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Methods to Increase Member Engagement in International Problem-Solving Meetings

Recommendations for Leaders

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Dedication

This work is dedicated to my family in Florida, my wife, and my son. This work represents a culmination of everyone's sacrifice and support. It is dedicated to my dog who missed out on lots of walks with me because I was studying in my free time. Most of all it is dedicated to my father, who always encouraged me. He sadly passed, while I was in pursuit of this degree. I will do my best to make him proud, and to raise my son to be a strong man like he was.

Abstract

Methods to Increase Member Engagement in International Problem-Solving Meetings

In the current international business environment employees are spending large amounts of their time in meetings. More than ever these meetings take place remotely and often have the problem that individuals in the meeting do not share information or opinions. Employees often stay in muted in meetings and allow one or two participants to drive the conversation. This habit is especially troublesome for problem solving meetings. Problem solving meetings invite individuals from different disciplines to share and brainstorm possible causes for issues related to poor company outcomes. Active and open contribution from all members is required to achieve the group goals. This study aims to find methods that will increase contribution amongst meeting participants in regular meetings as well as problem solving meetings.

The study tested sixteen topics for their influence on contribution in meetings. This was done in a survey, that was distributed within a multination engineering corporation, and on LinkedIn. There was a total of 68 responses. These responses were then separated by above average and below average participation in problem solving meetings. Hypothesis testing was done on the total group and separately on the problem-solving group. Employee participation in decision making and psychological safety were found to correlate highly with Contribution in meetings for both groups. Psychological safety was found to be of even greater importance to problem solving group. This study demonstrates that to increase contribution in meetings, leaders should provide a psychologically safe climate where employees share in the decision making. Furthermore, a psychologically safe environment is critical in problem solving meetings where members of different disciplines with low familiarity take part.

Kurzreferat

Methoden zur Steigerung des Engagements der Mitglieder bei internationalen Problemlösungssitzungen

In der heutigen internationalen Geschäftswelt verbringen die Mitarbeiter einen großen Teil ihrer Zeit in Besprechungen. Mehr denn je finden diese Besprechungen aus der Ferne statt und haben oft das Problem, dass die einzelnen Teilnehmer keine Informationen oder Meinungen austauschen. Die Mitarbeiter bleiben in den Besprechungen oft stumm und überlassen es einem oder zwei Teilnehmern, das Gespräch zu führen. Diese Angewohnheit ist besonders bei Problemlösungsbesprechungen problematisch. In Problemlösungsbesprechungen werden Personen aus verschiedenen Fachbereichen eingeladen, sich auszutauschen und mögliche Ursachen für Probleme im Zusammenhang mit schlechten Unternehmensergebnissen zu erörtern. Um die Ziele der Gruppe zu erreichen, ist ein aktiver und offener Beitrag aller Mitglieder erforderlich. Ziel dieser Studie ist es, Methoden zu finden, die den Beitrag der Sitzungsteilnehmer in regulären Sitzungen sowie in Problemlösungssitzungen erhöhen.

In der Studie wurden sechzehn Themen auf ihren Einfluss auf den Beitrag in Meetings getestet. Dies geschah im Rahmen einer Umfrage, die in einem multinationalen Maschinenbauunternehmen und auf LinkedIn verteilt wurde. Es gingen insgesamt 68 Antworten ein. Diese Antworten wurden dann nach überdurchschnittlicher und unterdurchschnittlicher Teilnahme an Problemlösungsmeetings unterschieden. Die Hypothesentests wurden für die Gesamtgruppe und separat für die Problemlösungsgruppe durchgeführt. Es wurde festgestellt, dass die Beteiligung der Mitarbeiter an der Entscheidungsfindung und die psychologische Sicherheit in hohem Maße korrelieren mit Beitrag zu den Sitzungen für beide Gruppen. Es wurde festgestellt, dass die psychologische Sicherheit für die Problemlösungsgruppe von noch größerer Bedeutung ist. Diese Studie zeigt, dass Führungskräfte ein psychologisch sicheres Klima schaffen sollten, in dem die Mitarbeiter an der Entscheidungsfindung beteiligt sind, um den Beitrag in Sitzungen zu erhöhen. Darüber hinaus ist ein psychologisch sicheres Umfeld von entscheidender Bedeutung bei Problemlösungssitzungen, an denen Mitglieder verschiedener Disziplinen mit geringer Vertrautheit teilnehmen.

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List of Abbreviations and Symbols

MQL Multifactor Leadership Questionnaire
PDM Participation in Decision Making
PS Psychological Safety

1. Introduction

The aim of this research paper is to investigate the factors that increase or decrease employee contribution in either online or in person meetings. There is an additional focus on contribution in problem solving meetings.

Team decision making and problem solving is key element in most organizations due to the high levels of specialization in the modern work force. The speed and efficiency of a good problem analysis has ramifications for other fields in the organization such as quality control, liability, and total output. Due to the decentralization of many multinational organizations an issue that occurs in one country will be analyzed and investigated by specialists in another. Concepts for new systems and strategies are often discussed by diverse teams, in terms of expertise and culture.

A major hurdle in such teams is effective member engagement and contribution in discussions. Often moderators assemble teams and prompt contribution only to be met with silence. This problem is exaggerated in the online meeting setting. This results in a lengthy discovery process. This lack of contribution could be caused by many factors. If leaders are aware of the main factors the reduce member willingness to provide input, they can work to mitigate them. If leaders are informed about the circumstances that increase employee contribution in discussion settings, they can utilize them.

The problem with finding methods on how to increase contribution, communication, and engagement is that studies generally focus on only one aspect. For example, a study may examine if motivated employees are more engaged. This does not help an individual who wants to examine the effects of all methods and choose the methods that have the most effect. This study intends on sampling all methods to demonstrate which methods has the greatest effect on employees.

The benefits of this research is based on the accelerating trend of decentralizing and offshoring of management, services, and manufacturing. This trend compels international teams to work together and communicate more than the past. The growing field of quality assurance will require strong reliable investigation of quality issues. The increased complexity of supply chains means that equipment changes hands several times before reaching its end location. Design and concept stages may occur in one location, construction and commissioning may occur in another location, and final acceptance and end use may occur in yet another location. This has implications regarding guarantee and repair situations as well as liability in legal proceedings. This increases the importance of cross cultural and international cooperation when investigating the root cause of an issue.

This research would provide leaders with potential solutions to increase member contribution in discussions. This would help to increase the output of meetings and

decrease wasted time. Reducing the wasted time in meetings could yield faster solutions to problems. This research could also have implications in incident reporting in multicultural teams. Early and detailed incident reporting and action can help prevent injury, production losses, and equipment damage.

This report will start with a review of the current literature regarding employee engagement in meetings. It will explore several strategies that may be relevant to increasing or decreasing contribution. Then reasoning will be presented for importance of this thesis, relative to the current literature on the subject.

The literature review is followed by the theoretical foundations of each of the strategies presented. The theoretical foundations stem from several disciplines including psychology, business, and organization theory. The theoretical foundations are followed by the hypothesis that will be tested in this thesis for each category.

Then the methodology, research design and procedure of this thesis is presented. This includes a model, a definition of constructs, and the procedure used in gathering, measuring, and analyzing the information.

The findings of the study will be presented. The results will be discussed and possible reasoning for the results will be presented and reflected upon.

Finally, the conclusion section will present implications on current theory, practical implication for leadership, limitations of the design and study, and recommendations for further research.

2. Literature Review

This thesis intends on finding the causes of low member contribution multicultural meetings. However, most of the literature is framed from the angle of using a method to increase member engagement or performance. There are many articles that identify various means of increasing engagement, performance, teamwork, or motivation. The literature review will focus on those articles, under the assumption that when engagement or performance is increased that contribution may follow.

2.1 Measuring Contribution

There are very few studies that directly measure contribution. A study was found where “oral contribution” was used as a measure for self-efficacy (Prussia et al., 1998). To expand the search to possible methods, questionnaires were examined that measure employee engagement. Tools such as the Utrecht Work Engagement Scale and the Gallup Workplace Audit were considered, but they did not yield information directly related to measuring contribution in meetings. The Table 3 in the Appendix shows the studies that were found and the method they used to measure contribution.

2.2 Topics That Could affect Employee Contribution

2.2.1 Employee Participation in Decision-Making (PDM)

Several Studies have demonstrated that employee participation in decision making (PDM) increases job performance, commitment, job satisfaction, and reduced turnover (Adham, 2014, p. 382; Kofi et al., 2012, p. 22; Muindi, 2011, p. 30; Scott-Ladd et al., 2006, p. 410; Wagner, 1994, p. 326; D. Wickramasinghe & Wickramasinghe, 2012, p. 12; V. Wickramasinghe & Perera, 2014, p. 1290). PDM is also associated with perception of high supervisor support (D. Allen et al., 2003, p. 113; M. W. Allen, 1992, p. 360) . Two studies found that PDM increases engagement, satisfaction, and employee participation (Alsughayir, 2016, p. 68; Appelbaum et al., 2013, p. 226). Specifically in the meeting setting, employee PDM increases post meeting engagement (Yoerger et al., 2015, p. 46). These studies support the concept that making employees aware that their contribution will be valued and utilized, could increase contribution. The Table 4 in the Appendix shows the studies related to PDM in business that were found and considered in this study.

2.2.2 Leadership Styles

In the modern work place leadership spends a majority of time their time preparing for and piloting meetings (Vree, 1999, p. 227). The modern employee spends about 6 hours a week in meetings with a supervisor (Rogelberg et al., 2006, p. 90), and it may be more now since the expansion of online meetings. These trends show the importance of good leadership in meetings. Various authors have already shown that leadership is the core of meeting quality, in terms of efficiency and outcome (J. Allen & Rogelberg, 2013, pp. 562–563; Odermatt et al., 2015, p. 278; Rogelberg et al., 2006, pp. 93–95, 2012, p. 243). The behavior of leaders and their leadership style's effect on employees in meetings has also been investigated (Baran et al., 2012, pp. 345–349; Judge et al., 2004, pp. 43–44; Odermatt et al., 2017, p. 187).

Some have pointed out that leaders facilitate contribution in group meetings to increase employee engagement (J. Allen & Rogelberg, 2013, pp. 562–563). One study compared leadership styles and meeting outcomes, they found that employees prefer considerate and task-oriented leaders, but there was no supporting evidence that it increases meeting effectiveness or employee engagement (Odermatt et al., 2017, p. 187). Supervisor behavior during meetings has been found to be is important for shaping employee perceptions and contribution (Baran et al., 2012, pp. 345–349). Different leadership styles have been studied in relation to meetings, the path goal leadership (House, 1971, pp. 335–337), transformational leadership (Mroz et al., 2020, p. 216) leader member exchange (Zagenczyk et al., 2015, p. 115), discursive leadership (Wodak et al., 2011, pp. 611–612)and shared leadership (Drescher et al., 2014, pp. 777–779). The

Table 5 in the Appendix shows the studies related to Leadership in business that were found and considered in this study.

2.2.3 Psychological Safety (PS)

Psychological Safety (PS) is a growing trend in the study of increasing member and team engagement. PS is defined as "the ability of an individual to openly engage without fear of consequences to their career or self-image." (Kahn, 1990, p. 704). Assorted studies have shown PS is an important indicator of success on the team level (Bendoly, 2014, pp. 1362–1365; Edmondson, 1999a, pp. 375–377; Halbesleben & Rathert, 2008, p. 141; Hirak et al., 2012, pp. 112–114). Many studies have been done on the positive effect of PS on creativity and innovation (Kark & Carmeli, 2009, pp. 776–779; Schaubroeck et al., 2011, pp. 868–870; B. Singh et al., 2013, pp. 255–260; M. Singh & Sarkar, 2012, pp. 132–135). Other studies have focused on learning behavior (Carmeli & Gittel, 2009, pp. 721–724; Edmondson, 1999a, pp. 375–377) . Finally, some studies focused on the positive association between PS and communication, information sharing, and language (Leroy et al., 2012, p. 1279; Mu & Gnyawali, 2003, pp. 702–708; Peltokorpi, 2004, pp. 460–463). The Table 6 in the Appendix shows the studies related to PS in business that were found and considered in this study.

2.2.4 Meeting Mechanics

When discussing contribution in meetings the design, setting, structure, and sequence of the meeting itself needs to be considered. This includes the decisions that need to be made before, during, and after meetings. The first aspect that needs to be considered is that a high meeting frequency is associated with increased employee stress and disinterest (Luong & Rogelberg, 2005, p. 66). Providing at least a general agenda allows participants to come prepared, keeps the meeting well-paced and on tract, and improves discussion (Cohen et al., 2011, p. 101). As well as considering environmental and technical features such as temperature, lighting, and refreshments, and required media (Cohen et al., 2011, p. 101). Functionally diverse groups are better at problem solving because they can draw from many different experiences (Horwitz & Horwitz, 2007, p. 1009). Therefore, consideration should be made on who to invite (Horwitz & Horwitz, 2007, p. 1009). Other considerations include setting clear goals before hand (Leach et al., 2009, p. 75) and make sure that the meeting is relevant to all the people invited (Allison et al., 2015, p. 33).

There has also been a body of research that focuses on the events that occur during meetings. Many studies shown that starting and ending meetings on time increases effectiveness (J. A. Allen et al., 2018, p. 1019; Mroz & Allen, 2017, p. 525; Rogelberg et al., 2014, p. 336) Avoiding distractions in meetings has been found to increase participation (Odermatt et al., 2018, p. 275). Allowing complaining will bring the meeting off track as other participants will join in (Kauffeld & Lehmann-Willenbrock, 2012, p. 146). Mental state is important therefore, “micro-relaxations” such as asking team members about their day to increase member contribution (Frank et al., 2016, p. 1931).

After the meeting it is important to send meeting minutes and prepare agendas for future meetings (Cohen et al., 2011, p. 101) and assess the satisfaction of the participants (Rogelberg et al., 2010, p. 167) . It is also important for leaders to assess the value of routine meetings and if employees are participation (Luong & Rogelberg, 2005, p. 67).

These studies demonstrate the need for the moderator to structure the meeting appropriately for the task. Better structure may increase employee contribution. The Table 7 in the Appendix shows the studies related to Meeting Mechanics in business that were found and considered in this study.

2.2.5 Multicultural Differences

The amount employees contribute in meetings could be effected by culture of origin. This may have many causes. The first is that the amount of contribution expected by employees has a cultural base. The second is that the reasons for not contributing in meetings varies by culture. The third is that meeting in one shared language reduces contribution amongst non-native speakers. The studies below show the link between employ engagement in meetings and culture.

Misunderstandings can arise from misinterpreting the practices of others (Sprain & Boromisza-Habashi, 2012, p. 187). These differences can be found even within western culture. Two authors have noticed cultural and structural differences that effect expectations and perceptions in German and American meetings for example (Köhler et al., 2012, p. 79; Lehmann-Willenbrock et al., 2014, p. 267). Another example of differences between ethnically similar people, are the differences in meeting opening, closing, feedback contribution, and communication in the different indigenous groups of New Zealand (Kell et al., 2007, p. 324). However other researchers have found that caution should be taken in assigning causality to cultural differences for misunderstandings, when other causes such as speech patterns have not been investigated (Poncini, 2007, p. 18). Often people from East Asian groups will change their communication patterns in mixed group meetings containing individuals from individualistic societies (Aritz & Walker, 2010, p. 36). Other

studies have found that mixed multi-cultural teams actually have less internal group conflict, than homogeneous groups (Paletz et al., 2018, p. 12).

Another factor that can heavily effect meeting contribution is the shared language, and the number of non-native speakers in the meeting. This thesis focuses primarily on English meetings, however every day meetings occur in with Chinese, French or Arabic as a shared language among non-native speakers. In one study it was found that about half of non-native English speaking participants in international meetings have trouble understanding accents (Rogerson-Revell, 2007, p. 15) Rogerson-Revell 2010 recommends adjusting accommodating language when speaking English in meetings with non-native speakers and that non-native speakers should be interactive in the exchange (Rogerson-Revell, 2010, p. 452). When English is not well understood in a business meeting, small side conversions in the native language of listener may aid in understanding and serves as a "solidarity building function" in groups of multi-lingual people (Poncini, 2003, pp. 29–30). This can increase contribution and reduce miscommunications. Other methods that can help reduce misunderstandings during meetings in a shared non-native language is claiming common ground, using words common for your industry, and cooperation and reciprocity (Poncini, 2002, pp. 352–359). The Table 8 in the Appendix shows the studies related to culture and language in business that were found and considered in this study.

2.2.6 Motivation

Employee motivation could play a role in employee contribution in meetings. Employees have been found to be more engaged and committed when their basic needs are met (Gagné, 2014, p. 44). Motivation has been linked to increased employee engagement and job commitment (Mangkunegara & Octorend, 2015, p. 327; Moynihan & Pandey, 2007, p. 828; Shaheen & Farooqi, 2014, p. 15)

Furthermore motivation and engagement are often driven by intrinsic rewards such as meaningfulness, choice, competence and progress as well as extrinsic rewards such as pay (ArunKumar, 2014, p. 92; R. Singh, 2016, p. 202; Thomas, 2009, pp. 47–50) . Current studies show that the future work force needs to be motivated with incentives other than a paycheck. They claim that modern workers are motivated by self-development and fostering this will increase engagement (Shuck & Wollard, 2008, p. 51). Also motivation has been found to have larger effect on the engagement of younger workers than older workers (Olson et al., 2014, p. 17).

The link has been made between decision making authority and empowerment to share ideas are motivating factors that increase member contribution (Bhuvanaiah, 2015, p. 95). However, all age groups require intrinsic and extrinsic motivation (Bhuvanaiah, 2015,

p. 95). This reflects the findings in the PDM section. The Table 9 in the Appendix shows the studies related to employee motivation in business that were found and considered in this study.

2.2.7 Confidence and Imposter Syndrome

Employee confidence and Imposter Syndrome could affect contribution in meetings. Employee confidence has been found to be a more important factor in employee engagement, than psychological safety (Siemsen et al., 2009). Employee confidence is linked to higher performance (Chan et al., 2017, p. 25; Cherian & Jacob, 2013, p. 85; Gardner & Pierce, 1998, p. 63; Lyons & Bandura, 2018, p. 2; Prussia et al., 1998, p. 535). Lyons and Bandara 2021 advocate for coaching to increase confidence and contribution of employees (Lyons & Bandura, 2021, pp. 702–703).

The Imposter Syndrome describes the feelings of fraudulence reported by high achieving women (Clance & Imes, 1978, p. 241). Prevalence of imposter syndrome is measured to be between 9% to 82% of employees, this value is heavily influenced by measurement method, population tested, and definition used (Bravata et al., 2020, p. 20)

Imposter Syndrome affects men and women mixed with some studies claiming women are more effected, with other studies saying gender is not a factor (Cusack et al., 2013, p. 77; Parkman, 2016, p. 53). Imposter Syndrome has been found to be more prevalent in goal oriented high preforming individuals (Kumar & Jagacinski, 2006, p. 155). The Table 10 in the Appendix shows the studies related to employee confidence and Imposter Syndrome in business that were found and considered in this study.

2.3 How this research Compliments current literature

Research into meeting contribution presents several angles that complement the literature on meeting science. The first is that employee contribution to meetings is very under studied. Secondly, the studies outlined above often investigate a factor's relevance to employee engagement, satisfaction, and job performance overall and not specifically in the meeting context. The third angle is that the literature tends to focus on the role of one factor and its effect on employee performance and does not investigate the role of many factors. The fourth is that the dimension of spoken language is not considered.

The literature faces a gap in measuring contribution by employees in meetings. The topic of employee contribution is often indirectly studied when measuring employee engagement, but never directly. Several topics related to meetings are studied, but there are no studies that quantify the self-reported amount or frequency of contribution provided

by those who participate in meetings. The purpose of a meeting is information exchange. Either one individual wish to share information with others who provide feedback, or individuals assemble together to share information about a common goal. If there is no information regarding the amount of contribution provided, it is difficult to assess the quality of the information exchange.

The studies outlined above tend to focus on the effect of an independent variable on performance, satisfaction, and commitment overall. They do not test directly how this effect translates to contribution and dialogue between employees and supervisors in meetings. It is possible that a highly satisfied, and high preforming individual does not ever contribute to a meeting.

Multivariable studies are also missing from the literature. There are meta studies available, but there are not many studies that ask employees specifically about the several categories of engagement improving techniques. There is a chance that the best outcome is not a single method, but a combination of the two. There is also the possibility that a combination of the two factors may cancel out the benefits of each.

A gap also exists when relating all of these factors with the added levels of language and culture. There is a possibility that all or none of the factors involved will influence individuals of different cultures. Perhaps certain levels of all these factors are required to help an individual who is attending a meeting in a non-native language contribute. These situations have not been directly tested.

3. Theoretical Framework and Hypotheses

3.1 Participation in Decision Making(PDM)

The theoretical framework behind the positive effect of employee participation in decision-making regarding employee contribution is based in two theories. These theories include Social Exchange Theory (Thibault & Kelly, 1959), and Demand-Control Model (Karasek, 1979). The Social Exchange Theory can be applied to employee PDM to demonstrate that to make the effort to contribute, there needs to be a reciprocal reward. The Demand-Control model describes circumstances where employees would potentially be less likely to contribute.

Social Exchange theory postulates that social behavior is governed by exchanges where people are motivated to gain something of value in exchange for something else (Thibaut & Kelley, 2017, p. 211). This concept can be applied to PDM and by extension to contribution. Essentially contributing during a meeting has certain costs and risks associated with it. These costs and risks include time preparing an idea, a concept, and speaking publicly. The Social Exchange theory (Thibault & Kelly, 1959) states that people will only contribute in such a situation if they feel they will gain from the exchange. If employees have a high level of PDM, they have an incentive that makes the cost of contribution worth it. Furthermore cultivating high levels of employee decision making throughout the organizational hierarchy can improve relationships through social exchange (Yoerger et al, 2015, p. 250-255). This may further increase contribution.

The Demand-Control model (Karasek, 1979) posits that employee psychological strain results from the effects of the demand placed on the employee and the degree of decision-making freedom available to the employee (Karasek, 1979, p. 287). These two variables represent the drivers of action and the constraints placed on the reaction to those actions. The model states that stress and strain increase because of demand, but stress can be decreased by a perception of control. The model states that any job with high demand and low control are the highest stress jobs (Probst, 2005, pp. 315-320). Employee participation in decision-making is a strategy that provides employees with the stress reducing control. PDM can be defined as the discretion that managers give to employees when making decisions, and the level of encouragement managers give employees to make organizational decisions (Probst, 2005, pp. 320–321).

The Demand-Control Model (Karasek, 1979) is relevant to PDM and employee contribution because it predicts a scenario where an employee is unlikely to contribute. A

stressed employee that perceives a low level of control is unlikely to feel that they need to, or have anything to gain, by contributing to meetings. In the other case an employee that is experiencing high demand but perceives a high level of control is more likely to contribute to planning and problem solving in meetings. This is because they feel that they have power to shape future events and can gain from it.

The Social Exchange Theory (Thibault & Kelly, 1959) as well as the Demand-Control Model (Karasek, 1979) serve as the theoretical foundation for the positive effect of PDM on employee contribution. It can be assumed that participation in decision making should also increase the likelihood of contribution in meetings. Hypothesis H1 will test the independent variable Participation in Decision Making. This construct is defined as the extent to which employees actively share in decision making.

H1: Contribution is positively associated with employee participation in decision making.

3.2 Psychological Safety Theory

PS is defined as "the ability of an individual to openly engage without fear of consequences to their career or self-image." (Kahn, 1990, p. 704). It is important in meeting and team dynamics that all members feel secure in their environment. A further definition of PS is, “the belief that the work environment is safe for interpersonal risk taking…. Psychological safety is present when colleagues trust and respect each other and feel able - even obligated – to be candid. ” (Edmondson, 2018, p. 8). This foundation is critical when fostering contribution from team members.

Since psychological safety has become a talking point of managers, and organizational theorists, it is must be made clear that PS is not people being polite, and agreeing even though they have other opinions(Edmondson, 2018, p. 15). It is the opposite; people should feel secure enough to disagree (Edmondson, 2018, p. 15). It is not extroverted behavior (Edmondson, 2018, p. 16). It refers to the work climate and not the personalities of the participants. It is different from trust and it not about lowering standard to make people feel comfortable (Edmondson, 2018, p. 16).

The importance of PS for contribution in teams can be described as contribution risk mitigation. The concern over other reactions to ideas that could potentially be embarrassing is reduced. This allows team members to learn together (Edmondson, 1999b, pp. 375–377). It prevents team members from staying silent to not to risk sounding incompetent. In a psychologically safe environment, the benefits of speaking up are given more weight than the risks associated with it (Edmondson, 1999a, p. 270). This concept relates back to the Social Exchange Theory. PS lowers the barrier to entry and therefore the benefits of

contribution appear larger. PS has been found to have its greatest effect on the team level (Newman et al., 2017, p. 527). Since the focus of this research is small groups of four to ten individuals, Psychological Safety was chosen as a factor to consider.

PS has been found to improve team learning (Edmondson, 1999, p. 375), and increase and sharing communication (Leroy et al., 2012, p. 1278). It has also been found to be important for teams when building work-arounds for difficult situations (Halbesleben & Rathert, 2008, p. 141). Based on these previous results it is assumed that a high level of PS is associated with a high level of contribution in meetings. Inversely a fear of repercussions will be associated with lower levels of contribution. Hypothesis H2 will test the independent variable Psychological Safety. Hypothesis H3 will test the independent variable Fear of Repercussions. Fear of Repercussions is the fear of consequences either material or immaterial for expressing one's opinion.

H2: Contribution is positively associated with psychological safety in the workplace.

H3: Contribution is negatively associated with fear of repercussions for mistakes.

3.3 Leadership Issues

Certain leadership styles have the potential to effect employee contribution. The two styles that will be tested in the frame of the is thesis are transformational leadership, and laissez-faire leadership. Leader Member Exchange aids in employee contribution because the employee feels supported by the leader. The transformational leadership style fosters an environment where an employee is allowed to grow and encouraged to contribute. The laissez-faire leadership style runs the risk of presenting the leader as disinterested in their work or employees.

The concept of transformational leadership was developed by James MacGregor Burns and Bernard Bass (Bass, 1990, p. 19). The core concept of transformational leadership is to create an inspiring vision of the future and to motivate others to improve themselves by engaging in the shared mission. A transformational leader will reframe how members of the team see tasks and will give the task a deeper meaning (Bass, 1990, p. 21). The leader informs every member of the team of the ultimate goals to be achieved and the importance of their role in achieving those goals. The transformational leader holds high expectations of their subordinates and cares for the development.

The laissez-faire leadership style gives the members of the team all the rights and authority to make decisions without the leader(Skogstad et al., 2007, p. 81). The leader provides the team will all the materials and support that the team requests, but the team operates independently. The leader does not participate in decision making. This leadership style has been shown to cause problems in teams(Skogstad et al., 2007, p. 81). This

leadership style has implications for contribution in meetings. Since a laissez-fair leaders risks appearing uninterested or uniformed, members may not feel they need to contribute information in meetings. They may withhold information unless directly asked. They may also lose motivation if they feel the leader is uninterested due to their laissez-fair behavior.

Employ Contribution is linked to leadership traits and practices. Previous studies have shown that leaders should cultivate and encourage contribution from their team members (J. Allen & Rogelberg, 2013, p. 565). Hypothesis H4 tests the independent variable Active Leader Encouragement. Active Leader Encouragement is defined as the extent to which leaders encourage active contribution. Hypothesis H5 will test the assumption that a leader that appears unmotivated leader will yield less contribution. This is supported by the problems that are associated with laissez-fair leadership. The construct Perceived Leader Motivation is defined as the extent to which a leader appears motivated to the meeting participants. Hypothesis H6 will test the relationship between Supervisor Support and contribution in meetings. The variable Supervisor Support is defined as the degree to which the employees report that they are supported by their supervisor. Based on the Leader-Member Exchange theory it is assumed that employee contribution in meetings is positively associated with strong leader support.

H4: Employee Contribution in meetings is positively associated with leaders that actively encourage contribution.

H5: Employee Contribution in meetings is negatively associated with leaders that appear unmotivated to the employees

H6: Employee contribution in meetings is positively associated with employees that feel their supervisor supports them.

3.4 Meeting Mechanics

Despite the large amount of commercial information available there is still no comprehensive set of theories regarding meeting and small group communication (Poole, 1990, p. 237; Scott et al., 2012, p. 128). The field of small group communication research is complex and spreads across several disciplines such as, psychology, linguistics, and anthropology. The three most common models used are the McGraths Model(McGrath, 1984), Symbolic Convergence Theory (Bormann, 1972), and Structuration Theory (Giddens, 1984).

The McGrath Model (McGrath, 1984) is a complex conceptual framework that explores the relationships between several main variables. The main variables in his model include: Task/Situation, Standing Group, Biological and Psychological properties of individuals, Behavior Setting, the Acting Group, and the Physical/technological properties

of the environment (McGrath, 1984, p. 13). The Task/Situation variable refers to the environmental pressures placed on the group to “do something (McGrath, 1984, p. 14).” The Standing Group variable refers to the relationships between group members before action occurs e.g supervisor and workers, or parents and children (McGrath, 1984, p. 14). The behavioral setting refers to the relationship between the group and the task(McGrath, 1984, p. 14). An example would be a group of firefighters and the task is extinguishing a fire. The behavioral dynamic would be different if a group of firefighters were tasked with playing chess. The biological properties of the individuals refers to the innate characteristics of every individual (McGrath, 1984, p. 14). Environmental properties refers to the conditions in which the meeting takes place (McGrath, 1984, p. 14). The Acting Group refers to the group interaction process during communication (McGrath, 1984, p. 14). This model is often used to the understand the overarching context of the group communication. All of the main variables can be broken down to further micro-models.

The Symbolic Convergence Theory (Bormann, 1972) focuses on the symbolic foundation of the group culture (Poole, 1990, p. 240). This common base allows the group to speak together using the same communication methods and language(Poole, 1990, p. 240). An example would be that NASA engineers would use different language when discussion problems, than a team in a bakery would. This theory is often applied to small group settings.

The Structuration Theory (Giddens, 1984). refers to the how member actions and behaviors are influenced by the rules used to maintain the group system (Poole, 1999, p. 48). This refers to the group norms of behavior and the underlying structures that govern decision making and relationships (Poole, 1990, p. 240). The focus on group practices and behavior is the foundation for many studies of meeting culture.

The effect of structure and behavior and vice versa provides many possible solutions to increasing contribution in meetings. The hypotheses below have been developed using the literature in Section 2.2.4. Meeting Structure is defined as factors related to meeting design characteristics. H7 tests the assumption that poor meeting structure will affect contribution. Ritual is defined as a series of actions, or a type of behavior regularly and invariably followed in meetings. H8 tests the assumption that boring repetitive meetings will influence contribution. Supervisor Feedback is defined as a supervisor’s information or reactions to the outcome of a task. H9 tests the association with supervisor feedback and contribution. The Meeting Frequency construct is defined as the amount of meetings within a given time period(Luong & Rogelberg, 2005, p. 62). H10 tests the effect of high meeting load on employee contribution. The Meeting Attendance construct is defined as the amount of people in attendance a given meeting. H11 tests the effect of having many participants in a meeting on contribution.

H7: Poor Meeting structure is negatively associated with employee contribution in meetings.
H8: Ritualization of meetings is negatively associated with employee contribution in meetings.
H9: The lack of feedback from supervisors is negatively associated with employee contribution in meetings.
H10: High meeting frequency is negatively associated with employee contribution in meetings.
H11: Meetings with many participants are negatively associated with employee contribution in meetings.

3.5 Multicultural Differences

There are several differences between cultures that have the potential to effect contribution in meetings. Early studies have found that cultures differ in the following dimensions: individualism vs. collectivism, large or small power distance, and masculinity vs. femininity(Hofstede, 1983, p. 78). The Global Leadership and Organizational Behavior Effectiveness (GLOBE) has identified several further distinctions that have the potential to effect meeting contribution including: institutional collectivism, in-group collectivism, assertiveness, and future orientation (Gupta, 2000, p. 11). These cultural dimensions have the potential to either increase or decrease member contribution during meetings.

Culture has been classically defined by anthropologists as “the patterned ways of thinking, feeling and reacting… “ that are shared in a culture (Hofstede, 1980, pp. 23). Culture can have an impact on how people express themselves in a group setting. This effect could be more pronounced in a mixed setting, with possibly members of certain cultures taking dominant roles, while others assume passive roles. The cultural dimension individualism refers to the inclination for a loose social network, where individuals are responsible for themselves and their families (Hofstede, 1984, p. 83). This inclination can be expressed in other social settings such as meetings and gatherings. If an individual does not feel obligated to a group outside of their personal relationships, they may be more likely to express opinions that are against the group consensus. This behavior could affect how an individual contributes to meetings. The opposite is a strong affinity for collectivism or group attachments that extend further than the immediate family (Hofstede, 1984, p. 83). This may also affect how an individual contributes during a meeting. If an individual values group relationships, they may withhold information that could threaten harmony. Or they may be more motivated to share information to the group, because they have an emotional connection instead of just a business relationship. Institutional collectivism refers to the

emphasis a culture places on societal or corporate collective behavior (Northouse, 2019, p. 624). This may further affect how or if an individual contributes.

Gender egalitarianism could play a significant role in the contribution of certain people from certain cultures during group meetings. Gender egalitarianism refers to the extent to which an individual's gender dictates their roles in private and public life in a given culture (Northouse, 2019, p. 627). In a mixed international business setting, the gender roles of different cultures can conflict with one another. This may lead to differing contribution among individuals.

Three further cultural dimensions that have the potential to affect contribution in meetings are power distance, assertiveness, and future orientation. Power distance refers to the extent to which a society is stratified and organized in a hierarchy (Hofstede, 1984, p. 83). In a small power distance culture, there are high levels of egalitarianism and power inequalities must be justified (Hofstede, 1984, p. 83) This power structure will affect how individuals contribute in meetings. As, some individuals come from cultures that are accustomed to speaking openly with an authority figure. Members of other cultures may not feel comfortable in that position. Assertiveness also is dependent on culture. Assertiveness refers to how much a culture reinforces aggressive and dominant behavior as opposed to passive behavior (Northouse, 2019, p. 627). Cultural differences in assertive behavior during a meeting, would play a role in increasing contribution from some members and limiting it from others. Future orientation is the extent to which members of a culture plan for future events (Northouse, 2019, p. 628). The amount of contribution from individuals is likely dependent on the level of future planning that emphasized in a culture.

The several cultural dimensions addressed above will play a role in the amount of contribution that an individual will make during meetings.

The Meeting Shared Language construct is defined as the effect on contribution for participants who are speaking in a non-native language. H12 will test the effect of meeting in a non-native language has on the contribution of the speaker. The construct of Multicultural Differences is defined as the differences between cultural expectations of meetings. Since cultural background could increase or decrease the level of contribution in meetings the hypothesis H13 is considered a two-tail variable and no statement regarding positive or negative association is made.

H12: Meetings in one shared language is negatively associated with employee contribution in meetings of the non-native speakers.

H13: If the amount of contribution varies across cultures, then the self-reported levels of contribution will vary by culture.

3.6 Motivation

There are three theories of motivation that are relevant to the amount of contribution an individual would make during a meeting. The Expectancy Theory (Vroom, 1964) states than an individual is motivated to perform a behavior based on the expected results of that behavior. The Theory X and Theory Y (McGregor, 1960) states that some employees require more management supervision than other employees require (McGregor & Cutcher-Gershenfeld, 2006). The Equity Theory of Motivation (Adams, 1965) is based on the social exchange theory and states that motivation is based on perceived equity in social and professional interactions.

The Expectancy theory (Vroom, 1964) posits that people anticipate satisfaction or displeasure from certain actions and outcomes (Vroom, 1964, pp. 29–49). In addition to anticipating good or bad outcomes, people weigh the probability of each outcome (Vroom, 1964, pp. 29–49). The two variables of anticipation and probability are calculated by the individual and the result is increased or decreased motivation (Vroom, 1964, pp. 29–49). This theory has several implications for how people contribute to meetings, and it reflects several theories mentioned in the previous sections. This first is in the case of PDM, and social exchange. If the individual anticipates a high probability that their input will not be valued or utilized, they will have low motivation to contribute. In the case of psychological safety if the individual anticipates a high probability of consequences for their actions in an unsafe environment, they will not be motivated to contribute. The concepts of over ritualized meetings and laissez-faire leadership also reflect the Vroom theory. Since the employee already can anticipate the outcome and is potentially less motivated to contribute.

The Theory X and Theory Y model (McGregor, 1960) can be applied to meeting contribution. Theory X is based on the assumptions that the average human dislikes work and needs to be directed to perform. Furthermore, the average person wants to avoid responsibility and wants to be directed (McGregor & Cutcher-Gershenfeld, 2006, pp. 84–86). Theory Y is based on the assumptions that the work comes natural to people, people are imaginative, people seek responsibility, and commitment to objectives are rewarding (McGregor & Cutcher-Gershenfeld, 2006, pp. 100–101). The model states that most people fall in-between these two constructs, therefore managers need to assess employees to gauge their motivation model as X or Y. This concept has implications for the employee's contribution during meetings. Based on this theory it is likely that model Y personalities would dominate the conversation, while model X people would likely try to stay quiet. Therefore, a leader would have to actively encourage contribution from the model X employees. This model would predict that a transformative leader would be more effective than a laissez-faire leader. Interestingly the theory assumes that model X people would still

be unmotivated to contribute in psychologically safe situations or situations with a high degree of participation in decision making.

The Adams Equity Theory of Motivation (Adams, 1965) states that motivation is based on the perception of just and unjust social exchanges (Adams, 1965, pp. 267–268). These exchanges in can be material, for example job effort and wages, as well as immaterial such as scolding or praising in social exchanges(Adams, 1965, pp. 267–268). This theory can be applied to contribution in meetings similarly to the social exchange theory. If employees regularly attend meetings and feel that certain members or themselves are not being treated equitably, they may be unmotivated to contribute. This inequitable behavior could include undeserved praise for some members or undeserved punishment for others. More importantly if employees feel they are not being adequately compensated for their efforts, they maybe unlikely to contribute.

The following theories illustrate the importance of motivation in business: the Expectancy Theory (Vroom 1964), the Theory X and Theory Y (McGregor 1960), and the Equity Theory (Adams 1965). A study found that found that all age groups require intrinsic and extrinsic motivation (Olson et al., 2014, p. 17). Hypothesis H14 tests the variable Employee Motivation. Employee Motivation is defined as an employee's desire or willingness to perform. H14 states that high employee motivation is associated with high employee contribution in meetings.

H14: Employee motivation has a positive association to employee contribution in meetings.

3.7 Confidence and Imposter Syndrome: Self Efficacy Theory

The Self Efficacy Theory (Bandura 1977) of confidence reflects people's confidence in their ability to control their own behavior, motivation, and environment (Bandura, 1977, pp. 191–193).An individual's self-efficacy reflects the likelihood that they will contribute during meetings. Imposter syndrome designates an irrational anxiety that one is not qualified for their position (Clance & Imes, 1978, p. 241). It has been associated with reduced performance in the workplace, and the fear of sharing opinions or ideas.

Self-efficacy is a person's confidence in their ability. A person with high self-efficacy believes they have a large locus of control (Bandura, 1977, p. 192). Self-efficacy is also associated with the ability to overcome obstacles, persist in the face of adversity, and effort expended (Bandura, 1977, p. 194). This is important for the study of contribution in meetings because it assumes that contribution is based on the individual. Many strategies have been presented in this thesis, that attempt to improve the external conditions, to improve contribution. The Self-efficacy model differs because it places the onus on the individual.

The Self-efficacy model predicts that a person with high confidence will overcome all the obstacles to contribution. They would also be more likely to thrive in situations with poor leadership, and low psychological safety. In cases of low confidence, an individual can improve their self-efficacy. (Bandura, 1977, p. 202) This could be done through self-mastery or therapy (Bandura, 1977, p. 202).

Imposter syndrome is the persistent belief that one is not qualified for one's current position (Clance & Imes, 1978, p. 241). It is associated with the belief that soon one will be exposed. This belief presents itself in several behaviors, two behaviors are relevant for contribution in meetings. The first is to avoid being exposed, people will avoid meetings, or avoid contributing (P. R. Clance & Imes, 1978, p. 243). The second possibility is that the person my over preform due to the fear of being discovered as a fraud (P. R. Clance & Imes, 1978, p. 244) This means that a person with Imposter Syndrome could potentially contribute more in meetings, than someone without this fear.

The Self-efficacy Theory (Bandura 1977) offers a confidence-based model for differing levels of contribution between individuals. This theory predicts that an individual with a high level of confidence will contribute during meetings regardless of the external circumstances. Hypothesis H15 measures the independent variable Employee Personal Confidence. Employee Personal Confidence is defined as a feeling of self-assurance arising from an appreciation of one's own abilities or qualities.

H15: Employee confidence is positively associated with employee meeting contribution.

Hypothesis H16 will test the independent variable Imposter Syndrome. It may affect an individual in several ways, one of them is how they contribute to meetings. Due to the association of Imposter Syndrome and avoidance, (P. R. Clance & Imes, 1978, p. 243). H16 predicts a negative association between high levels of imposter syndrome and employee meeting contribution.

H16: Imposter syndrome is negatively associated with employee meeting contribution.

4. Methodology

4.1 Paradigm

This thesis intends on utilizing the positivism research paradigm. Positivism refers to the deductive approach which focuses on an empiricist method and the generation of pure data, that has been filtered for bias (Collis & Hussey, 2021, p. 40). This approach was chosen, due to the goals of the investigation and characteristics of the participants.

The first reason is the positivist approach was chosen, is because of the advantages associated with quantitative data when comparing different solutions. In the case of measuring contribution, there are many factors that could increase or decrease contribution, and the goal of the investigation is to compare the relative effects of each method. Quantitative analysis would provide clear insight.

The second reason is practical. It would be difficult to observe the participants in their natural setting. The participants work in different countries, or work in different departments. Many of the meeting take place online and not face to face, which increases the difficulty of observational methods of research. The goal of the investigation is to have a large number of respondents it would be unpractical to interview all of them, in the limited time frame of the thesis semester.

The third reason the positivism approach was chosen is that specific hypotheses will be tested during the investigation. These hypotheses will be used to generalize about high contributing individuals and low contributing individuals. Hypothesis testing is a key aspect of the positivism paradigm.

4.2 Research Design

4.2.1 Model

4.2.1.1 Increasing Factors

Figure 1. Factors that Increase Contribution

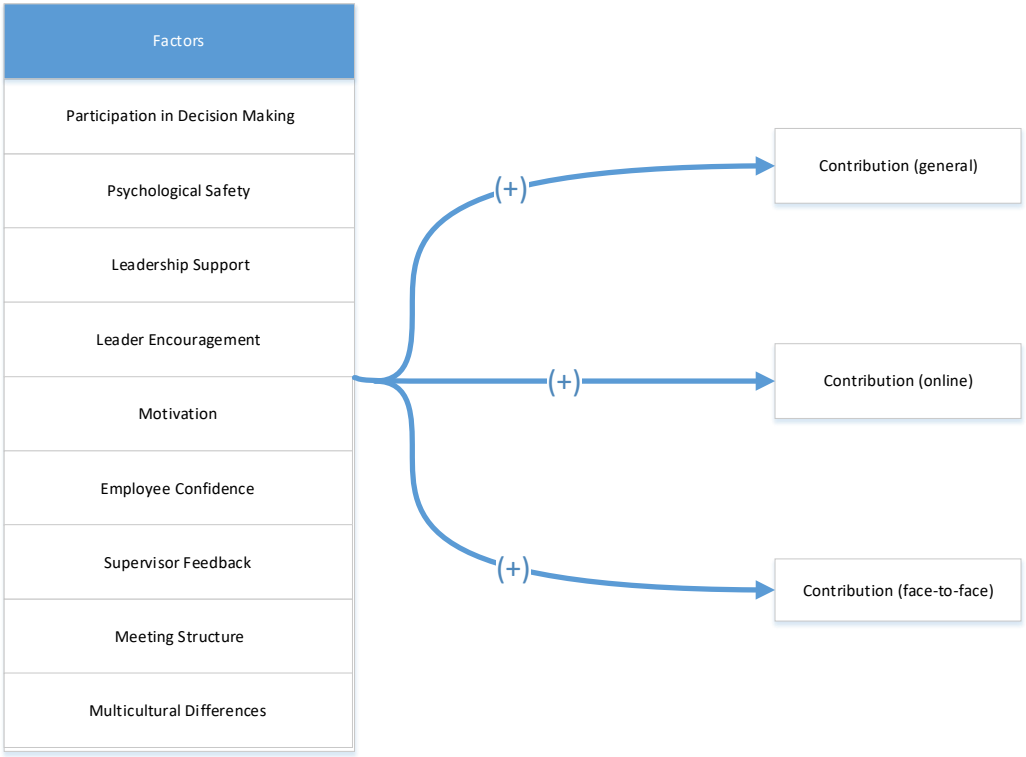

Figure 1. Original illustration

Figure 1 illustrates the factors that have been identified as potentially increasing contribution amongst employees in meetings. Each factor will be measured independently, and each factor has an effect on contribution in general, and contribution specifically in the online or face-to-face setting.

4.2.1.2 Decreasing Factors

Figure 2. Factors That Decrease Contribution

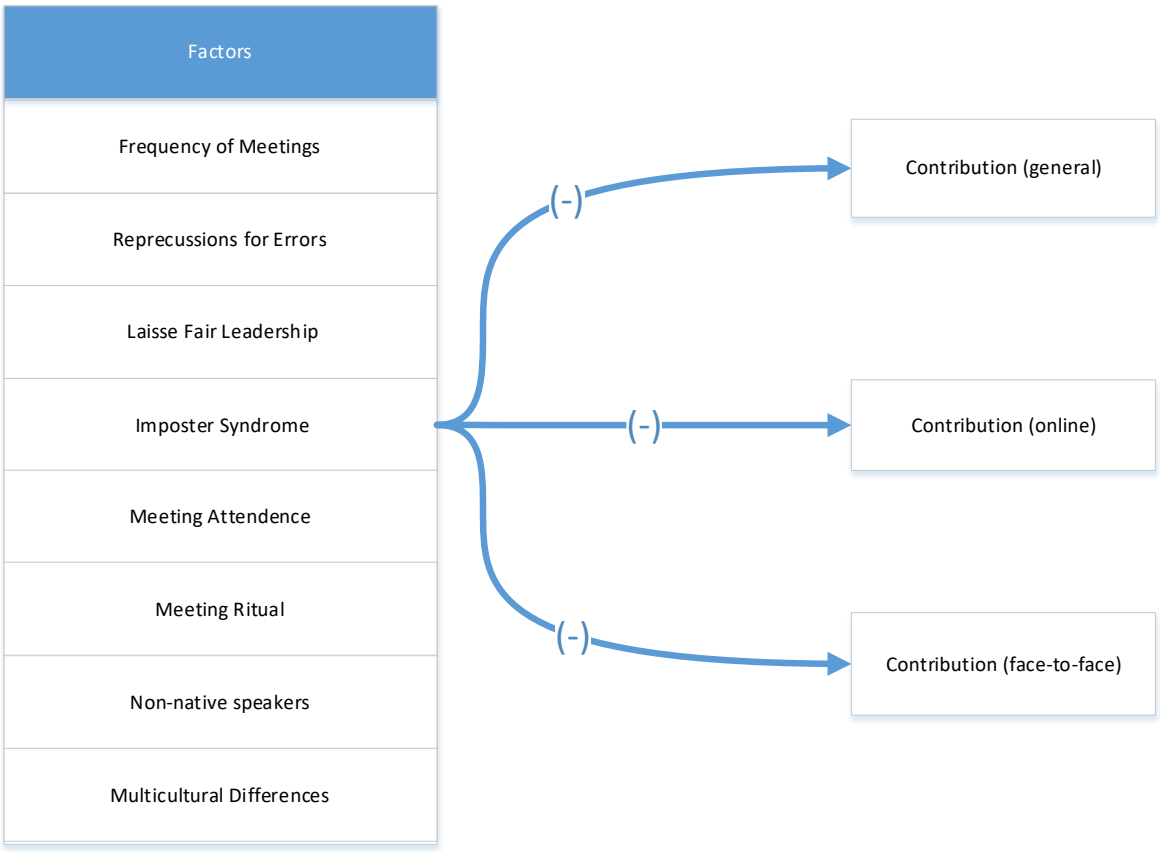

Figure 2. Original illustration

The Figure 2 illustrates the factors that have been identified as potentially decreasing contribution amongst employees in meetings. Each factor will be measured independently, and each factor has an effect on contribution in general, and contribution specifically in the online or face-to-face setting. The items in the survey that measure each construct is also listed.

4.2.2 Summary of Constructs

Figure 3. Variable Definitions

Variable Definition Table				
Variable	Definition	H	Effect on (DV)	Test items
Contribution in Meeting(D)	The amount of input given by employees during meetings			C,CO,CF
Participation in Decision Making (I)	The extent to which employees actively share in decision making.	H1	+	PD1-4
Psychological Safety (I)	The degree to which one is able to show and employ one's self without fear of negative consequences of self-image, status or career (Kahn, 1990, p. 704).	H2, H3	+	PS1-4
Active Leader Encouragement (I)	The degree to which leaders encourage active contribution.	H4	+	LC1-3
Preceved Leader Motivation(I)	The degree to which the leader appears motivated to the meeting participants.	H5	+	LF1-4
Supervisor Support(I)	The degree to which the employees feel supported by the supervisor.	H6	+	LS1-3
Meeting Structure (I)	Factors related to meeting deign characteristics. (e.g agenda, punctuality)	H7	+	SM1-4
Ritual (I)	A series of actions or type of behaviour regularly and invariably followed in meetings.	H8	-	RI1-4
Supervisor Feedback(I)	A supervisors information about reactions to the outcome of a task.	H9	+	Sf1
Meeting Frequency (I)	The amount of meetings within a given time period.	H10	-	FFM01, FOM01
Meeting Attendence (I)	The amount of people in attendence in the meeting.	H11	-	PN1-2
Meeting Shared Language (I)	The shared language of communication in the meeting.	H12	-	NN1-6
Cultural Background (I)	The language, costoms, national background of an individual.	H13	-/+	MD1-3
Employee Motivation(I)	An employees desire or willingness to preform.	H14	+	M1-4
Employee Personal Confidence (I)	A feeling of self-assurance arising from an appreciation of one's own abilities or qualities.	H15	+	EC1-4
Imposter Syndrome(I)	The persistent inability to believe that one's success is deserved or has been legitimately achieved as a result of one's own efforts or skills (Clance & Imes, 1978, p. 241).	H16	+	IS1-4

Figure 3. Original illustration

Figure 3. Variable Definitions provides an overview of the variables tested in the study. The figure shows how the variable is defined, and if it is dependent (D) or independent(I). It shows the hypothesis it is linked to, and the expected relationship with the dependent variable. The test items in the survey that measure the variable are displayed.

4.3 Sample Size and Participants

A survey was designed to test the factors described in Section 4.2.1 Model. A copy of the entire survey is found in the Appendix. Thirty-five surveys were distributed to engineering teams in a large engineering corporation, a further ten were distributed in a SixSigma course. Many of these participants distributed the survey amongst their peers and colleagues. The survey was designed and built using the UniPark tool provided by the Vorarlberg University of Applied Sciences.

The survey was also shared on LinkedIn. This resulted in 115 people opening and starting the survey. Ultimately 68 completed the survey for a completion rate of 59%. Most respondents were male at 72% and the minority were female at 28%. Most respondents came from Europe at 65%. There were 19% North American participants, and the rest were Asia (10%), South America (4%), and Africa (1%) .The majority of respondents do not speak English as a native language at 74%. Eighty-nine percent of the respondents were under the age of 40, and 88% of respondents have been at their current position for less than six years. Twenty-two participants (32%) were found to have above average attendance at problem solving meetings compared to the rest of the group. This translates to 3 or more problem-solving meetings per week.

4.4 Analysis

The analysis of the of the information was done in three stages. Before analysis began, items that measure each construct were tested for normality as a group using Q-Q plots, Kolmogorov–Smirnov test and the Shapiro–Wilk test. Even though, the Central Limit Theorem states that normality is assumed if there are more than 30 samples. In the first stage the items that measure each construct were tested for reliability with the Cronbach's alpha test. In the second stage, the constructs were edited based on the results and the recommendations of the reliability testing. The reliability testing was then repeated to confirm the improvement. In the third stage, constructs were grouped into a single variable based on their mean. This was done to test the correlation of the cumulative effect of the items. At this point the data population will be separated into two groups. The first group is the total population, and the second group will be the participants that take part in at least three problem solving meetings a week. In the third stage the factors that affect contribution in meetings from the survey were tested for correlation using SPSS version 27 Bivariate correlation for both populations.

4.5 Instruments

The Contribution in Meeting construct is the dependent variable tested in this study. It is defined as the amount of input given by employees in meetings. It is measured with a collection of thirteen items in the survey, in three categories. General Contribution is defined as the likelihood of contribution regardless of setting. These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). One question was negatively coded to serve as a plausibility check. An example includes, “I am a Passive Listener.”

Reliability testing with Cronbach's Alpha was estimated at $\alpha = 0.399$. This was due to item C3 which was deleted from the analysis. Afterwards a reliability of $\alpha = 0.857$ was estimated.

Contribution in Online Meetings was measured using five items. Two of the items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Three of the questions were measured with a five-point Likert scale ranging from 1(Never) and 5 (Always). One question was negatively coded to serve as a plausibility check. An example includes "I contribute during online meetings." Reliability was estimated at $\alpha = 0.521$. Due to these two items were removed before analysis. These items were CO2 and CO5. Afterwards a reliability of $\alpha = 0.831$ was estimated.

Contribution in Face-to-Face meetings was measured using five items. Two of the items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Three of the questions were measured with a five-point Likert scale ranging from 1(Never) and 5 (Always). One question was negatively coded to serve as a plausibility check. An example includes "I contribute during face-to-face meetings." Reliability was estimated at $\alpha = 0.460$. Due to this CF2 and CF5 was removed before analysis. Afterwards a reliability of $\alpha = 0.780$ was estimated.

To measure the construct Participation in Decision Making, four questions were used. These questions originated from a multi-item measurement gauge developed by Siegel and Ruh 1973. These questions have been used and cited in various studies (Singh & Sarkar, 2012; Yoerger et al., 2015; Appelbaum et al., 2013) in the last 50 years. The questions asked the participants to rate their influence in certain situations at work. The participants were given a five-point Likert scale of 1 (No Influence) and 5 (Much Influence). An example includes, "In general how much say or influence do you have on decisions? (Ruh et al., 1975, p. 306)" Reliability was estimated at $\alpha = 0.912$. Therefore, no changes were made before analysis.

Psychological Safety was assessed with a four-item measure. Fear of Repercussions was measured with three-item gauge. Seven questions were obtained from (Edmondson, 1999b). The participants must rate their responses on a seven-point Likert scale with 1 (Very Inaccurate) and 7 (Very Accurate). An example of a PS measurement question is "It is safe to take a risk on this team." (Edmondson, 1999b, p. 382) Reliability testing of the PS questions yielded $\alpha = 0.599$. Though the score is low, the items are considered reliable due to previous use in other studies. Reliability testing of the Fear of Repercussion questions yielded $\alpha = 0.331$. This was due to item R3. Item R3 was removed from the analysis and was address separately. After removal of R3 $\alpha = 0.510$. This is still low, but the items are considered reliable due to previous use in other studies.

The leadership constructs were measured by modifying questions from the Multifactor Leadership Questionnaire (MLQ). The MLQ was developed by Avolio and Bass.

The construct of Active Leader Encouragement was measured using three items that stemmed from the transformational section of the MQL (Avolio et al., 2004, p. 50-80). These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). An example is, “My supervisor prompts his subordinated to think and initiate.” These questions had a reliability estimate of α = 0.721, therefore they were not adjusted before analysis.

Supervisor Support was evaluated with three items. These items were adapted from the transactional and transformational leadership sections of the MQL (Avolio et al., 2004, pp. 50–80). These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). An example is, “My supervisor supports our decisions after they have been discussed.” These questions had a reliability estimate of α = 0.847, therefore no changes were made before analysis.

The construct Perceived Leader Motivation was measured using four items adapted from the Laissez-fair leadership section of the MQL (Avolio et al., 2004, pp. 50–80). These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). An example includes, “My supervisor does not appear active.” These questions had a reliability estimate of α = 0.807, therefore no changes were made before analysis.

Meeting Frequency was evaluated using five items. An example includes “How many times a week do you engage in online meetings of any type?” These items had a numerical scale ranging from “0-1” till “8+.” The meetings were separated into two categories, meetings of any type and problem-solving meetings. A further distinction was made between online meetings and in person meetings. The inspiration to measure meeting frequency came from the literature (Luong & Rogelberg, 2005), but the method of measure is different from previous studies. Reliability was estimated at α = 0.723 therefore no items were deleted from the analysis.

Meeting Attendance was evaluated using two items. The first asked the participant to estimate the average number of individuals in their meetings. This was done with a numerical scale ranging from “2-3” till “10+.” The second asked if the participant thought the number of individuals in their meetings is excessive. This item had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These questions had a reliability estimate of α = 0.594. No changes were made before analysis, despite a low rating.

Meeting Structure was measured using four items, these items were inspired by recommendations made in the following studies(J. A. Allen et al., 2018; Cohen et al., 2011; Mroz & Allen, 2017; Rogelberg et al., 2010, 2014). Two questions assessed the availability of agendas and their roles in the meeting and were measured with a five-point Likert scale ranging from 1(Never) and 5 (Always) (Cohen et al., 2011). Two questions assessed the

punctuality of meetings and were measured with a five-point Likert scale ranging from 1(Never) and 5 (Always) (J. A. Allen et al., 2018; Rogelberg et al., 2012, 2014). Reliability was estimated at α = 0.778 therefore no items were deleted from the analysis. One question assessed the construct Supervisor Feedback and was measured with a five-point Likert scale ranging from 1(Never) and 5 (Always).

Four items measure the construct Ritual. These questions were inspired by the findings of (Luong & Rogelberg, 2005). Two questions were measured with a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), and the other two questions were measured with a five-point Likert scale ranging from 1(Never) and 5 (Always). An example includes “My meetings are generally always the same.” A further question asked the participant if they felt they were over invited to meetings. This was measured with a five-point Likert scale ranging from 1(Never) and 5 (Always). Reliability testing of the Ritual questions yielded α = 0.532. This was due to item RI4. Item RI4 was removed from the analysis and was address separately. After removal of RI4 α = 0.637.

Multicultural Differences were measured with three items that were inspired by the cultural characteristics defined by(Gupta, 2000; Hofstede, 1980, 1983, 1984).These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These questions had a reliability estimate of α = -0.564, this score is low and must be recoded. Items MD1 and MD2 were recoded and an α = 0.388 was reached. This is a very low rating. No changes were made to the measure because no single item could be identified as the reason for the poor rating.

Meeting Shared Language was measured using six items. One item assesses whether the participant is a native English speaker. One item assesses the frequency the participant attends meetings in a non-native language. This item had a five-point Likert scale ranging from 1(Never) and 5 (Always). Four items assess the experience of attending a meeting in a non-native language. These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Of the four items that measure the experience, two items were sourced from (Rogerson and Revell, 2007, pp. 20–25) The other two were generated by the author. Reliability testing of the Ritual questions yielded α = -0.368. Item NN2 and NN6 had to be recoded. After recoding an α = 0.740 was estimated.

Employee Motivation was measured using four items on the survey. The items were sourced from (Mottaz, 1985). These motivation measuring questions have been used in several literature sources. These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These questions had a reliability estimate of α = 0.770, therefore no changes were made before analysis.

Employee Confidence and Imposter Syndrome constructs were tested with four items each. All eight of these items were sourced from the Clance IP Scale (D. P. R. Clance,

1986, pp. 20–22). The Clance IP Scale is used in many literature sources to measure confidence and imposter syndrome. These items had a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The Employee Personal Confidence questions had a reliability estimate of $\alpha = 0.415$, this is extremely low. Item EC1 was removed before analysis, since it was estimated to have a large effect. After removal of EC1 a reliability estimate of $\alpha = 0.551$ was measured. This is still, low but the questions are still trusted because of their previous use in other studies. The Imposter Syndrome items had a had a reliability estimate of $\alpha = 0.702$, therefore no changes were made before analysis.

4.6 Bias Mitigation Methods

Several methods were used to reduce bias in the survey. All participants were assured that they will remain anonymous, and their data will not be stored(Podsakoff et al., 2003, p. 888). Counterbalance questions were used as a plausibility check(Podsakoff et al., 2003, p. 884). These questions were negatively scored. Proven and reliable survey questions from previous studies were either utilized word for word or adapted to meet the needs of this specific study(Podsakoff et al., 2003, p. 887). Finally different scales were used. Some questions asked for frequency and others asked for agreement. Further questions were on a 7-point sliding scale instead of a 5-point scale(Podsakoff et al., 2003, p. 884).

5. Results

Figure 4 illustrates all the variables examined in the study. The means, medians, standard deviations, and the correlations between the variables for the total group. Figure 5 illustrates all the variables examined in the study. The means, medians, standard deviations, and the correlations between the variables for the problem-solving group.

Figure 4. Correlation Matrix Total Group

2. Contribution Online (D)	0.046	--																		
3.Contribution FtoF (D)	0.072	,674**	--																	
4.PDM (I)	0.155	,639**	,433**	--																
5.Psychological Safety (I)	-0.022	,465**	,489**	,545**	--															
6.Leader Motivation (I)	0.137	0.038	0.005	-0.186	-0.197	--														
7.Leader Support (I)	-0.021	,465**	0.231	,648**	,479**	-,486**	--													
8.Leader Encourage (I)	0.019	,389**	0.214	,558**	,403**	-,633**	,887**	--												
9.Structure Meeting (I)	-0.058	-0.045	-0.037	-0.196	0.033	-,387**	0.116	,280*	--											
10.Ritual (I)	-0.229	-,301*	-0.136	-,534**	-0.208	0.106	-,496**	-,530**	0.231	--										
11.Supervisor Feedback (I)	0.111	0.146	0.048	,250*	0.197	-,411**	,420**	,471**	,356**	-,287*	--									
12.Meeting Attendence (I)	-0.048	-,243*	-0.172	-,253*	-0.024	,244*	-,313**	-,377**	-0.233	,326**	-,293*	--								
13.Meeting Frequency (I)	0.106	0.131	,251*	0.133	0.012	0.187	-0.169	-0.129	-0.091	-0.084	-0.143	0.035	--							
14.MeetingF ProblemSolve (I)	0.174	,396**	,323**	,449**	,331**	0.091	0.169	0.175	-0.099	-,330**	0.131	-0.111	,572**	--						
15.FearReprecussions (I)	0.155	0.171	-0.020	-0.008	-,288*	0.171	0.020	0.070	0.003	-,320**	0.046	-0.134	-0.067	0.031	--					
16.Employee Confidence (I)	-0.122	0.075	0.046	0.068	-0.043	-,249*	0.211	0.228	0.147	-0.090	,297*	-0.222	-0.119	-0.071	0.042	--				
17.NonNative Speaker (I)	-0.268	-0.221	-0.158	-0.227	-0.208	-,349*	0.041	-0.010	0.066	0.210	0.007	-0.070	0.080	-0.231	0.000	,284*	--			
18.MultiCulturalDifferences (I)	-0.127	0.142	-0.156	0.154	0.029	-0.171	0.218	0.187	0.094	-,250*	0.160	-0.027	-0.098	-0.015	0.232	0.208	0.099	--		
19.Motivation (I)	0.055	,278*	,275*	,641**	,327**	-,377**	,515**	,509**	-0.207	-,524**	,247*	-0.132	-0.063	0.154	0.026	,250*	-0.011	,267*	--	
20.Imposter Syndrome (I)	0.125	0.082	0.029	0.057	-0.055	-0.182	0.161	0.118	0.022	0.074	0.075	-0.060	-,262*	-0.194	-0.027	,610**	0.192	0.078	0.184	--
Min	2.500	1.670	2.330	1.000	1.000	2.250	1.000	1.000	1.000	2.000	1.000	2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Max	4.500	5.000	5.000	5.000	5.000	7.000	5.000	5.000	4.600	5.000	5.000	9.000	5.000	5.000	6.000	4.330	3.000	3.670	5.000	4.250
Median	3.500	3.000	3.830	3.250	3.250	4.620	2.250	3.330	2.830	3.333	3.000	5.000	3.000	1.660	2.000	3.333	2.333	2.330	4.000	2.750
Mean	3.380	3.161	3.720	2.990	4.647	2.401	3.210	3.049	3.613	3.465	2.558	5.170	3.029	2.019	2.492	3.186	2.120	2.475	3.981	2.782
SD	0.466	0.904	0.706	1.095	1.095	0.999	0.813	0.985	0.957	0.712	0.998	1.718	0.901	0.814	1.229	0.701	0.523	0.553	0.708	0.747

(D) = dependent variable; (I) = independent variable **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Figure 4. Original illustration

Figure 5. Correlation Matrix Problem Solving Group

	1	2	3	4	5	6	7	7	8	9	10	11	12	13	14	15	16	17	18	19
1.Con.Gen(D)	--																			
2.Con.Online (D)	-0,208	--																		
3.Con.FtoF (D)	-0,157	,690**	--																	
4.PDM (I)	0,047	,628**	,473*	--																
5.PS (I)	-0,122	,628**	,719**	0,485**	--															
6.LeaderMotiv (I)	0,043	-0,147	0,021	-0,229	-0,059	--														
7.LeaderSupport (I)	-0,208	,608**	0,238	,644**	0,328	-,656**	--													
8.LeaderEncoura (I)	0,081	0,411	0,194	,499*	0,197	-,817**	,804**	--												
9.StructureMeeti (I)	-0,135	0,105	0,009	-0,113	0,207	-,577**	0,385	,578**	--											
10.Ritual (I)	-0,131	-0,107	-0,032	-,471*	-0,063	0,364	-0,322	-,557**	-0,018	--										
11.S.Feedback (I)	-0,151	0,415	0,126	0,078	0,295	-,607**	,573**	,652**	,692**	-0,200	--									
12.MeetingAttend (I)	0,172	-0,113	-0,040	-0,254	-0,125	,542**	-0,383	-,631**	-,637**	,534*	-,481*	--								
13.FequencNoPro(I)	0,069	-0,144	0,243	-0,040	-0,037	-0,036	-0,088	0,050	-0,186	-0,224	0,054	0,058	--							
14.FequencyProb (I)	0,083	0,400	,271*	0,326	0,262	-0,219	0,297	0,352	0,058	-0,412	,423*	-0,259	,466*	--						
15.FearOfReprec (I)	-0,038	-0,109	-0,248	-0,155	-0,377	-0,148	-0,078	0,165	0,169	-0,344	0,073	-,462*	-0,027	-0,027	--					
16.E.Confidence (I)	-,467*	0,061	-0,032	-0,314	-0,046	-0,173	0,001	0,064	0,211	-0,159	0,297	-0,282	0,087	-0,021	0,339	--				
17.NonNative (I)	-,611*	-0,127	-0,275	-0,322	-0,190	-,593*	0,120	0,049	0,280	0,357	0,426	-0,158	-0,102	-0,414	0,228	0,436	--			
18MultiCultural (I)	-0,380	0,091	-0,093	0,019	0,094	-0,206	0,136	-0,070	-0,084	-0,222	-0,021	0,059	-0,187	0,025	0,085	0,236	0,162	--		
19.Motivation (I)	0,052	,228*	,224*	,591**	0,356	-0,286	0,302	0,336	-0,063	-,637**	-0,045	-0,290	-0,057	0,102	-0,049	-0,078	-0,370	,455*	--	
20.I. Syndrom(I)	0,100	-0,128	-0,248	-0,217	-0,256	-0,015	-0,268	-0,200	-0,059	0,111	-0,132	0,021	-0,240	-0,385	0,208	,471*	0,285	0,128	0,096	--
Min	2,500	2,330	2,330	1,500	3,500	1,500	1,330	1,000	1,5	2,330	1,000	2,000	1,670	2,000	1,000	2,000	1,170	1,330	2,250	1,750
Max	4,000	5,000	5,000	5,000	6,500	4,250	4,670	4,330	5,000	4,330	5,000	9,000	3,330	5,000	4,000	4,330	2,670	3,670	5,000	3,750
Median	3,500	3,667	4,000	3,750	5,000	2,250	3,333	3,166	3,750	3,333	3,000	5,000	2,500	2,330	2,000	3,000	2,000	2,333	4,125	2,500
Mean	3,454	3,530	3,939	3,545	5,022	2,579	3,272	3,106	3,590	3,318	2,545	5,090	2,450	2,710	2,411	3,090	1,979	2,439	4,073	2,511
SD	0,433	0,865	0,739	0,983	0,876	0,850	1,000	1,040	0,840	0,709	1,056	1,973	0,455	0,722	0,984	0,644	0,498	0,594	0,700	0,559

(D) = dependent variable: (I) = independent variable ** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0,05 level (2-tailed)

Figure 5. Original illustration

H1: Contribution is positively associated with employee participation in decision making.

TOTAL: PDM was found not to have a statistically significant relationship on the general contribution measure *p*=0.206. PDM was found to have a statistically significant positive relationship on the online contribution measure (r = 0.639, *p*=<0.001) . PDM was found to have a statistically significant positive relationship on the face-to-face contribution measure (r = 0.433, *p*=<0.001). Due to these findings H1 is partially supported.

PROBLEM SOLVING GROUP: PDM was found not to have a statistically significant relationship on the general contribution measure *p*=0.836. PDM was found to have a statistically significant positive relationship on the online contribution measure (r = 0.628, *p*=0.002) . PDM was found to have a statistically significant positive relationship on the face-to-face contribution measure (r = 0.473, *p*=0.026). Due to these findings H1 is partially supported.

H2: Contribution is positively associated with psychological safety in the workplace.

TOTAL: PS was found not to have a statistically significant relationship on the general contribution measure *p*=0.856. PS was found to have a statistically significant positive relationship on the online contribution measure (r = 0.465, *p*=<0.001). PS was found to have

a statistically significant positive relationship on the face-to-face contribution measure (r = 0.489, *p*=<0.001). Due to these findings H2 is partially supported.

PROBLEM SOLVING GROUP: PS was found not to have a statistically significant relationship on the general contribution measure *p*=0.587. PS was found to have a statistically significant positive relationship on the online contribution measure (r = 0.628, *p*=<0.001). PS was found to have a statistically significant positive relationship on the face-to-face contribution measure (r = 0.719, *p*=<0.001). Due to these findings H2 is partially supported.

H3: Contribution is negatively associated with fear of repercussions for mistakes.

TOTAL: Fear of Repercussions was found not to have a statistically significant relationship on the general contribution measure *p*=0.208. Fear of Repercussions was not found to have a statistically significant relationship on the online contribution measure *p*=0.163. Fear of Repercussions was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.874. Due to these findings H3 is rejected.

PROBLEM SOLVING GROUP: Fear of Repercussions was found not to have a statistically significant relationship on the general contribution measure *p*=0.867. Fear of Repercussions was not found to have a statistically significant relationship on the online contribution measure *p*=0.631. Fear of Repercussions was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.266. Due to these findings H3 is rejected.

H4: Employee Contribution in meetings is positively associated with leaders that actively encourage contribution.

TOTAL: Leader Encouragement was found not to have a statistically significant relationship on the general contribution measure *p*=0.880. Leader Encouragement was found to have a statistically significant positive relationship on the online contribution measure (r = 0.389, *p*=<0.001). Leader Encouragement was found not to have a statistically significant positive relationship on the face-to-face contribution measure *p*=0.079. Due to these findings H4 is partially supported.

PROBLEM SOLVING GROUP: Leader Encouragement was found not to have a statistically significant relationship on the general contribution measure *p*=0.790. Leader Encouragement was found not to have a statistically significant positive relationship on the online contribution measure; however, it was close (r = 0.411, *p*=0.058). Leader Encouragement was found not to have a statistically significant positive relationship on the face-to-face contribution measure *p*=0.386. Due to these findings H4 is rejected.

H5: Employee Contribution in meetings is negatively associated with leaders that appear unmotivated to the employees

TOTAL: Leader Motivation was found not to have a statistically significant relationship on the general contribution measure *p*=0.265. Leader Motivation was not found to have a statistically significant relationship on the online contribution measure *p*=0.757. Leader Motivation was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.969. Due to these findings H5 is rejected.

PROBLEM SOLVING GROUP: Leader Motivation was found not to have a statistically significant relationship on the general contribution measure *p*=0.851. Leader Motivation was not found to have a statistically significant relationship on the online contribution measure *p*=0.515. Leader Motivation was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.927. Due to these findings H5 is rejected.

H6: Employee contribution in meetings is positively associated with employees that feel their supervisor supports them.

TOTAL: Leader Support was found not to have a statistically significant relationship on the general contribution measure *p*=0.865. Leader Support was found to have a statistically significant positive relationship on the online contribution measure (r = 0.465, *p*=<0.001). Leader Support was found not to have a statistically significant relationship on the face-to-face contribution measure; however, it was close. (r= 0.231 *p*=0.058). Due to these findings H6 is partially supported.

PROBLEM SOLVING GROUP: Leader Support was found not to have a statistically significant relationship on the general contribution measure *p*=0.354. Leader Support was found to have a statistically significant positive relationship on the online contribution measure (r = 0.608, *p*=0.003). Leader Support was found not to have a statistically significant relationship on the face-to-face contribution measure *p*=0.286. Due to these findings H6 is partially supported.

H7: Poor Meeting structure is negatively associated with employee contribution in meetings.

TOTAL: Structured Meetings was found not to have a statistically significant relationship on the general contribution measure *p*=0.636. Structured Meetings was not found to have a statistically significant relationship on the online contribution measure *p*=0.715. Structured Meetings was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.763. Due to these findings H7 is rejected.

PROBLEM SOLVING GROUP: Structured Meetings was found not to have a statistically significant relationship on the general contribution measure *p*=0.549. Structured Meetings was not found to have a statistically significant relationship on the online contribution

measure *p*=.641 Structured Meetings was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.967. Due to these findings H7 is rejected.

H8: Ritualization of meetings is negatively associated with employee contribution in meetings.

TOTAL: Meeting Ritual was found not to have a statistically significant relationship on the general contribution measure *p*=0.60. Meeting Ritual was found to have a statistically significant negative relationship on the online contribution measure (r = -0.301, *p*=0.013). Meeting Ritual was found not to have a statistically significant relationship on the face-to-face contribution measure *p*=0.268. Due to these findings H8 is partially supported.

PROBLEM SOLVING GROUP: Meeting Ritual was found not to have a statistically significant relationship on the general contribution measure *p*=0.560. Meeting Ritual was not found to have a statistically significant negative relationship on the online contribution measure *p*=0.653. Meeting Ritual was found not to have a statistically significant relationship on the face-to-face contribution measure *p*=0.887. Due to these findings H8 is partially supported.

H9: The lack of feedback from supervisors is negatively associated with employee contribution in meetings.

TOTAL: Supervisor Feedback was found not to have a statistically significant relationship on the general contribution measure *p*=0.366. Supervisor Feedback was not found to have a statistically significant relationship on the online contribution measure *p*=0.234. Supervisor Feedback was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.696. Due to these findings H9 is rejected.

PROBLEM SOLVING GROUP: Supervisor Feedback was found not to have a statistically significant relationship on the general contribution measure *p*=0.502. Supervisor Feedback was not found to have a statistically significant relationship on the online contribution measure; however, it was close (r=0.415, *p*=0.055). Supervisor Feedback was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.578. Due to these findings H9 is rejected.

H10: High meeting frequency is negatively associated with employee contribution in meetings.

TOTAL: Meeting Frequency was found not to have a statistically significant relationship on the general contribution measure *p*=0.389. Meeting Frequency was found not to have a

statistically significant relationship on the online contribution measure (p = 0.285). Meeting Frequency was found to have a statistically significant positive relationship on the face-to-face contribution measure (r = 0.251, p=<0.039). When Meeting Frequency for problem solving meetings is tested, Meeting Frequency was found to have a statistically significant positive relationship on the online contribution measure (r = 0.396, p = 0.001). Meeting Frequency was found to have a statistically significant positive relationship on the face-to-face contribution measure (r = 0.323, p=<0.007). Due to these findings H10 is rejected.

PROBLEM SOLVING GROUP: Meeting Frequency problem solving was found not to have a statistically significant relationship on the general contribution measure p=0.759. Meeting Frequency problem solving was found not to have a statistically significant relationship on the online contribution measure p = 0.522. Meeting Frequency was found to have a statistically significant positive relationship on the face-to-face contribution measure(r= 0.271, p = 0.040). Due to these findings H10 is rejected.

H11: Meetings with many participants are negatively associated with employee contribution in meetings.

TOTAL: Meeting Attendance was found not to have a statistically significant relationship on the general contribution measure p=0.692. Meeting Attendance was found to have a statistically significant negative relationship on the online contribution measure (r = -0.243, p=<0.046). Meeting Attendance was found not to have a statistically significant relationship on the face-to-face contribution measure p=0.161. Due to these findings H11 is partially supported.

PROBLEM SOLVING GROUP: Meeting Attendance was found not to have a statistically significant relationship on the general contribution measure p=0.444. Meeting Attendance was not found to have a statistically significant negative relationship on the online contribution measure p=0.686. Meeting Attendance was found not to have a statistically significant relationship on the face-to-face contribution measure p=0.862. Due to these findings H11 is rejected for problem solving teams.

H12: Meetings in one shared language is negatively associated with employee contribution in meetings of the non-native speakers.

TOTAL: Non-Native Speakers was found not to have a statistically significant relationship on the general contribution measure p=0.058. Non-Native Speakers was not found to have a statistically significant relationship on the online contribution measure p=0.120. Non-Native Speakers was not found to have a statistically significant relationship on the face-to-face contribution measure p=0.267. Due to these findings H12 is rejected.

PROBLEM SOLVING GROUP: Non-Native Speakers was found to have a statistically significant relationship on the general contribution measure (r=-.611, *p*=0.012). Non-Native Speakers was not found to have a statistically significant relationship on the online contribution measure *p*=0.640. Non-Native Speakers was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.303. Due to these findings H12 is partially supported for problem solving teams.

H13: If the amount of contribution varies across cultures, then the self-reported levels of contribution will vary by culture.

TOTAL: Multicultural Differences was found not to have a statistically significant relationship on the general contribution measure *p*=0.302. Multicultural Differences was not found to have a statistically significant relationship on the online contribution measure *p*=0.247. Multicultural Differences was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.205. Due to these findings H13 is rejected.

PROBLEM SOLVING GROUP: Multicultural Differences was found not to have a statistically significant relationship on the general contribution measure *p*=0.081. Multicultural Differences was not found to have a statistically significant relationship on the online contribution measure *p*=0.686. Multicultural Differences was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.680. Due to these findings H13 is rejected.

H14: Employee motivation has a positive association to employee contribution in meetings.

TOTAL: Employee Motivation was found not to have a statistically significant relationship on the general contribution measure *p*=0.653. Employee Motivation was found to have a statistically significant positive relationship on the online contribution measure (r = 0.278, *p*=0.022). Employee Motivation was found not to have a statistically significant relationship on the face-to-face contribution measure (r = 0.275, *p*=0.023). Due to these findings H14 is partially supported.

PROBLEM SOLVING GROUP: Employee Motivation was found not to have a statistically significant relationship on the general contribution measure *p*=0.653. Employee Motivation was found to have a statistically significant positive relationship on the online contribution measure (r = 0.228, *p*=0.012). Employee Motivation was found not to have a statistically significant relationship on the face-to-face contribution measure (r = 0.224, *p*=0.026). Due to these findings H14 is partially supported.

H15: Employee confidence is positively associated with employee meeting contribution.

TOTAL: Employee Confidence was found not to have a statistically significant relationship on the general contribution measure *p*=0.321. Employee Confidence was not found to have a statistically significant relationship on the online contribution measure *p*=0.545. Employee Confidence was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.708. Due to these findings H15 is rejected.

PROBLEM SOLVING GROUP: Employee Confidence was found to have a statistically significant relationship on the general contribution measure (r = -0.467, *p*=0.028). Employee Confidence was not found to have a statistically significant relationship on the online contribution measure *p*=0.786. Employee Confidence was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.886. Due to these findings H15 is rejected.

H16: Imposter syndrome is negatively associated with employee meeting contribution.

TOTAL: Imposter Syndrome was found not to have a statistically significant relationship on the general contribution measure *p*=0.309. Imposter Syndrome was not found to have a statistically significant relationship on the online contribution measure *p*=0.507. Imposter Syndrome was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.817. Due to these findings H16 is rejected.

PROBLEM SOLVING GROUP: Imposter Syndrome was found not to have a statistically significant relationship on the general contribution measure *p*=0.389. Imposter Syndrome was not found to have a statistically significant relationship on the online contribution measure *p*=0.404. Imposter Syndrome was not found to have a statistically significant relationship on the face-to-face contribution measure *p*=0.723. Due to these findings H16 is rejected.

Table 1. Overview of the results of hypothesis testing for the TOTAL GROUP

			Confirmed For		
Determinant	Hypothesis	Result	G	O	F
Participation in Decision-Making	H1	PART CNFMD		x	x
Psychological Safety	H2	PART CNFMD		x	x
Fear of Repercussions	H3	NOT CNFMD			
Leader Encouragement	H4	PART CNFMD		x	
Leader Motivation	H5	NOT CNFMD			
Leader Support	H6	PART CNFMD		x	
Meeting Structure	H7	NOT CNFMD			
Ritualized Meetings	H8	PART CNFMD		x	
Leader Feedback	H9	NOT CNFMD			
Meeting Frequency	H10	NOT CNFMD			
Meeting Attendance	H11	PART CNFMD		x	
Non-Native Language	H12	NOT CNFMD			
Multicultural Differences	H13	NOT CNFMD			
Motivation	H14	PART CNFMD		x	x
Employee Confidence	H15	NOT CNFMD			
Imposter Syndrome	H16	NOT CNFMD			
Note: CNFMD = confirmed; NOT CNFMD = not confirmed; PART CNFMD = partially confirmed *G = general; O = online; F = face-to-face*					

Table 1 shows the summary of the hypothesis testing for the whole group. The final three columns show for which category of contribution the hypothesis was confirmed.

Table 2 Overview of the results of hypothesis testing for the problem-solving group

			Confirmed For		
Determinant	Hypothesis	Result	G	O	F
Participation in Decision-Making	H1	PART CNFMD		x	x
Psychological Safety	H2	PART CNFMD		x	x
Fear of Repercussions	H3	NOT CNFMD			
Leader Encouragement	H4	NOT CNFMD			
Leader Motivation	H5	NOT CNFMD			
Leader Support	H6	PART CNFMD		x	
Meeting Structure	H7	NOT CNFMD			
Ritualized Meetings	H8	NOT CNFMD			
Leader Feedback	H9	NOT CNFMD			
Meeting Frequency	H10	NOT CNFMD			
Meeting Attendance	H11	NOT CNFMD			
Non-Native Language	H12	PART CNFMD	x		
Multicultural Differences	H13	NOT CNFMD			
Motivation	H14	PART CNFMD		x	x
Employee Confidence	H15	NOT CNFMD			
Imposter Syndrome	H16	NOT CNFMD			
Note: CNFMD = confirmed; NOT CNFMD = not confirmed; PART CNFMD = partially confirmed *G = general; O = online; F = face-to-face*					

Table 2 shows the summary of the hypothesis testing for the problem-solving group. The final three columns show for which category of contribution the hypothesis was confirmed.

Summary of Results

Figure 6. Factors that Increase Contribution in Face-to-Face Meetings

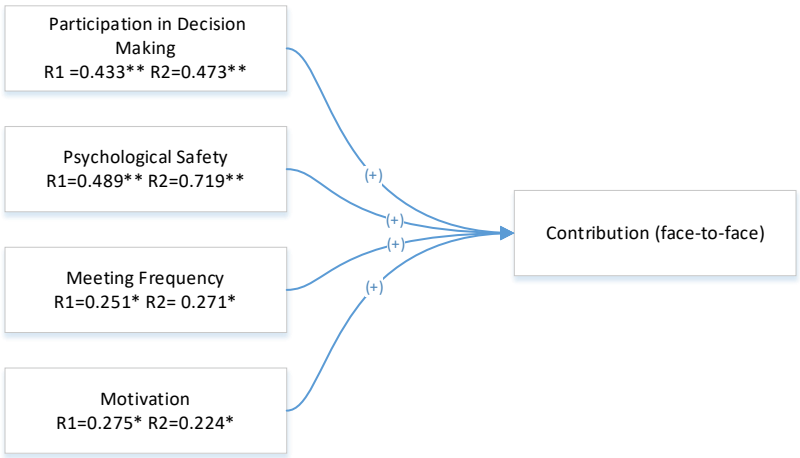

Figure 6. Original illustration

None of the independent variables tested in the total group were found to have an effect on the general contribution measure. Therefore, no independent variable could be

completely confirmed. H1, H2, H10, and H14 were found to have a positive correlation with contribution in face-to face-meetings. The model of increasing factors for face-to-face meetings based on this study are illustrated in Figure 6. The *R* values come from both the total group R1 and the problem-solving group R2.

Figure 7. Factors that Increase Online Contribution

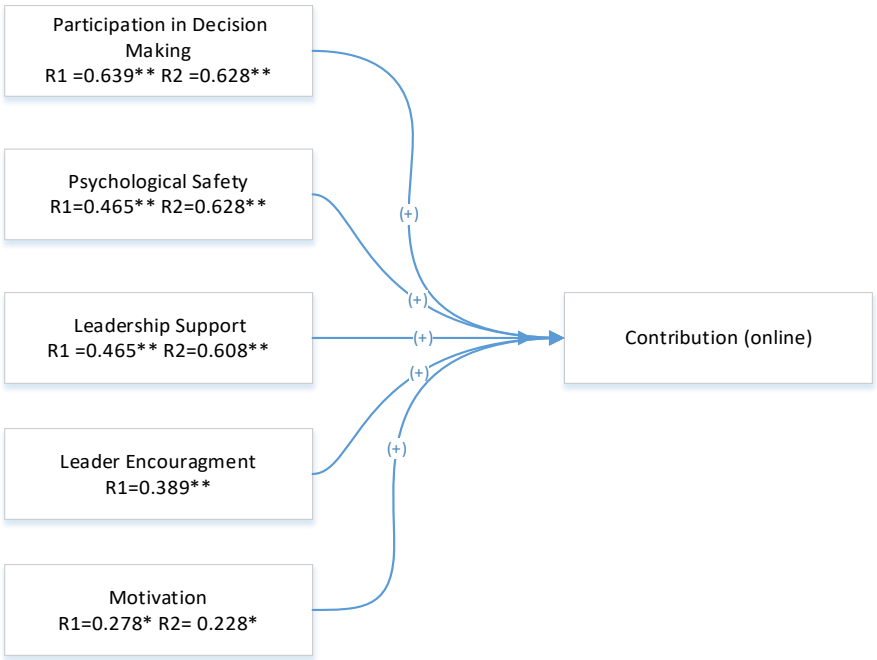

Figure 7. Original illustration

H1, H2, H4, H6, and H14 were found to have a positive correlation with contribution in online meetings. The model of increasing factors for online meetings based on this study are illustrated in Figure 7.

Figure 8. Factors Found to Decrease Online Contribution

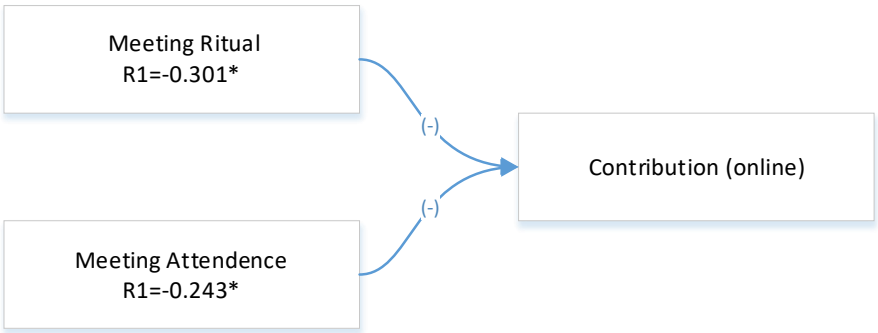

Figure 8. Original illustration

H8 and H11 were found to have a negative correlation with contribution in online meetings. No independent variables were found to have a negative relationship with

contribution in face-to-face meetings. The model of decreasing factors for online meetings based on this study are illustrated in Figure 8.

H12 was found to be significant in the problem-solving group for general contribution. Due to the measuring issues associated with the general contribution measure this factor has not been included in the model.

Certain outliers were removed to increase reliability of the study. However, these outliers yielded interesting results, that can be considered for discussion, outside of hypothesis testing. Sixty two percent (62%) of respondents stated that they often or always do other work during online meetings. This is opposed to only 4.5% of respondents who do other work during in person meetings. Forty one percent (41%) of participants reported that they have reservations about asking team members for help. When asked if they felt their "unique talents" were utilized in their team 27% of respondents rated a three or less on a seven-point scale. Forty-one percent (41%) or respondents either disagree or strongly disagree, when asked if their supervisor encourages them to think and initiate. Fifty two percent (52%) or respondents either disagree or strongly disagree, when asked if their supervisor helps them improve their work ability. Forty seven percent (47%) of respondents who attended meetings in a non-native language at least sometimes allow better speakers dominated the conversion.

A linear regression test was run on the total group and the problem-solving group to test the feasibility of future regression modeling. The total group demonstrated only one instance of multicollinearity between independent variables. This value was Leader Encouragement. The groups split between above average and below average problem solvers demonstrated several instances of multicollinearity between independent variables and at high levels (VIF score larger than 20). The results of the preliminary tests are in the Appendix.

6. Discussion

This study intended on exploring the reasons for low contribution in meetings, and to explore methods for increasing contribution. The literature was reviewed to gather a list of factors associated with improving employee communication and engagement in the meeting setting. These separate factors were then all combined into a survey and their relationship with contribution was tested.

The task of measuring contribution quantitatively was found to be more difficult than anticipated. This was shown in the general contribution category. The general contribution category focused on personality traits that are indicative of an individual's willingness to share an opinion. However, this measure was shown to have an extremely low reliability. The measure was also shown not to correlate with any of the factors even in cases where online contribution and face-to-face contribution did correlate. The online and face-to-face contribution categories were measured differently from general contribution. Those measures ask participants about specific actions that they perform in meetings, such as asking questions or proposing solutions.

PDM (H1) and PS (H2) were found to have a positive relationship with contribution in meeting setting for both the total population and problem-solving groups. The results of H1 reflect findings in the literature regarding the relationship between PDM and employee engagement and performance (Adham, 2014; Kofi et al., 2012; Muindi, 2011; Scott-Ladd et al., 2006; Wagner, 1994; D. Wickramasinghe & Wickramasinghe, 2012; V. Wickramasinghe & Perera, 2014). The results of H2 reflect the literature on the importance of PS on communication and information sharing (Leroy et al., 2012; Mu & Gnyawali, 2003; Peltokorpi, 2004). PDM and PS were found to be important factors in the problem-solving teams. The response coefficients were even higher than in the general population. When searching for a solution meeting participants must feel safe to contribute and help make decisions. There was also a strong relationship between PS and PDM.

Although H2 was confirmed by the study, many participants reported some issues with teamwork and leadership in their workplace. A considerable number of respondents reported unease when asking team members for help, felt a lack of encouragement from supervisors, or felt their skills were underutilized. These aspects of leadership or teamwork are related to PS in the workplace. This suggests that many employees do not work in environments where they feel safe to share ideas.

Leader support (H6) was found to have a strong positive relationship with contribution specifically in the online meeting setting for both groups. This confirms results

found in the literature (Baran et al., 2012; Karanges et al., 2014). Leader Encouragement (H4) was found to have a strong positive relationship with contribution specifically in the online meeting setting for the total group but not specifically for the problem-solving group. This also confirms the literature(J. Allen & Rogelberg, 2013). In addition to this PS and PDM also correlated with Leader Support and Leader Encouragement. This confirms that environments where employees feel safe to express their opinions and help shape the decision foster contribution.

Motivation (H14) was found to have a positive relationship with contribution in the meeting setting for both the total population and problem-solving groups. This presents an interesting question a related to causal relationship. The literature states that employees that are participating in decision making are more motivated (Bhuvanaiah 2015 p. 95). This study did not ask participants for the reasons for their motivation. Therefore, it is impossible to determine if the source is external or internal. In this study employee motivation correlated with PDM, PS, leader support, and leader encouragement. This indicates a connection between management decisions, social setting, and employee wellbeing.

Leader motivation (H5) was not found to have any relationship with employee contribution. This does not match with the literature (Skogstad et al., 2007), of the known issues with laissez-fair leadership. This may be since most respondents reported having active leaders. Therefore, the construct was relatively constant for all participants.

Aspects regarding meeting design were shown to influence online meetings. Meeting attendance (H11) and meeting rituals (H8) as expected both had a negative relationship with contribution in online meetings. The negative effect of large meeting attendance is reflected in the literature about meeting planning (Allison et al., 2015; Cohen et al., 2011; Horwitz & Horwitz, 2007; Odermatt et al., 2015). The study showed that a substantial number of participants admitted to doing other work during online meetings. Perhaps if employees feel that the meeting is routine or over invited, they are more likely to listen in, rather than actively participate. Furthermore, meeting attendance and ritualized meetings both had strong negative relationships with PDM. This may be due to several reasons. Perhaps employees that attend meetings with large numbers of participants and are highly ritualize, have a low level of PDM in for their position. If this is the case, then the effect of PDM on contribution was measured and not meeting attendance or ritual.

Meeting attendance (H11) and meeting rituals (H8) were not found to influence the problem-solving group. This is not surprising. Problem solving requires unique input therefore attendance (H11) can vary depending on the topic. It is also unlikely that problem solving meetings are ritualized.

Although Meeting Frequency (H10) was expected to have a negative relationship with contribution, it was found to have a positive relationship in face-to-face meetings. This

finding is the opposite of those from literature(Luong & Rogelberg, 2005; Rogelberg et al., 2006). This may be due to the opportunity to build personal relationships or trust amongst colleagues. Furthermore, in problem solving meetings high meeting frequency was shown to have a strong positive relationship with contribution in both online and in person. The frequency of problem-solving meetings demonstrated positive correlations with PDM and PS. However, causality is difficult to ascertain. It is likely that employees who engage regularly in problem-solving meetings are more comfortable with methods such as brainstorming which prompt open discussion. It is also possible that leaders in their organization are purposely fostering high levels of PDM and PS for problem solving teams.

Meeting Structure (H7) was not found to have any relationship with contribution in either group. This does not reflect the literature (J. A. Allen et al., 2018; Cohen et al., 2011; Leach et al., 2009; Mroz & Allen, 2017; Rogelberg et al., 2014). Prehaps structuring the meeting correctly and providing an agenda, does not in itself prompt people to contribute. At the most it simply provides a stage where people can contribute, but it has no effect on whether they do or not. Supervisor Feedback (H9) was not found to have any relationship with contribution in either group. This does not reflect the literature (Rogelberg et al., 2010). This shows that Supervisor Feedback may be "nice to have," but it does not prompt people to contribute.

Hypothesis H13 was unable to find any relationship between cultural differences and contribution. These findings are the opposite of the established literature (Gupta, 2000; Hofstede, 1980, 1983, 1984). This may be due to the problems associated with the items chosen to measure cultural differences, or the study was not diverse enough to detect the differences. Many of the respondents may have already lived abroad for a long period of time and have adapted to their environment. There was no relationship between contribution and meeting in a non-native language (H12) in the total population. This is unlike the findings in the literature (Rogerson-Revell, 2007, 2010). Again, the respondents may have already spent many years meeting and speaking in a second language, therefore have grown accustomed to it. However, about half of the participants admitted to allowing better speakers lead the conversation. This signal was also detected in the problem-solving group where there was a strong negative response on the general contribution measure. However, this may be due to the problems with that measure. Employees could be displaying a level of self-restraint when sharing in non-native language, and it is not correctly measured in this study.

Employee Confidence (H15) was found not to be significant for all contribution measures. The finding that Employee Confidence has no relationship on contribution is directly the opposite of the literature (Prussia et al., 1998). The study cited specifically sampled students in an entrepreneurial program at a university and not actual employees

in corporation. This could be the cause of the deviation between the results. Employee Confidence was found to have less of an impact on contribution than PS, which is the opposite of literature(Siemsen et al., 2009).

Imposter Syndrome (H16), and Fear of Repercussions (H3) had no relationship with contribution in meetings. Imposter Syndrome (H16) was found to have no relationship to contribution. This is the opposite of the predictions made in the literature. Imposter Syndrome is predicted to have either a negative or a positive association with employee engagement (P. R. Clance & Imes, 1978, p. 243-43). This may be due to low levels of Imposter Syndrome in the participants, or that too few items on the scale were used to properly identify Imposter Syndrome in the participants. Fear of Repercussions (H3) was not shown to have any relationship with contribution. Interestingly PS was shown to be positively related to contribution. The study expected to see a negative relationship with one, and a positive relationship with the other. This may mean that Fear of Repercussions material or immaterial is a separate psychological framework than the feeling of safety. Perhaps an individual may fear consequences for actions, but still feel safe to speak their mind.

7. Implications, Limitations, and Future Research

7.1 Implications for Theory

The strong association between PDM and PS and contribution confirms predictions made by the Social Exchange Theory(Thibault & Kelly, 1959), the Expectancy Theory (Vroom, 1964), and the Transformational Leadership Model (Bass, 1990).

The Social Exchange Theory (Thibault & Kelly, 1959) predicts that people would only be likely to contribute if they feel they have something to gain from the social interaction. In the case of PDM the employee gains the ability to influence future actions of the organization. Social exchanges have social barriers, such as potential embarrassment. PS lowers these barriers, by providing an environment where employees feel free to state their opinions. Thus, the inter-play between PS and PDM in the framework of business social exchanges where there are no material incentives is fundamental. PS reduces the barriers to contribution, and PDM provides the incentive to contribute.

The direct relationship between PS and PDM must be considered when designing an organization. If the employees are expected to participate in the strategic planning or decision making of an organization, they must also be provided with an environment where they feel safe to do so. This study showed that especially in the ad hoc problem-solving teams a sense of psychological safety has the largest correlation with contribution. Therefore, any organization that must respond quickly to certain situations would benefit from high levels of PS.

In this study PDM and PS were so closely linked that PS may even be a determining factor of PDM. Many studies of PDM refer to increased motivation, engagement, and performance. Perhaps organizations that implement high levels of employee PDM, may also be implementing policies to provide a safe sharing climate for their employees. Future research of PDM in business should also include measures for PS in their studies since many of the positive effects of PDM may be outcomes related to PS in the workplace.

The Expectancy Theory (Vroom, 1964) states that people anticipate the positive or negative outcomes from situations. This anticipated outcome provides the mental motivation to either preform an action or not. This predicts that PS would help increase contribution. If the employee feels safe to express their opinions without the potential for disrespect, they are more likely to contribute. In this study motivation was strongly associated with PS. This again confirms predictions made by the Expectancy Theory (Vroom, 1964).

In this study Leader Support and Leader Encouragement were associated with contribution and correlated with PS, PDM, and motivation. The measures used for Leader support and Leader Encouragement are also commonly used to measure transformational leadership. This suggests there is an association between PS, PDM, and transformational leadership. Perhaps the transformational leadership style, allows employees to feel respected and encouraged to contribute and develop.

The findings of the meeting mechanics variables did not have any implications for the McGrath Model (McGrath, 1984) or the Symbolic Convergence Theory (Bormann, 1972). There is a level of confirmation of the Structuration Theory of group communication (Giddens, 1984). The confirmation comes from the correlation of PS with contribution. The Structuration Theory focuses on how people conform and behave within the given social rules of a group. To cultivate a psychologically safe environment participants in a conversation must conform to certain rules. While PS may not be a mechanic, it is part of the structural climate of the setting. This makes PS more important than other meeting mechanics, such as dress code, agendas, formal speaking, and punctuality. The fact that PS is more important that meeting mechanics is supported by the findings of this study, as the meeting mechanic variables were not shown to have any relationship with contribution.

The findings of this study have some implications on the study of Imposter Syndrome. Imposter Syndrome is an internal anxiety that may manifests itself in an individual's outward behavior. This study found no evidence that imposter syndrome has any correlation with contribution in meetings. Although an effect is predicted by the theory. The current literature states that employees may contribute more or less depending how the condition manifests itself (P. R. Clance & Imes, 1978, p. 243-244). It seems as although there is no clear information on how this condition effects contribution. Therefore, those that research Imposter Syndrome need to re-evaluate the external behavior associated with it.

7.2 Implications for Practice

Employee PDM was strongly associated with more contribution in meetings. Leaders should give their employees the ability to share in the decision making of the group. Employees should have a stake in the macro level decisions such as which goals, or projects to achieve in the future. Leaders should allow employees the freedom to choose their own goals and targets for smaller projects. In the case of team problem solving, meeting participants should be informed that their input is important, and they will be helping make decisions for future strategies or designs. A simple step to start implementing a PDM strategy at an organization without it is a suggestion box. This allows employees to begin introducing their ideas, and improvements to current problems that are being encountered.

Currently many large organizations are experimenting with the "flat" organizational structure, this strategy removes hierarchy and attempts to replicate the high level of PDM that occurs in smaller startup companies (Vaara et al., 2021, p. 2). This strategy could increase long term interest and commitment, which in turn could increase contribution in the day-to-day meetings.

PS was strongly associated with increased contribution in meetings. This suggests that leaders should focus on building an environment of trust amongst their team and those with whom they regularly meet. Since PS and personal meetings are found to increase contribution effort should be made to have as much personal interaction as possible. PS has a greater importance in the case of problem-solving meetings. This is due to the potential for finding errors that were made in the past. Leaders should actively listen and build a culture where mistakes are considered learning opportunities. They should be open about their own mistakes and be open to feedback. Furthermore, they should not be in a rush to fix problems when they occur. Transparency is a key component of PS, leaders should be willing to share the reasons for their opinions with employees, so the employees feel they can reciprocate. There should be specific rules about confidentiality in the team, so that team members feel that their contribution will be kept private in the group.

Meeting frequency was found to have a positive effect on contribution for problem solving meetings. It is recommended that leaders plan regular meetings for problem solving topics. In these meetings, the findings from tests can be reviewed and new strategies can be discussed.

Motivation, leader encouragement, and leader support were found to be positively associated with contribution. This indicates that highly motivated employees are more likely to contribute in meetings. Leaders should ask employees about their motivations. Leaders should learn if these motivations are extrinsic or intrinsic, then modify the employee’s management plan or assignments based on those findings. Leader encouragement and Leader support were also associated with more contribution in meetings. Leaders should actively encourage their employees to participate and support their input. If a leader is not comfortable or familiar with doing this, they should seek out further training to develop their own leadership skills.

High Meeting Attendance and Meeting Ritual were negatively associated with employee contribution in online meetings. This coupled with the finding that the majority of participants admit to doing other work during online meetings, demonstrates the need avoid further distraction or boredom. In online meetings it is easier for participants to "hide." Therefore, it is best to focus on including key stakeholders, instead of inviting a large number of participants. Perhaps meetings could be broken down into smaller groups and when necessary larger events can be planned. Based on the findings, repetitive ritualized online

meetings are also not advised. Leaders should try to vary the structure of the meeting. One option is to choose different people to moderate the meeting. Other options include, changing the format, and the changing the organizational tool used.

7.3 Limitations

There are several limitations to the design of the study. The multivariable nature of the survey leads to measuring problems. Certain questions of the survey may be misinterpreted or are double loaded. There is a heavy reliance on self-reporting and perception. The survey is relatively long. The initial assumptions made during the literature review may not have been correct. The experimenter is inexperienced at in all levels of the experimental process. The survey is relatively long.

The design runs the risk of having too many interdependent variables. There are fifteen independent variables. These all must be measured, before analysis can take place. Due to the large number of independent variables, they are all only measured with a few items. This may not be enough to confidently determine the variable. Perhaps it would be better to have tested fewer variables and measured each variable more intensively.

The multivariable nature of the study implies a need to assign the relative importance of each factor. There is possibility that only one factor truly influences the dependent variable, but it is hard to identify in a large field of other factors. The study does not evaluate the combined effect of the independent variables. Some factors have strengthening and some moderating effects on contribution, this relationship is not measured.

There are many inter-related independent variables. This is demonstrated with the independent variable Employee Motivation. This variable is tested to measure its impact on contribution. However, motivation has been shown in other studies to be dependent on other variables in the study. Since the source of the motivation is not measured it, it is not clear if increased motivation is a by-product of another independent variable.

The initial research of the experiment focused on methods to increase employee engagement or performance, because of the lack of information on meeting contribution. The assumption was that an engaged or high preforming employee, would contribute more in a meeting. This assumption could be fundamentally wrong, there are plenty of situations where an employee could be high preforming or highly engaged and never attend a meeting. A low preforming employee could contribute in every meeting. The problem is that it is anecdotally true that high preforming employees also contribute more in meetings, but it has not been demonstrated. This leads to the possibility that the methods that were tested in this study were the wrong ones. More creativity should have been used to find methods perhaps in different fields, such as communication, education, psychology, and team theory.

Some of the questions in the section that measures contribution section can be misinterpreted. Specifically, the question, "I stay silent in online meetings." It is possible that participants thought the survey was referring to the common practice for members of an online meeting to mute their microphones. This question should either re-phrased or eliminated. The questions that ask if a participant asks questions or suggests solutions is adequate to measure contribution. The survey questions regarding PDM may also be confusing. The difference between “how to preform” and “how to do” a job may be unclear for some participants.

The survey relies on self-reported levels of contribution and the participants perception of their supervisors’ actions. It is possible that participants rate their contribution higher than it is in the workplace. The general contribution measure in particular should be removed or redesigned. The intention was to measure the base character traits of the individual and to use it as a foundation for comparison. The concept was to show that a person is predisposed to speak their mind, but for example they speak less in online meetings. Unfortunately, the reliably of the questions were rated quite low, in order to correct this an one was deleted. The remaining items were character traits that are generally considered good. Therefore, the participants may have rated themselves higher. The topics of supervisor support and action are dependent on the perception of the participant and may be subject to bias. The participants may be rating their supervisor based on personal issues and emotions that may be unrelated to the survey questions.

There survey has several double-barreled questions. This refers to questions that could measure multiple topics. The first example is the R3 question, which is intended to measure Fear of Repercussions, "It is difficult, to ask team members for help." While this may be a result of the Fear of Repercussions, it does not directly measure if the fear is there. There is a significant overlap with the PDM questions, and the Leader Support questions. Specifically, the Questions LS2 and LS3 which ask, " my supervisor works out agreements with us" and "my supervisor supports our decisions after they have been discussed." These questions are likely measuring PDM and not Leader Support. This may be the cause of the correlation between the two in the results.

The survey questions may not be measuring exactly what they are intended to measure. Specifically, the questions that measure, Meeting Rituals could also be measuring an employee's motivation. Specifically, the questions that measure, whether the participant feels their meetings are routine and not necessary. A unmotivated employee may have that opinion. The multicultural questions may overlap several cultures. It is common for many cultures, even individualistic cultures, to value group harmony. There are limitations in measuring meeting structure. Only punctuality and agendas are measured. These were as indicators that leaders are planning meetings before hand, and keeping the meetings

paced. Perhaps, other methods are used to achieve the same goal, and are not measured in the survey.

There are limitations associated with the positivism approach for this type of research. This first is that the researcher is not an unbiased neutral observer. The researcher lives and operates in the ecosystem that is being studied. Therefore, the researcher has preconceived notions, and experiences in the field. The second limitation is that the reasons for low or high contribution experienced by the participants may not be listed on the quantitative survey. These reasons may be found in open interviews. In this case an inductive approach could yield more valuable information. Since this research focuses on discussions that happening in small groups an observational method could be advantageous.

The length of the survey is a key limitation. The average survey completion time was approximately 15 minutes and 40% of the participants did not complete it. A generally rule of thumb is that a survey should take less than 10 minutes to complete. The survey had a total of 72 questions. This runs the risk of participant fatigue. The users may begin to blindly answer the questions.

7.4 Further Research

The first avenue of future research triggered by this study is method should be designed to measure contribution in meetings. Previous research has focused on measuring employee engagement. The metrics used to measure engagement tend to incorporate emotions and feels, such as sense of meaning or commitment. They do not measure actively participation in group communication settings. Defining a strategy used to measure contribution is difficult. There are many potential problems with self-reported systems. Observational methods are time consuming, and the addition of another person inherently changes the setting that, they are supposed to measure. The use of recording equipment to gather information that can be analyzed later raises privacy concerns. Furthermore, the difference between the actual and perceived contribution or participation could be investigated.

A linear regression analysis should be performed. A preliminary test was performed in this study. The results showed high levels of multicollinearity between factors when the total group was separated. The reasons for this need to be investigated, so the study can be repeated.

The fear of public speaking should also be investigated. Fear of public speaking is one of the most common fears (Anderson et al., 2005, p. 156). It may influence how people participate in meetings. This effect may also exist in online or in person platforms.

The findings of this study imply that there is no relationship between culture and the amount of contribution in meetings. These findings are the opposite of the predictions made by the established of literature that focuses on culture and business. The results regarding the relationship between contribution and culture need to be reconfirmed.

The effect of impersonal social media-based business communication tools. People are engaged in impersonal commenting, and messaging on threads more than ever. Does this influence how people communicate in group settings? The effect of multitasking on contribution should also be investigated. One of the benefits of remote meetings is that people can communicate in a group regardless of location. However, it is often used as an opportunity to do two separate tasks at one time. There must be an effect on contribution if an individual's attention is divided.

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Appendix

Table 3: Contribution Literature

Study	Method	Relevance to Project
(J. Allen & Rogelberg, 2013)	Survey Questions	Measured, “voice” which asked employees if they felt they had freedom to speak.
(Prussia et al., 1998)	Survey Questions	Measured “oral contribution” in class, in a survey.

Table 4: PDM Literature

Study	Finding	Relevance to Project
(Muindi, 2011, p. 30)	Strong Correlation with PDM and Job Satisfaction	A satisfied employ may be more likely to contribute.
(D. Wickramasinghe & Wickramasinghe, 2012, p. 12)	PDM moderates job satisfaction, commitment, and perceived organizational support in lean manufacturing in Malaysia.	All the benefits associated with employee PDM, could increase contribution.
(V. Wickramasinghe & Perera, 2014, p. 1290)	PDM increases job commitment and quality in lean manufacturing.	All the benefits associated with employee PDM, could increase contribution.
(Scott-Ladd et al., 2006, p. 410)	PDM increases job satisfaction, commitment, and autonomy.	All the benefits associated with employee PDM, could increase contribution.
(Appelbaum et al., 2013, p. 226)	PDM increases employee engagement and satisfaction.	All the benefits associated with employee PDM, could increase contribution.
(Kofi et al., 2012, p. 22)	PDM increases employee commitment and performance in Ghana.	All the benefits associated with employee PDM, could increase contribution.
(Adham, 2014, p. 382)	PDM increases employee commitment and satisfaction.	All the benefits associated with employee PDM, could increase contribution.
(Wagner, 1994, p. 326)	PDM increases employee satisfaction and performance, however effect may be small.	All the benefits associated with employee PDM, could increase contribution.
(D. Allen et al., 2003, p. 113) (M. W. Allen, 1992, p. 360)	PDM increases employee sense of support.	A sense of support could increase contribution.
(Alsughayir, 2016, p. 68)	PDM increases satisfaction and performance in Saudi Arabian Firms.	PDM has been shown to increase performance.
(Drescher et al., 2014, pp. 777–779)	Shared leadership builds trust and enhances performance.	Shared leadership and PDM can increase contribution.

Table 5: Leadership Styles in Meetings Literature

Study	Finding	Relevance to Project
(J. Allen & Rogelberg, 2013, pp. 562–563)	Leaders need to actively promote engagement from employees in meetings.	Active contribution cultivation from leaders should increase contribution.
(Odermatt et al., 2015, p. 278)	Leaders must properly plan meetings.	Poorly planned meetings could reduce contribution.
(Rogelberg et al., 2006, pp. 93–95)	Meetings require huge amounts of time resources for leaders and employees.	Too much time in meetings could lower employees willingness to contribute due to boredom.
(Rogelberg et al., 2012, p. 243)	Quantifies the costs of poorly run meetings and gives a three-stage model for leaders for running efficient and effective meetings.	Demonstrates that meetings must be structured to produce a desired outcome without wasting time.
(Baran et al., 2012, pp. 345–349)	Found that leader member exchange mediates employee perceptions of fairness and organizational support in meetings.	Demonstrates that leaders should support employees.
(Odermatt et al., 2017, p. 187)	Employees prefer considerate leaders in meetings.	Leadership should be considerate in meetings.
(Mroz et al., 2020, p. 216)	Reviewed multiple theories of leadership and applied them to meeting science.	Leadership styles effect meeting outcome.
(Zagenczyk et al., 2015, p. 115)	LMX increases trust in employees. This makes them more open for conservation.	Leadership is important to gain trust in employees.

(Wodak et al., 2011, pp. 611–662)	Discursive leadership builds a relationship with the employees in meetings.	Active leader cultivation of contribution in meetings, is important.
(Karanges et al., 2014, p. 344)	Leaders should cultivate internal communication to improve an employees sense of support.	Increasing feelings of leader support could increase contribution.

Table 6:Psychological Safety Literature

Study	**Finding**	**Relevance to Project**
(Bendoly, 2014, pp. 1362–1365)	Psychological safety increases systems understanding in teams.	If teams better understand each other they may contribute more.
(Edmondson, 1999a, pp. 375–377) (Carmeli & Gittel, 2009, pp. 721–724)	PS increases learning in teams.	The learning process requires interaction, if PS increases learning it can be assumed it also increased interaction.
(Halbesleben & Rathert, 2008, p. 141)	PS is important for teams to develop work-arounds.	This supports the claim that PS aids in problem solving.
(Hirak et al., 2012, pp. 112–114)	PS is important for teams to learn from failures.	Group learning requires interaction.
(Kark & Carmeli, 2009, pp. 776–779) (Schaubroeck et al., 2011, pp. 868–870) (M. Singh & Sarkar, 2012, pp. 132–135)	PS has a positive association with team creativity and innovation.	Group creativity likely also requires contribution from members.
(B. Singh et al., 2013, pp. 255–260)	PS has a positive association with team creativity and innovation in multicultural teams.	PS may aid in contribution in multicultural teams
(Leroy et al., 2012, p. 1279) (Mu & Gnyawali, 2003, pp. 702–708) (Peltokorpi, 2004, pp. 460–463)	PS has a positive association with communication in groups.	PS has been proven to increase communication.

Table 7: Meeting Mechanics Literature

Study	Finding	Relevance to Project
(Luong & Rogelberg, 2005, p. 66)	High meeting frequency increases employee workload.	This may reduce contribution in stressed employees.
(Cohen et al., 2011, p. 101)	Meetings should be well prepared for in advance and external factors should be considered. Meeting Minutes and feedback will increase participation in future meetings.	Good preparation may increase employee contribution. Supervisor feedback is a possible method to increase contribution.
(Horwitz & Horwitz, 2007, p. 1009)	Diverse groups may be better at problem solving.	Diverse groups may increase discussion and contribution because many topics can be discussed.
(Leach et al., 2009, p. 75)	Setting clear goals increases efficiency and participation.	Agendas and clear goals should increase contribution.
(Frank et al., 2016)	People have to be in the right mental state for a meeting.	Mental state and comfort may increase contribution.
(Odermatt et al., 2018).	Avoid distractions.	The constant distractions of online meetings could hurt contribution.
(J. A. Allen et al., 2018, p. 1019), (Mroz & Allen, 2017, p. 525), (Rogelberg et al., 2014, p. 336)	Punctuality increases employee participation.	Punctuality could increase member contribution.
(Kauffeld & Lehmann-Willenbrock, 2012, p. 146)	Complaining spreads in meetings and diverts from the goals.	Preventing bad contribution is as important as increasing overall contribution

(Rogelberg et al., 2010, p. 167)	Assessing satisfaction is important for future meetings.	Assessing satisfaction can be used for continuous improvement.

Table 8:Multicultural Meetings Literature

Study	Finding	Relevance to Project
(Sprain & Boromisza-Habashi, 2012, p. 187)	Westerners need to be mindful not to misinterpreted non-western practices.	Some people may contribute less to meetings if they feel uncomfortable with the customs.
(Köhler et al., 2012, p. 79; Lehmann-Willenbrock et al., 2014, p. 267)	Cultural differences exist in German and American Meetings.	These differences dictate what members feel they need to contribute, and what other members expect from them.
(Kell et al., 2007, p. 324).	Cultural differences for meeting structure and conversation exist between indigenous people of New Zealand.	Cultural norms can affect amount and the type of contribution that individuals provide.
(Poncini, 2007, p. 18)	Entire book. One section describes taking caution when attributing culture instead of language factors to meeting misunderstandings.	Language factors including style, native language, and tone could affect how people perceive events in meetings.
(Aritz & Walker, 2010, p. 36).	East Asians change language patterns in English based on the cultures with which they are communicating.	Language factors and communication style may affect contribution.
(Paletz et al., 2018, p. 12).	Mixed cultural teams have less conflict than homogenous groups.	Perhaps group composition effects contribution.
(Rogerson-Revell, 2007, p. 15)	Many speech factors can affect how non-English speakers contribute to meetings.	The use of English as a shared language may affect non-English speakers.
(Rogerson-Revell, 2010, p. 452)	When communicating in a shared language there should be accommodation from the native speakers and interaction from the non-native speakers.	The use of English as a shared language may affect non-English speakers.

(Poncini, 2003, pp. 29–30).	Side conversations in native tongue can serve to clear up misunderstandings.	The use of English as a shared language may affect non-English speakers.
(Poncini, 2002, pp. 352–359).	Entire Book. This chapter offers many methods that have been shown to increase understanding in teams operating in a shared language with native and non-native speakers.	There are many methods that can increase contribution from speakers of varying language competence.

Table 9: Employee Motivation Literature

Study	**Finding**	**Relevance to Project**
(Gagné, 2014, p. 44)	Motivation stems from meeting basic needs.	Perhaps people will be more motivated to contribute when needs such as psychological safety are met.
(Mangkunegara & Octorend, 2015, p. 327; Moynihan & Pandey, 2007, p. 828; Shaheen & Farooqi, 2014, p. 15)	Motivation is liked to employee engagement and contribution.	Unmotivated employees will likely not contribute.
(ArunKumar, 2014, p. 92; R. Singh, 2016, p. 202; Thomas, 2009, pp. 47–50) .	Both extrinsic and intrinsic rewards drive engagement. Employers should use both reward systems.	Perhaps intrinsic reward systems such as PDM and leader support will increase motivation and commitment.
(Shuck & Wollard, 2008, p. 51).	Intrinsic rewards are more important for motivating modern workers, than previous workers.	Perhaps intrinsic reward systems such as PDM and leader support will be more important for increasing motivation and commitment in the future.
(Olson et al., 2014, p. 17).	Motivation is more important for increasing the engagement of younger workers than older workers.	Perhaps intrinsic reward systems such as PDM and leader support will be more important for increasing

		motivation and commitment for younger workers.
(Bhuvanaiah 2015 p. 95)	Employee motivation and engagement is related to the level of PDM a worker has.	Perhaps intrinsic reward systems such as PDM and leader support will increase motivation and commitment.

Table 10: Employee Confidence and Imposer Syndrome Literature

Study	**Finding**	**Relevance to Project**
(Chan et al., 2017, p. 25; Cherian & Jacob, 2013, p. 85; Gardner & Pierce, 1998, p. 63; Lyons & Bandura, 2018, p. 2)	Employee confidence is linked to higher performance.	Highly confident employees could be more likely to contribute in meetings.
(Prussia et al., 1998, p. 535)	Employee confidence is linked to higher performance and specifically contribution.	This study included contribution in the job performance definition. It is evidence that confidence is important for contribution.
(Lyons & Bandura, 2021, pp. 702–703)	Recommend Managers train employees for self-efficacy to improve worker engagement.	This study describes an instance where leaders can support employees improve.
(Bravata et al., 2020, p. 20)	Reviewed literature on prevalence of imposter syndrome and possible medical definitions.	This study demonstrates that imposter syndrome could be widespread.
(Cusack et al., 2013, p. 77)	Women are more likely to have Imposter Syndrome than men.	Possible cause for gender differences in contribution.
(Parkman, 2016, p. 53).	Mixed results on the link between gender and Imposter Syndrome.	Imposter syndrome could effect all genders.
(Kumar & Jagacinski, 2006, p. 155)	High preforming, goal oriented individuals	Imposter syndrome may increase contribution.

	display more Imposter Syndrome than the population.	

LinearRegression Test General Contribution Total Group[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3,753	1,285		2,920	,006		
	PDMResults	,080	,101	,208	,789	,436	,256	3,913
	PsychologicalSafetyResults	-,046	,074	-,116	-,623	,538	,508	1,968
	LeaderMotivationResults	,066	,132	,119	,497	,622	,310	3,226
	LeaderSupportResults	,154	,156	,369	,982	,333	,126	7,963
	LeaderEncouragmentResults	-,252	,195	-,562	-1,297	,204	,094	10,590
	StructureMeetingResults	,242	,114	,429	2,126	,041	,436	2,292
	RitualResults	-,249	,138	-,426	-1,802	,081	,317	3,151
	FearOfReprecussionsResults	-,007	,065	-,020	-,104	,918	,497	2,012
	EmployeeConfidenceResults	-,171	,129	-,286	-1,332	,192	,383	2,609
	NonNativeSpeakerResults	-,152	,139	-,191	-1,090	,284	,576	1,737
	MultiCulturalDifferencesResults	-,176	,118	-,223	-1,498	,144	,802	1,247
	SupervisorFeedbackResults	,005	,079	,013	,069	,945	,542	1,845
	MeetingAttendenceResults	,026	,043	,098	,613	,544	,699	1,431
	MeetingFequencyProblemSolvingResults	-,045	,108	-,079	-,415	,681	,482	2,075
	MeetingFequencyNoProblemSolve	,210	,130	,292	1,609	,117	,539	1,856
	MotivationResults	-,049	,124	-,085	-,391	,698	,379	2,641
	ImposterSyndromMean	,270	,109	,497	2,487	,018	,444	2,250

a. Dependent Variable: ContributionGeneralResults

LinearRegression Online Contribution Total Group[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-2,919	2,146		-1,360	,183		
	PDMResults	,470	,169	,581	2,786	,009	,256	3,913
	PsychologicalSafetyResults	,168	,123	,201	1,361	,183	,508	1,968
	LeaderMotivationResults	,362	,221	,310	1,638	,111	,310	3,226
	LeaderSupportResults	-,046	,261	-,052	-,176	,862	,126	7,963
	LeaderEncouragmentResults	,479	,325	,506	1,473	,150	,094	10,590
	StructureMeetingResults	-,030	,190	-,025	-,159	,875	,436	2,292
	RitualResults	,453	,231	,367	1,958	,059	,317	3,151
	FearOfReprecussionsResults	,253	,109	,348	2,324	,026	,497	2,012
	EmployeeConfidenceResults	,050	,215	,040	,234	,817	,383	2,609
	NonNativeSpeakerResults	-,086	,233	-,052	-,372	,712	,576	1,737
	MultiCulturalDifferencesResults	-,032	,196	-,019	-,164	,871	,802	1,247
	SupervisorFeedbackResults	,008	,132	,009	,062	,951	,542	1,845
	MeetingAttendenceResults	-,004	,071	-,007	-,058	,954	,699	1,431
	MeetingFequencyProblemSolvingResults	-,048	,180	-,041	-,267	,791	,482	2,075
	MeetingFequencyNoProblemSolve	,286	,218	,189	1,316	,197	,539	1,856
	MotivationResults	-,229	,208	-,190	-1,106	,277	,379	2,641
	ImposterSyndromMean	,056	,181	,049	,307	,761	,444	2,250

a. Dependent Variable: ContributionOnlineResults

LinearRegression Test Face to Face Meetings Total Group[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	,779	1,723		,452	,654		
	PDMResults	,086	,135	,139	,636	,529	,256	3,913
	PsychologicalSafetyResults	,322	,099	,506	3,255	,003	,508	1,968
	LeaderMotivationResults	,084	,177	,095	,476	,637	,310	3,226
	LeaderSupportResults	-,178	,210	-,266	-,851	,401	,126	7,963
	LeaderEncouragmentResults	,290	,261	,400	1,110	,275	,094	10,590
	StructureMeetingResults	,037	,153	,041	,243	,810	,436	2,292
	RitualResults	,185	,186	,196	,998	,326	,317	3,151
	FearOfReprecussionsResults	,184	,087	,330	2,100	,043	,497	2,012
	EmployeeConfidenceResults	,008	,172	,009	,048	,962	,383	2,609
	NonNativeSpeakerResults	-,083	,187	-,065	-,442	,661	,576	1,737
	MultiCulturalDifferencesResults	-,482	,157	-,379	-3,061	,004	,802	1,247
	SupervisorFeedbackResults	-,038	,106	-,054	-,359	,722	,542	1,845
	MeetingAttendenceResults	-,034	,057	-,078	-,590	,560	,699	1,431
	MeetingFequencyProblemSolvingResults	-,178	,144	-,197	-1,232	,226	,482	2,075
	MeetingFequencyNoProblemSolve	,450	,175	,389	2,576	,015	,539	1,856
	MotivationResults	,100	,167	,108	,601	,552	,379	2,641
	ImposterSyndromMean	,012	,146	,013	,080	,937	,444	2,250

a. Dependent Variable: ContributionFtoFResults

LinearRegression Above Average Problem Solving Group General Contribution[a]

ProbSolveCat	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
			B	Std. Error	Beta			Tolerance	VIF
OverAverageProblemSolve	1	(Constant)	5,595	,000		.	.		
		PsychologicalSafetyResults	,310	,000	,702	.	.	,296	3,383
		LeaderMotivationResults	-,450	,000	-,836	.	.	,009	112,634
		LeaderSupportResults	-,451	,000	-1,155	.	.	,031	32,565
		LeaderEncouragmentResults	,367	,000	,825	.	.	,005	219,072
		StructureMeetingResults	-,488	,000	-1,007	.	.	,065	15,337
		RitualResults	,500	,000	,834	.	.	,024	41,532
		FearOfReprecussionsResults	,160	,000	,398	.	.	,192	5,209
		NonNativeSpeakerResults	-,713	,000	-,920	.	.	,020	49,460
		MultiCulturalDifferencesResults	-,036	,000	-,051	.	.	,026	38,039
		SupervisorFeedbackResults	-,008	,000	-,021	.	.	,048	20,934
		MeetingAttendenceResults	,073	,000	,325	.	.	,089	11,265
		MeetingFequencyProblemSolvingResults	-,119	,000	-,172	.	.	,200	5,003
		MeetingFequencyNoProblemSolve	-,383	,000	-,427	.	.	,287	3,486
		MotivationResults	,075	,000	,132	.	.	,064	15,635
		ImposterSyndromMean	-,132	,000	-,209	.	.	,362	2,759
UnderAverageProblemSolve	1	(Constant)	3,457	1,287		2,686	,016		
		PsychologicalSafetyResults	,055	,095	,142	,584	,567	,329	3,036
		LeaderMotivationResults	,004	,149	,007	,025	,980	,268	3,738
		LeaderSupportResults	,264	,227	,620	1,163	,261	,068	14,723
		LeaderEncouragmentResults	-,415	,238	-,908	-1,745	,099	,071	14,017
		StructureMeetingResults	,322	,139	,524	2,322	,033	,379	2,638
		RitualResults	-,317	,158	-,538	-2,007	,061	,269	3,712
		FearOfReprecussionsResults	,042	,077	,128	,547	,592	,354	2,824
		NonNativeSpeakerResults	-,150	,148	-,185	-1,015	,324	,585	1,711
		MultiCulturalDifferencesResults	-,208	,135	-,251	-1,545	,141	,732	1,366
		SupervisorFeedbackResults	,084	,090	,185	,936	,362	,497	2,011

LinearRegression Problem Solving Groups Online Contribution[a]

ProbSolveCat	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
			B	Std. Error	Beta			Tolerance	VIF
OverAverageProblemSolve	1	(Constant)	-16,461	,000		.	.		
		PsychologicalSafetyResults	,322	,000	,328	.	.	,296	3,383
		LeaderMotivationResults	1,266	,000	1,059	.	.	,009	112,634
		LeaderSupportResults	-,144	,000	-,166	.	.	,031	32,565
		LeaderEncouragmentResults	1,776	,000	1,796	.	.	,005	219,072
		StructureMeetingResults	-,067	,000	-,062	.	.	,065	15,337
		RitualResults	,668	,000	,501	.	.	,024	41,532
		FearOfReprecussionsResults	,276	,000	,309	.	.	,192	5,209
		NonNativeSpeakerResults	,903	,000	,524	.	.	,020	49,460
		MultiCulturalDifferencesResults	,558	,000	,363	.	.	,026	38,039
		SupervisorFeedbackResults	-,037	,000	-,043	.	.	,048	20,934
		MeetingAttendenceResults	,140	,000	,279	.	.	,089	11,265
		MeetingFequencyProblemSolvingResults	,881	,000	,573	.	.	,200	5,003
		MeetingFequencyNoProblemSolve	-,665	,000	-,333	.	.	,287	3,486
		MotivationResults	,431	,000	,342	.	.	,064	15,635
		ImposterSyndromMean	,355	,000	,253	.	.	,362	2,759
UnderAverageProblemSolve	1	(Constant)	-2,177	2,312		-,941	,360		
		PsychologicalSafetyResults	,298	,170	,387	1,754	,097	,329	3,036
		LeaderMotivationResults	,595	,267	,545	2,227	,040	,268	3,738
		LeaderSupportResults	-,679	,407	-,809	-1,666	,114	,068	14,723
		LeaderEncouragmentResults	,961	,427	1,066	2,249	,038	,071	14,017
		StructureMeetingResults	-,048	,249	-,040	-,193	,849	,379	2,638
		RitualResults	,218	,283	,188	,770	,452	,269	3,712
		FearOfReprecussionsResults	,272	,138	,421	1,978	,064	,354	2,824
		NonNativeSpeakerResults	-,030	,265	-,019	-,115	,910	,585	1,711
		MultiCulturalDifferencesResults	-,215	,242	-,131	-,888	,387	,732	1,366
		SupervisorFeedbackRes	-,153	,162	-,169	-,944	,358	,497	2,011

LineaRegression Problem Solving Group Contribution Face to Face[a]

ProbSolveCat	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
			B	Std. Error	Beta			Tolerance	VIF
OverAverageProblemSolve	1	(Constant)	-19,231	,000		.	.		
		PsychologicalSafetyResults	,312	,000	,392	.	.	,296	3,383
		LeaderMotivationResults	1,606	,000	1,652	.	.	,009	112,634
		LeaderSupportResults	-,134	,000	-,190	.	.	,031	32,565
		LeaderEncouragmentResults	1,630	,000	2,027	.	.	,005	219,072
		StructureMeetingResults	1,034	,000	1,179	.	.	,065	15,337
		RitualResults	-,225	,000	-,208	.	.	,024	41,532
		FearOfReprecussionsResults	,257	,000	,354	.	.	,192	5,209
		NonNativeSpeakerResults	1,900	,000	1,355	.	.	,020	49,460
		MultiCulturalDifferencesResults	,167	,000	,133	.	.	,026	38,039
		SupervisorFeedbackResults	-,753	,000	-1,095	.	.	,048	20,934
		MeetingAttendenceResults	,375	,000	,920	.	.	,089	11,265
		MeetingFequencyProblemSolvingResults	,909	,000	,727	.	.	,200	5,003
		MeetingFequencyNoProblemSolve	-,007	,000	-,004	.	.	,287	3,486
		MotivationResults	,432	,000	,421	.	.	,064	15,635
		ImposterSyndromMean	,230	,000	,202	.	.	,362	2,759
UnderAverageProblemSolve	1	(Constant)	1,573	1,841		,855	,405		
		PsychologicalSafetyResults	,506	,136	,851	3,731	,002	,329	3,036
		LeaderMotivationResults	,173	,213	,206	,815	,426	,268	3,738
		LeaderSupportResults	-,710	,324	-1,098	-2,187	,043	,068	14,723
		LeaderEncouragmentResults	,523	,340	,753	1,537	,143	,071	14,017
		StructureMeetingResults	,127	,199	,136	,642	,530	,379	2,638
		RitualResults	-,071	,226	-,080	-,316	,756	,269	3,712
		FearOfReprecussionsResults	,205	,110	,412	1,875	,078	,354	2,824
		NonNativeSpeakerResults	,001	,211	,001	,007	,994	,585	1,711
		MultiCulturalDifferencesResults	-,576	,192	-,458	-2,995	,008	,732	1,366
		SupervisorFeedbackRes	-,104	,129	-,150	-,808	,430	,497	2,011

General Section-							Code	Spss
1. Age	18-25	26-32	33-40	41-48	48+			V_1
2. Region of origin	E	AS	SA	NA	AF			V_2
3. M/F/D								V_3
4. Time spent in current position.	0-3	4-6	7-10	11-14	15+			V_4
5. How often do you engage in face-to-face meetings of any type.	0-1	2-3	4-5	6-7	8+	H10	FFM01	V_5
6. How often do you engage in online meetings of any type.	0-1	2-3	4-5	6-7	8+	H10	FOM01	V_6
7. How often do you engage in problem-solving meetings.	0-1	2-3	4-5	6-7	8+	H10	FPM01	V_7
8. How often do you engage in online problem-solving meetings.	0-1	2-3	4-5	6-7	8+	H10	FOPM01	V_8
9. How often do you engage in face-to-face problem-solving meetings.	0-1	2-3	4-5	6-7	8+	H10	FFPM01	V_9
Evaluating Contribution / Participation NEGATIVE IN RED								
If I have an idea, I will say it in the meeting.	SD	D	N	A	SA		C1	V_10
I contribute during online meetings.	SD	D	N	A	SA		CO1	V_11
I stay silent during online meetings.	SD	D	N	A	SA		CO2	V_12
I contribute during face-to-face meetings.	SD	D	N	A	SA		CF1	V_13
I stay silent in face-to-face meeting.	SD	D	N	A	SA		CF2	V_14
I am a passive listener.	SD	D	N	A	SA		C2	V_15
I speak up for issues that concern me.	SD	D	N	A	SA		C3	V_16
How often do you ask questions in online meetings?	N	R	S	O	A		CO3	V_17
How often do you ask questions in face-to-face meetings?	N	R	S	O	A		CF3	V_18
How often do you suggest solutions in online meetings?	N	R	S	O	A		CO4	V_19
How often do you suggest solutions in face-to-face meetings?	N	R	S	O	A		CF4	V_20
How often do you read emails or do other work during face-to-face meetings?	N	R	S	O	A		CF5	V_21

How often do you read emails or do other work during online meetings?	N	R	S	O	A		CO5	V_22
PDM								
In general how much influence do you have on how you perform your job?	NI	LI	SI	MI	MI	H1	PD1	V_23
To what extent are you able to decide how to do your job?	NI	LI	SI	MI	MI	H1	PD2	V_24
In general, how much influence do you have on what goes on in your work group?	NI	LI	SI	MI	MI	H1	PD3	V_25
In general, how much influence do you have on decisions?	NI	LI	SI	MI	MI	H1	PD4	V_26
Psychological Safety								
If you make a mistake in meeting, it is often held against you.	1	*	*	*	7	H3	R1	V_28
Members of meetings can bring up problems and tough issues.	1	*	*	*	7	H2	PS1	V_29
People in meetings sometimes reject others for being different.	1	*	*	*	7	H3	R2	V_30
It is safe to take a risk in a meeting.	1	*	*	*	7	H2	PS2	V_31
It is difficult to ask other members of this meeting for help.	1	*	*	*	7	H3	R3	V_32
No one on this team would deliberately act in a way that undermines my efforts.	1	*	*	*	7	H2	PS3	V_33
Working with members of this team, my unique skills and talents are valued and utilized.	1	*	*	*	7	H2	PS4	V_34
Leadership								
My supervisor does not appear active.	SD	D	N	A	SA	H5	LF1	V_36
My supervisor has a lack of interest in work quality.	SD	D	N	A	SA	H5	LF2	V_37
My supervisor allows subordinates to postpone work.	SD	D	N	A	SA	H5	LF3	V_38
My supervisor is disinterested in the topics discussed.	SD	D	N	A	SA	H5	LF4	V_39
My supervisor raises confidence among employees.	SD	D	N	A	SA	H4	LS1	V_40
My supervisor works out agreements with us.	SD	D	N	A	SA	H4	LS2	V_41

My supervisor supports our decisions after they have been discussed.	SD	D	N	A	SA	H4	LS3	V_42
My supervisor takes actions before they become chronic.	SD	D	N	A	SA	H6	LC1	V_43
My supervisor prompts employees to think and initiate.	SD	D	N	A	SA	H6	LC2	V_44
My supervisor helps subordinates to develop work ability.	SD	D	N	A	SA	H6	LC3	V_45
Multicultural Diff								
In my culture you are encouraged to speak up.	SD	D	N	A	SA	H13	MD1	V_46
In my culture group harmony is important.	SD	D	N	A	SA	H13	MD2	V_47
In my culture superiors speak the most of all the participants in a meeting.	SD	D	N	A	SA	H13	MD3	V_48
Motivation								
I feel a sense of personal satisfaction when I do this job well.	SD	D	N	A	SA	H14	M1	V_49
I take pride in doing my job as well as I can.	SD	D	N	A	SA	H14	M2	V_50
I feel unhappy when my work is not up to my usual standard.	SD	D	N	A	SA	H14	M3	V_51
I try to think of ways of doing my job effectively.	SD	D	N	A	SA	H14	M4	V_52
Confidence / Imposter Syndrome								
I rarely do a project or task as well as I would like to do it.	SD	D	N	A	SA	H15	EC1	V_53
I am often afraid that I may fail at a new assignment even though I generally do well at what I attempt.	SD	D	N	A	SA	H15	EC2	V_54
I sometimes think I obtained my present position or gained my present success by luck, coincidence, or by mistake.	SD	D	N	A	SA	H16	IS1	V_55
Even when others have confidence in me, I often worry about not succeeding with a project or examination.	SD	D	N	A	SA	H15	EC3	V_56

When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	SD	D	N	A	SA	H16	IS2	V_57
If I receive a great deal of praise and recognition for something I have accomplished, I tend to downplay the importance of what I have done.	SD	D	N	A	SA	H16	IS3	V_58
If I am going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	SD	D	N	A	SA	H15	EC4	V_59
I am afraid people important to me may find out that I am not as capable as they think I am.	SD	D	N	A	SA	H16	IS4	V_60
Meeting Mechanics								
How many participants are generally in your meetings?	2-3	4-5	6-7	8-9	10+	H11	PN1	V_62
I think this is too many participants.	SD	D	N	A	SA	H11	PN2	V_61
My generally supervisor gives feedback after meetings.	SD	D	N	A	SA	H9	SF1	V_63
Agendas are generally available before meetings.	SD	D	N	A	SA	H7	SM1	V_64
My meetings generally work through the agenda.	SD	D	N	A	SA	H7	SM2	V_65
My meetings generally start on time.	SD	D	N	A	SA	H7	SM3	V_66
My meetings generally stop on time.	SD	D	N	A	SA	H7	SM3	V_67
I know what to expect at my meetings.	SD	D	N	A	SA	H8	RI1	V_84
I know how the meeting will end before it begins.	SD	D	N	A	SA	H8	RI2	V_68
My meetings are generally always the same.	SD	D	N	A	SA	H8	RI3	V_69
I feel that I am invited to meetings that I do not need to attend.	SD	D	N	A	SA	H8	RI4	V_70
Non-Native Speakers								
I take part in meetings in a language not native to my own.	N	R	S	O	A	H12	NN1	V_71
I have trouble understanding accents in other languages.	SD	D	N	A	SA	H12	NN2	V_72

English is not my native language.	SD	D	N	A	SA	H12	NN3	V_77
I have trouble following the conversation because I moves to fast.	SD	D	N	A	SA	H12	NN4	V_79
I hold back my opinion because I cannot find the right words.	SD	D	N	A	SA	H12	NN5	V_81
I let the better speakers dominate the conversations.	SD	D	N	A	SA	H12	NN6	V_82

Statement of Affirmation

I hereby declare that all parts of this thesis were exclusively prepared by me, without using resources other than those stated above. The thoughts taken directly or indirectly from external sources are appropriately annotated. This thesis or parts of it were not previously submitted to any other academic institution and have not yet been published.

Dornbirn, [18. 05 .2022] Stephan Harteneck