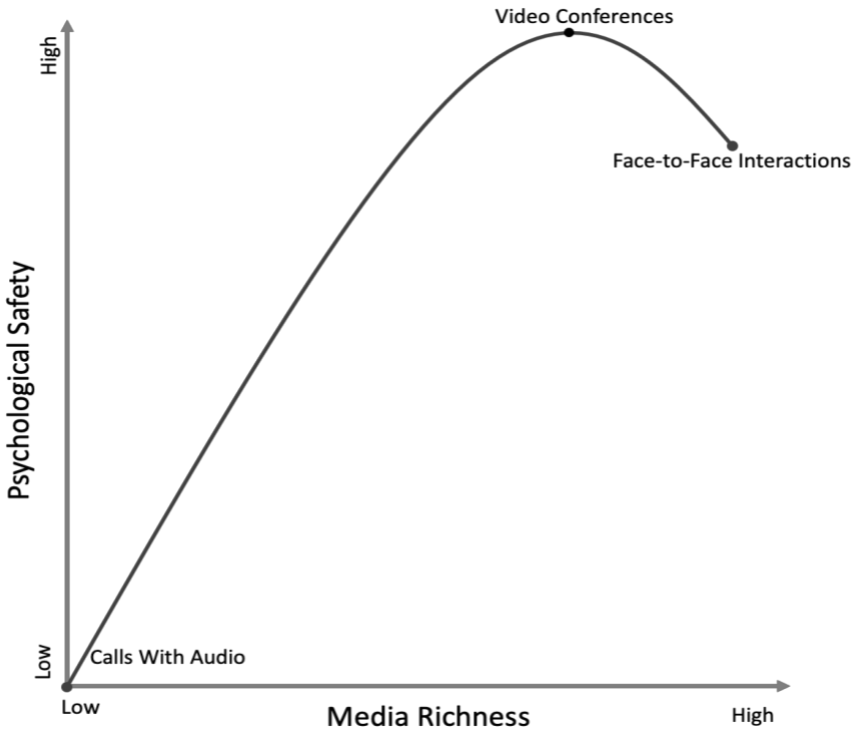
4.6 PS and Trust Variables Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) PS_1(R)	1.000											
(2) PS_2	0.717	1.000										
(3) PS_3(R)	0.678	0.654	1.000									
(4) PS_4	0.718	0.701	0.622	1.000								
(5) PS_5(R)	0.583	0.521	0.561	0.501	1.000							
(6) PS_6	0.583	0.606	0.585	0.588	0.483	1.000						
(7) PS_7	0.750	0.693	0.655	0.753	0.565	0.584	1.000					
(8) Trust_1	0.676	0.682	0.653	0.685	0.562	0.555	0.710	1.000				
(9) Trust_2	0.636	0.680	0.580	0.729	0.444	0.585	0.729	0.605	1.000			
(10) Trust_3	0.706	0.638	0.615	0.579	0.571	0.518	0.721	0.640	0.607	1.000		
(11) Trust_4	0.708	0.690	0.714	0.668	0.530	0.597	0.717	0.661	0.648	0.728	1.000	
(12) Trust_5	0.752	0.712	0.740	0.708	0.569	0.618	0.783	0.747	0.689	0.737	0.810	1.000

Appendix 5: Cronbach's Alpha of PS

Item	Obs	Sign	Item-Test Correlation	Item-Test Correlation	Average Interim Correlation	Alpha
PS_1(R)	288	+	0.8728	0.8199	0.6047	0.9017
PS_2	288	+	0.8488	0.7874	0.6139	0.9051
PS_3(R)	288	+	0.8252	0.7556	0.6230	0.9084
PS_4	288	+	0.8474	0.7855	0.6144	0.9053
PS_5(R)	288	+	0.7311	0.6328	0.6591	0.9206
PS_6	288	+	0.7687	0.6812	0.6447	0.9159
PS_7	288	+	0.8677	0.8677	0.6066	0.9025
Test Scale					0.6238	0.9203

Appendix 6: Visualization of Inverted U-Shape Relationship



NB! Note that this is only a visual aid to help understand the intricate empirics and does not suggest that these are the exact proportions of the MR-PS relationship

Appendix 7: ANOVA Post Hoc

Pairwise comparisons of means with equal variances

Over: Company (A,B,C,D,E) Number of comparisons 10						
			Tukey		Tukey	
Psychological Safety	Contrast	Std. er	t	P>t	[95% conf.	interval]
A vs B	-.229175	.1362969	-1.68	0.447	-.6033708	.1450207
A vs C	.1608976	.1214507	1.32	0.676	-.1725388	.494334
A vs D	-1.020018	.1130837	-9.02	0.000	-1.330483	-.7095521
A vs E	-1.079175	.1362969	-7.92	0.000	-1.453371	-.7049792
B vs C	.3900726	.1412034	2.76	0.048	.0024063	.777739
B vs D	-.7908425	.1340748	-5.90	0.000	-1.158938	-.4227472
B vs E	-.85	.1541589	-5.51	0.000	-1.273235	-.426765
C vs D	-1.180915	.1189517	-9.93	0.000	-1.507491	-.8543397
C vs E	-1.240073	.1412034	-8.78	0.000	-1.627739	-.8524062
D vs E	-.0591575	.1340748	-0.44	0.992	-.4272528	.3089378

H_0 = Means are equal

Appendix 8: Miscellaneous Company Info

Company	Industry	Firm Size (FTE)	Number of Included Respondants	Response Rate	Average Working Tenure (years)
Company A	Consulting & Recruiting (CR)	130	72	55%	7.0
Company B	Consulting Research Center (CR)	91	40	44%	7.5
Company C	HR-Management (HR)	148	59	40%	3.5
Company D	Management Consultants (MC)	83	39	47%	3.5
Company E	Management Consultants (MC)	185	78	42%	4.5
Mean Total		637	288	45%	5.2

Appendix 9: Company Means (PS)

Company Variable	Sample Mean ($\bar{x}$)
Company A (CR)	4.243461
Company B (RC)	4.014286
Company C (HR)	4.404358
Company D (MC)	3.223443
Company E (MC)	3.164286

Appendix 10: Reversed Mediation Model

Regression (#)	(5)	(6)
VARIABLES	Trust	Trust
Face-to-Face		0.0636**
		(0.0248)
Video Conferencing		0.0420
		(0.0259)
Calls with Audio		0.0384
		(0.0266)
Text Communication		-0.0444
		(0.0293)
Psychological Safety	0.858***	0.811***
	(0.0230)	(0.0286)
Workgroup Size	-0.000996	-0.00565
	(0.0241)	(0.0239)
Age	0.0426**	0.0344*
	(0.0191)	(0.0192)
Constant	0.308***	0.332***
	(0.0822)	(0.0889)
Observations	288	288
R-squared	0.835	0.844

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

NB!

For step 1 in the Baron & Kenny Reversed Mediation Process, please see Regression (2), *Table 6*, in seduction 5.3.2

For step 2, revert to Regresion 1, *Table 5*, section 5.2.1