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The Mediating Role of Psychological Safety in the Association Between Inclusive Leadership and Employee Engagement in the Virtual Context

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Abstract

As **“**Non-essential” employees were transitioned to home-office work following governmental infection control policies, a new context emerged in which leadership and work is performed. Researchers have put forward skepticism related to the effectiveness and feasibility of psychological safety and employee engagement in the virtual context. In this paper, it is argued that inclusive leadership behaviors will circumvent the skepticism and mitigate employee perception of psychological safety and employee engagement for remote interactions. This study utilizes a cross-sectional research design (n =182) using three measures respective to the constructs. Analysis was performed using targeted survey data from U.S. (60%) and Norwegian (40%) respondents, assessing the indirect, direct, and total effects between inclusive leadership, psychological safety, and employee engagement by use of structural equation modelling. Results from the analysis revealed that in the virtual context, the direct association between inclusive leadership and employee engagement was non-significant. Moreover, inclusive leadership had a positive direct association with psychological safety, which in turn had a direct positive association with employee engagement. Finally, the association between inclusive leadership and employee engagement was fully mediated by psychological safety. Based on this study, psychological safety was found to be effective in engendering employee engagement and significant in the virtual context. In practical terms, the results indicate that organizations communicating via information technologies should be aware of their effects on both leaders and employees.

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1.0 Introduction

With the onset of the COVID-19 virus outbreak in the early months of 2020, organizations all over the world were obliged to change their management practices. As a result of governmental infection policies, traditional face-to-face interactions transitioned to videoconferencing though platforms such as Zoom and Teams. Both leaders and employees had to rely on creativity and innovation to adapt to challenges of everyday life in this new business environment. The inclusion of employee ideas and perspectives, and increasing engagement from the home office, were argued in the literature to be beneficial for leaders and organizations as a whole. A key determinant of increasing employee willingness to share and speak up was the perception of a psychologically safe environment. And so, to cultivate and sustain an environment able to withstand the challenges posed by the limitation of virtual contact, fostering employee engagement and psychological safety through inclusive leadership was thought might mitigate the situation. The COVID-19 pandemic work environment provided a unique opportunity to investigate leadership and employee outcomes in this novel virtual context.

Kahn (1990) conducted qualitative field studies in an architecture firm in a quest to investigate the constructs of psychological safety, meaningfulness and availability. The purpose of his study was to investigate whether psychological safety had an effect on team members' willingness to engage. Engagement was represented as the physical, cognitive, and emotional employment or expression of one's self during role performance (Edmondson, 2003; Kahn, 1990). The research premise was based on two important notions: First, that the "psychological experience of work drives people's attitudes and behavior, and second, that individual, interpersonal, group, intergroup and organizational factors simultaneously influence these experiences" (Kahn, 1990, p. 695). The findings confirmed the importance of psychological safety, meaningfulness and availability as key organizational outcomes in terms of success and competitive advantage (Rich et al., 2010). In addition, higher levels of employee engagement is associated with increased financial performance and employee productivity (Harter et al., 2002). Research has also found that employees reporting a high

level of employee engagement was related to increases in job performance, task performance and organizational citizenship behavior (Rich et al., 2010). This argument is further solidified by a Gallup study where it was found that in organizations where the majority of employees were actively engaged as opposed to disengaged, the yearly difference in earning per share was 147% higher for the engaged organization (Sorenson, 2013). This points to the importance of creating and sustaining employee engagement not only in the face-to-face work context, but also in the virtual context.

Employee engagement has predominantly been researched in the face-to-face work setting, however, employee engagement in the virtual context-remains under-studied. Researchers have proposed that compared to traditional office work where daily interactions happen face-to-face, the virtual context might provide obstacles for employee self-expression by the limitations of the various information technologies (Morgan et al., 2014). Researchers further suggests that this inability to express the self in the virtual context might hinder employee ability to perceive psychological safety, meaningfulness and availability (Shaik & Makhecha, 2019), which as explained above are key antecedents in fostering employee engagement (Kahn, 1990). More recent findings have also provided evidence for this link with May et al. (2004) findings specific outcomes related to the three psychological conditions of employee engagement. More specifically, they found psychological safety to be positively associated with rewarding co-workers and supportive supervisor relations (May et al., 2004) The present paper utilizes the construct of inclusive leadership, whose dimensions reflect supportive leadership behaviors (Carmeli et al., 2010), as a means to cultivate employee engagement. Therefore, the following sections will emphasize psychological safety due to its association with leadership behaviors (Christian et al., 2011; Kahn, 1990; May et al., 2004).

Edmondson (1999) states that the relation with one's immediate supervisor can have a drastic impact on perceptions of safety in the work environment, and that supportive, non-controlling relationships should foster this perception. Leaders who foster a psychologically safe environment typically display concern for the need and feelings of employees, give feedback and encourage them to voice their

concern, develop new skills, and engage in problem-solving (Deci & Ryan, 1987), all of which are a form of engagement (Kahn, 1990; May et al., 2004). Individuals in a psychologically safe environment are more likely to express themselves, propose ideas, report mistakes, and engage in learning (Edmondson, 1999; May et al., 2004). Hence, supportive leadership behaviors are a central part in cultivating psychological safety in an organization, which in turn is an important antecedent of employee engagement.

On a related note, due to geographic dispersion and lack of face-to-face interaction, researchers have proposed that trust is a key determinant of success in the virtual context. Mayer et al. (1995) defined trust as "the willingness of a party to be vulnerable to the actions of another party, based on the expectations that the others will perform a particular action important to the truster, irrespective of the ability to monitor or control the other party." For instance, Breuer et al. (2016) found that the relationship between team trust and team performance was stronger in teams working in the virtual context compared to face-to-face teams. With that being said, it is one thing considering the dyadic nature of trust and its transactional focus on risk and vulnerability in more interpersonal terms, which could be useful when discussing an LMX relationship. However, when discussing trust on a broader level (i.e., not individual), it is more appropriate and effective to cultivate and environment of psychological safety.

Edmondson (2003, p. 3) refers to psychological safety as "a distinct, complementary phenomenon that, like trust, can affect various behavioral and organizational outcomes." Contrary to trust, it is the degree to which an employee perceives how other will respond when one puts oneself on the line, for instance, by proposing new ideas, asking for feedback, asking questions and reporting mistakes (Edmondson, 2003). Researchers have argued that if "psychological safety is present in organizations who face change or innovation, employees will eliminate concern regarding innovation failure and tend to propose new ideas, use new technology and adapt new methods" (Zeng et al., 2020, p. 3). Google conducted a study in 2014 on a quest to understand the characteristics of their highest performing teams. As a result, they launched Project Aristotle. During their research, Google looked at more than 180 teams from across the company

and found that psychological safety was the most crucial factor in determining how well teams performed and innovated (Bergmann & Schaeppi, 2016; Duhigg, 2016). This points to the importance of perceived psychological safety when posed with challenging new ways of working, such as in the virtual context following the COVID-19 outbreak.

However, even though research has established the link between psychological safety and leader behaviors (Edmondson, 2004), it has been proposed that the role of psychological safety in the virtual context might be very different than in that of the face-to-face context (Edmondson, 2003). Furthering this notion, Gibson & Cohen (2003) questioned the feasibility of psychological safety in the virtual context, stating that it might be less effective.

Seeing as the role of leadership in fostering psychological safety is well established it is interesting to investigate the role of leadership in the virtual context. Context in leadership matters (Lord & Dinh, 2014), and the virtual context has been subject to increasing interest in research over the last decade. But what are the implications for leaders and employees in organizations where interactions are now solely reliant on information technology? Empirical work on leadership in the virtual context suggest that the impact of traditional leadership behaviors/styles are often different to that of the face-to-face context. Research on leadership in the virtual context vs. face-to-face context have found that existing norms and cultures of the organization are carried on when transitioned to a virtual context from a face-to-face context (Avolio & Kahai, 2003), suggesting that previously held organizational structures are sustained, and hence guide how leaders and employees interact. However, it has also been found that leaders tend to adapt their behaviors in response to new situational demands and contingencies (Purvanova & Bono, 2009). As such, it is natural to suspect that leaders have to change their behavior in order to meet the new challenges posed by working solely in the virtual context. Specifically, there is a shift in the manner in which leaders communicate with their employees in practical terms through the use of different informational technologies (e-mail, instant message, videoconferencing, etc.) and also how employees communicate with their colleagues (Schmidt, 2014). Moreover, there is a significant impact in how information technologies affect

information processing. By use of asynchronous communication channels, one is, for example, not subjected to the non-verbal cues and voice tone presented in face-to-face interactions (Hoch & Kozlowski, 2014; Schmidt, 2014).

The virtual context offers a new environment in which the process of leadership as a socially constructed concept unfolds, which in turn may give rise to new ways to lead. Zigurs (2003) emphasizes that leaders in the virtual context should prioritize building relationships, more so than in traditional contexts, in order to circumvent the above-mentioned issues of asynchronicity and missing face-to-face cues. Following this notion, it is recommended that leaders facilitate communication, be aware of employee participation, and provide opportunites for shared learning (Hart & Mcleod, 2003). Research has shown that leader behaviors that promote inclusion of employee voice and input contribute to employees feeling safe to speak up, and cultivating a psychologically safe environment (Carmeli et al., 2010; Nembhard & Edmondson, 2006), which in turn is related to learning in organizations, increased sharing of ideas, and employee engagement (Edmondson, 2003; Hirak et al., 2012; May et al., 2004). Therefore, it is argued here that leaders should engage in inclusive leadership behaviors as a means to cultivate the perception of psychological safety for the employees, which in turn could engender employee engagement.

The following paragraphs will summarize some of the key points provided above as a means to highlight the gap in the literature by emphasizing how all three constructs remain relatively under-studied with regards to the virtual context. Researchers propose that future research look into the boundary conditions of the effects of psychological safety (Edmondson & Lei, 2014; Griffith & Neale, 2001; Martins et al., 2004). One such boundary condition is the virtual context investigated in this study, which aims to capitalize on the current trend of home-office work following the COVID-19 outbreak. Martins et al. (2004) pointed to a gap in the literature pertaining to the interpersonal outcomes like psychological safety in the virtual context. Further, in their meta-analysis, Edmondson & Lei (2014) propose that the role of psychological safety could be very different in a virtual context, as opposed to the effects observed in more bounded and local contexts. Moreover, researchers have questioned the feasibility and effectiveness

of psychological safety in the virtual context (Gibson & Cohen, 2003). In addition, to investigating the boundary conditions of psychological safety, the same has been proposed for employee engagement. Bakker & Albrecht (2018) argue that the modern technological advances in information technology pose interesting research opportunities for the field of employee engagement. And so, looking into how people engage themselves physically, cognitively, and emotionally in the virtual context could shed light on the effects of working though information technology.

Because of the already established relationship between leader behavior and employee engagement (Christian et al., 2011), psychological safety and employee engagement (May et al., 2004), and leader behaviors and psychological safety (Edmondson, 2004), the present paper proposes that leaders implement an inclusive leadership style as a means to cultivate psychological safety. The link between inclusive leadership and psychological safety is well established in research (Carmeli et al., 2010; Hirak et al., 2012; Nembhard & Edmondson, 2006; Zeng et al., 2020). However, this link could be usefully investigated yet again only this time looking at how the virtual context may influence these relationships. Following the skepticism put forward by Gibson & Cohen (2003) related to the effectiveness and feasibility of psychological safety in the virtual context, it could be that the dimensions of inclusive leadership function differently in the virtual context than in face-to-face interactions. The dimensions of inclusive leadership as proposed by Carmeli et al. (2010) highlight how employees might be affected differently with regards to psychological safety in a virtual as opposed to face-to-face context. For example, an inclusive leader is, among other things, open to hearing new ideas, available for consultation on problems, ready to listen to requests, and accessible for discussion on emerging problems (Carmeli et al., 2010). The present paper argues that the transition to a virtual context could have implications for a leader's ability to engage in such behaviors due to the geographical dispersion between leader and employees. Stated simply, there are practical differences in how leaders and employees interact virtually and in the office. As such, this study will contribute to the understanding of employee engagement in the virtual context, as well as how it is associated with inclusive leadership and psychological safety.

2.0 Theory and hypotheses

2.1 Employee engagement

Kahn (1990) first introduced the concept of engagement (here indicating employee engagement) and disengagement. Employee engagement is defined as "the simultaneous employment and expression of a person's preferred self in task behaviors that promote connection to work and to others, personal presence (physical, emotional, and cognitive) and active, full role performance" (Kahn, 1990, p. 700). On the other hand, disengagement is defined as "the uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively, or emotionally during role performance" (Kahn, 1990, p. 694). Physical engagement can be best understood as what we see employees do and if these employees bring their full selves to work (Shuck & Herd, 2012). Emotional engagement refers to an employee's willingness to involve personal resources like truly emotionally committing to the current task (Shuck & Herd, 2012). Lastly, cognitive engagement refers to an employee's perception of whether their job has meaning, is safe, and they have the adequate resources to finish the work (Rich et al., 2010).

Although the present paper focuses on employee engagement, it is useful to keep in mind the opposing outcomes, disengagement. Employee characterized as disengaged have been found to perceive their work as stressful and demanding, as opposed to employees who are engaged (Bakker et al., 2014), and have also been found to behave "robotic" and apathetic (Hochschild, 1984). Detert & Burris (2007) found that disengagement could stem from an apprehension of speaking up due to a fear of not being heard, being humiliated, not being valued or because of power-differentials in the leader subordinate relationship. Similarly, Albrecht (2010) suggested that deaf ears make us mute, emphasizing that when employees feel like they cannot add value, make a difference, or are ignored, then they will choose not to speak up. Choosing to silence their voice is an act of disengagement.

The human spirit has an innate need to seek fulfillment at work (Briskin, 1998) and May et al. (2004, p. 12) propose that "for the human spirit to thrive at work,

individuals must be able to completely immerse themselves in their work." When an employee experiences full immersion in their work they are considered to be an engaged employee who possesses an energetic and effective connection to their work (Bakker et al., 2014). Fully engaged employees will also dedicate themselves to the job and complete their work with great enthusiasm (Priyadarshini & Rajappan, 2020). Kahn (1990) described three psychological conditions that must be present to achieve employee engagement: meaningfulness, availability, and safety. The latter of these three, safety, is concerned with interpersonal relationships and the way in which we are led and supported.

2.2 Psychological safety

Psychological safety describes "individual's perceptions about the consequences of interpersonal risk in their work environment" (Edmondson, 2003, p. 4). A psychologically safe organization promotes productive discussions that enable early prevention of problems, and accomplishment of shared goals as people are less concerned with self-protection (Edmondson, 2003). As such, psychological safety creates an environment that invites curiosity, learning, openly sharing ideas, and learning form failures (Edmondson, 1999). Furthering this notion, Walumbwa & Schaubroeck (2009) found that psychological safety significantly affected employees' voice behavior and raising concerns. Similarly, Liang et al. (2012) found psychological safety to positively impact an employee's prohibitive voice, meaning an employee's willingness to raise concern/mistakes. On the contrary, employees who feel unsafe will avoid admitting mistakes and taking risks in fear of ridicule (Hofmann & Stetzer, 1998).

Creating a safe space for employees to express their ideas and speak out can therefore facilitate engagement. May et al. (2004) also found that leaders who foster a supportive work environment go a long way in establishing psychological safety, and as a result, employees are safe to engage themselves (Edmondson, 1999, 2004). This provides evidence to why psychologically safe employees are able to share knowledge and voice their opinions which potentially could lead to organizational improvements (Detert & Burris, 2007). The condition of psychological safety, present in Kahn's (1990) theory of engagement, is closely related to Edmondson's (1999) concept of psychological safety.

2.3 Inclusive leadership

The concept of inclusive leadership was first coined by Nembhard & Edmondson (2006, p. 947) who defined it as "words and deeds by a leader or leaders that indicate invitation and appreciation of other's contributions." It captures attempts by a leader to allow others to contribute to discussions and decisions whereby their voices would not generally be heard (Nembhard & Edmondson, 2006). The concept is derived from Edmondson's (2003) theory of psychological safety which emphasizes leader behaviors such as availability, approachability, inviting input and feedback, and openness and fallibility. Inclusive leadership is an ongoing process where active acceptance, support and fault tolerance become an important organizational context variable that guides employee behavior. This study defines inclusive leadership, as proposed by Carmeli et al. (2010), as the openness, availability, and accessibility exhibited by the leader in interaction with the employees. Leader openness refers to employees' perception that their leader listens and is interested in their ideas. Open and listening leaders are willing to discuss new ideas, work goals, solutions and opportunities, which encourages employees to feel psychologically safe to bring up new ideas and take risks (Carmeli et al., 2010). Leader accessibility refers to employee perception that their leader is available and approachable, thus reducing any perceives barriers that prohibit discussion (Edmondson, 2003). Specifically, leaders should encourage employees to access them on emerging issues or problems and make themselves accessible for discussion. On the contrary, when leaders display authoritative and unwelcoming behavior, employees are likely to feel their opinions are not wanted or valued (Edmondson, 1996). Lastly, leader avaibility refers to employees' perception that the leader will be available for consultation on problems, professional questions and requests (Carmeli et al., 2010). Moreover, an available leader is concerned for their employees' interests, feelings and expectations (Carmeli et al., 2010; Hollander et al., 2008), and as a result employees are likely to feel supported and perceive that their efforts are respected and appreciated in the oragnization (Ye et al., 2019). In addition, research has found that when employees percieve that their leader is open to input and appeciates their views, they develop a sense of psychological safety and speak up and express themselves (Nembhard & Edmondson, 2006). As such, leadership style is seen as an essential

contextual factor in fostering psychological safety, and the beahviors of leaders play a critical role (Hirak et al., 2012).

As previously mentioned, the relationship between leader behaviors and employee engagement has been tested theoretically and empirically (Christian et al., 2011). Further, Carmeli et al. (2010) found that inclusive leaders who are open, accessible, and available encourage employees to further develop skills, cognitive ability, and knowledge. In turn, these developments have been found to positively influence personal and work related satisfaction, which in turn aid in the feelings of employee engagement (Kopperud et al., 2014). Moreover, inclusive leadership can act as a driver for employee motivation and satisfaction and promote a culture of trust, fairness, and ownership in the organization to support employee engagement (Choi et al., 2017; Malik, 2017).

In addition, Rich et al. (2010) found that supervisor support, such as openness and availability, was positively related to employee engagement. Moreover, leaders displaying availability to their employees show concern for their interests, feelings and expectations (Carmeli et al., 2010), thereby contributing to feelings of appreciation, respect and being valued. Albrecht (2010) suggested these feelings can contribute to cognitive engagement where employees believe they can make a difference and add value to the organization. However, Morgan et al. (2014) questioned whether virtual communication might interfere with employees' ability to express themselves, which in turn might hinder employee engagement. Based on this notion, we propose and expect inclusive leadership to be an effective means to mitigate the hinderance to effective communication posed by virtual contact. As such, we therefore propose the following hypothesis:

Hypothesis 1: Inclusive leadership is positively associated with employee engagement.

Leadership style is seen as an essential contextual factor in fostering psychological safety, and the behavior of leaders play a critical role (Hirak et al., 2012). There is a growing body of research examining the effects of supportive leadership behaviors on work outcomes though psychological safety (Newman et

al., 2017). Leader behaviors that exhibit more openness and availability significantly improve employee perception of psychological safety (Carmeli et al., 2010; Edmondson, 2004; Hirak et al., 2012). On the individual level, empirical work has established leader openness, support, trustworthiness, and behavioral integrity are strong predictors of perceptions of psychological safety for employee engagement (Newman et al., 2017). However, Edmondson (2003) and Gibson & Cohen (2003) questioned the effectiveness and feasibility of psychological safety in the virtual context, suggesting that its role might differ from that of the traditional face-to-face context. It is reasonable to now question this skepticism based on technological advancements of recent decades, as opposed to what was readily available in 2003. Today organizations have access to synchronous videoconferencing and collaboration platforms, and the present paper proposes that, combined with supportive inclusive leadership behaviors, these technologies can promote psychological safety in the virtual context. Therefore, the following hypothesis is proposed:

Hypothesis 2: Inclusive leadership is positively associated with psychological safety.

Kahn (1990) described three psychological condition that must be met to achieve employee engagement: meaningfulness, availability, and safety. The latter of these, safety, is concerned with interpersonal relationships and the way in which employees are led and supported. This condition of safety in terms of Kahn's (1990) theory of engagement, is closely related to Edmondson's (1999) notion of psychological safety. Creating a safe space for employees to express their ideas and speak out can therefore potentially facilitate engagement. May (2004) also found that leaders who foster a supportive work environment go a long way in establishing psychological safety. As a result, employees are safe to engage themselves (Edmondson, 1999, 2004). And so, based on hypotheses 1 & 2, that inclusive leadership behaviors will be effective in fostering both psychological safety and employee engagement in the virtual context, we expect to find a positive association between psychological safety and employee engagement as well. Therefore, the following hypothesis is proposed:

Hypothesis 3: Psychological safety is positively associated with employee engagement.

Kahn (1990) and Carmeli et al. (2010) found that employee engagement was positively affected by leader availability. Similarly, Rich et al. (2010) found supervisor support to be positively related to employee engagement. Leaders displaying inclusive leadership behaviors to their employees showed concern for to followers' interests, feelings and expectations, and thus contributed to feelings of appreciation, respect and being valued (Carmeli et al., 2010), which are key antecedents of psychological safety (Edmondson, 2004). Furthermore, when leaders engaged in openness to input from members and were available to them both physically and psychologically, the employees adopted a perception that it was safe to share their viewpoints and thoughts. And thus, by signaling to employees that they did not need to fear open criticism, inclusive leadership behaviors cultivated psychological safety and enhanced employee engagement (Detert & Burris, 2007; Edmondson, 2003; Walumbwa & Schaubroeck, 2009). With the hypothesized relationship above in mind, the present research proposes a mediating role for psychological safety in the virtual context. Inclusive leaders who are open, available, and accessible foster a climate in which employee feel psychologically safe to present their ideas and further engage themselves (Carmeli et al., 2010). Accordingly, we expect the association between inclusive leadership and employee engagement to be mediated by psychological safety in the virtual context.

Hypothesis 4: The association between inclusive leadership and employee engagement is mediated by psychological safety.

To summarize, the present paper will investigate four hypotheses regarding the interplay of the associations between employee engagement, psychological safety, and inclusive leadership, as shown in Figure 1. In investigating the present hypotheses, this study will analyze survey data using structural equation modeling to test for direct, indirect, and total effects.

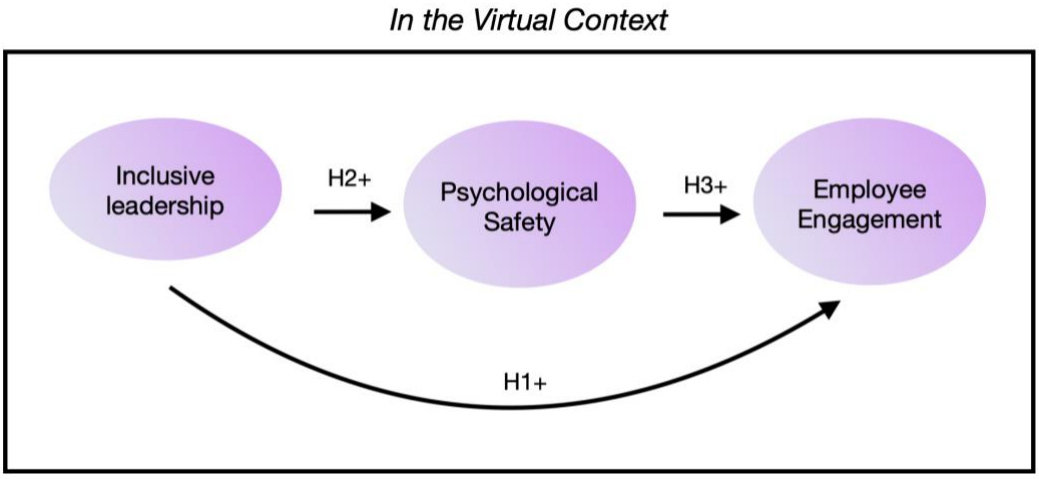

Figure 1: Graphical view of the hypothesized relationships

Hypothesis H4: the mediating relationship of psychological safety on inclusive leadership and employee engagement.

3.0 Method

3.1 Data collection

Data was obtained through the online questionnaire service SurveyMonkey. The researcher creates the survey and SurveyMonkey allows for simple distribution of a link to the survey via whichever channel the researcher chooses. As this research was interested in respondents who worked in a virtual setting, the questionnaire included a screening question to single out those who fit the demography of interest. To ensure that respondents answered the survey with the mindset of a home-office worker, each item specified: "*in the virtual context… (the manager is open to hearing new ideas)".* The data collection was first conducted by distributing the survey out to people whom the researchers knew fit the relevant demographics from their own network. Once this network was exhausted, it became clear the sample size was insufficient. Therefore, the researchers turned to SurveyMonkey's option of collecting targeted responses, which proved fruitful. In total, data collection was conducted from February 2021 to April 2021.

3.2 Sample

The sample consisted of 182 respondents from a range of different jobs and industries, with the only communality being that they worked in a virtual context following the outbreak of COVID-19, answered "yes" on the screening question, and replied to all items in a satisfactory manner. Respondents were 52,7% male, 46,7% female, and 0.6% identified as other. As for geographical demographics,

the effort by the researchers pertained mostly to Norwegian respondents, while SurveyMonkey targeted U.S. respondents who represented approximately 60% of the sample (Norwegian = 40%). The reason for N=182 being an acceptable sample size is discussed under the section concerning sample size.

3.3 Measures

This study emphasizes three main construct measures: *Inclusive leadership, psychological safety,* and *employee engagement*. All measures have been previously tested. Due to negative wording in three items of the psychological safety measure, they were reverse coded; Safe_3R, Safe_6R, Safe_7R, to accurately analyze the values (i.e., high values are positive). Further, all measures for their respective constructs were analyzed for internal consistency using Cronbach's alpha (α) values. In the following paragraphs the three constructs are presented in more detail, and the questionnaires in their entirety are provided in appendix 3.

3.3.1 Inclusive leadership

Carmeli et al., (2010) constructed a 9-item scale based on the work of Edmondson (2004), with the aim of assessing the three dimensions of inclusive leadership; Openness, availability, and accessibility. The scale measures leader behavior as seen from the employee's perspective, hence capturing the employee's perception of their relevant leader/supervisor. The items, originally constructed in English, apply a 5-point Likert scale. Responses range from strongly disagree (1) to strongly agree (5). Sample items include "*The manager is attentive to new opportunities to improve work processes* (openness) and *"The manager is available for professional questions I would like to consult with him/her"* (availability). Several studies across various cultures have applied the scale in research on inclusive leadership (Carmeli et al., 2010; Choi et al., 2017; Hirak et al., 2012; Qi et al., 2019; Zeng et al., 2020). When this approach was applied in this study, the data revealed satisfactory score reliability for inclusive leadership ($\alpha = .93$).

3.3.2 Psychological safety

For measurement of psychological safety, the present paper utilized Edmondson's (1999) 7-item scale. As with the inclusive leadership scale, this measure also

adopts a Likert 5-point scale ranging from strongly disagree (1) to strongly agree (5). Three items were negatively loaded and were therefore reverse coded to ensure precise analysis (i.e., high values are always positive). Example items: *"I feel safe to take risk in this organization"* and *"If I make a mistake at this organization, it is often held against me"* (reverse coded). Cronbach's alpha for this measure showed satisfactory reliability (α = .70).

3.3.3 Employee engagement

The Job Engagement Scale (JES) measures the construct of employee engagement. Building on Kahn's (1990) three dimensions of engagement – physical, cognitive, and affective – Rich et al. (2010) developed the JES. The scale was developed by using items from already existing scales from various other researchers which fit Kahn's (1990) conceptualization, while at the same time creating items of their own to fully capture the three dimensions (Rich et al., 2010). The scale is measured on a 5-point Likert-scale, ranging from strongly disagree (1) to strongly agree (5), with high score representing high engagement. In its entirety, the scale is an 18-item instrument divided in three based on the dimensions physical, emotional, and cognitive. Example items include; *"I try my hardest to perform well on my job"* (physical), *"I am proud of my job"* (emotional), and *"At work, I pay a lot of attention to my job"* (cognitive). When applied here, the measure showed high score reliability according to Cronbach's alpha (α = .94).

4.0 Analysis

4.1 Preliminary analysis

By utilizing IBM software SPSS statistics version 27.0 and SurveyMonkey's filtering services, data screening, preliminary and descriptive statistics is provided in the results section (see Table 1). The data screening process and preliminary analysis is further explained.

The dataset in its entirety was composed of 303 respondents. Of those, 196 answered "yes" to the screening question and all further questions to a satisfactory degree. SurveyMonkey filtering service included only sufficiently complete responses and not many half-answered questions. Among the 196 responses, there

were six responses with missing values in the data set. However, no answers were missing more than one value which was replaced with the median score for the relevant construct. Further, a thorough data screening process was conducted to identify "lazy" respondents, meaning those who answered the same on all items within a suspiciously short timeframe, as these are sources of severe non-normality. It is important to screen the data for this severe non-normality because it can lead to problems of model fit (Kline, 2016). Because the data set contained some items that were negatively worded and the researchers were provided with individual response times, it was easy to identify lazy respondents. As a result, these respondents deviated from the means when the sum of each construct was obtained as well as for time. Accordingly, 14 respondents were removed from the dataset. The remaining 182 respondents formed the basis for further analysis.

Due to maximum likelihood being the default estimation method in SEM, multivariate normality is assumed (Kline, 2016). Skewness and kurtosis were assessed to test for normality. For all indicators, the analysis suggested skewness and kurtosis were within the threshold for satisfactory normality. Specifically, no values exceeded severe skewness (>3.0) or problematic kurtosis (>10.0) (Kline, 2016). Most values obtained in the analysis ranged from +/- 1. The largest value for skewness was - .873, while the largest value for kurtosis was 1.151.

4.2 Structural equation modelling

This study utilized structural equation modeling (SEM) to analyze the associations between the constructs emphasized. To run the SEM analysis, this study used IBM software AMOS 27.0, which allows for conducting analysis with maximum likelihood and bootstrapping to attain a 95% confidence interval for the different direct, indirect and total effects. The latent variables in the model were representative of the hypothetical constructs assessed in this paper: *Inclusive leadership, psychological safety,* and *employee engagement.*

This study has specified a measurement model consisting of three latent variables with loading to relevant observed variables. As such, this model represents the theoretical model on which the set of hypotheses are based (Kline, 2016). A confirmatory factor analysis (CFA) was then performed on the measurement

model to investigate if there was a need for respecification. The measurement model was then respecified in order to adhere to the various goodness-of-fit (GOF) indices that determine whether or not a model has good fit. In order to investigate the global fit of the model, this study utilized Chi-square ($\chi 2$) as the absolute fit index, the comparative fit index (CFI), root mean square error of approximation (RMSEA) and standardized root mean residuals (SRMR) (Kline, 2016). The various respecifications made to the model were guided by an assessment of local fit which was investigated by evaluating the standardized residual covariance matrix and modification indices (Kline, 2016). The respecified measurement model was then treated as a structural model in which hypotheses were represented in a path-diagrammatic manner (Kline, 2016).

4.3 Reliability and validity

This study used composite reliability (CR) to determine the internal consistency of the scales utilized in the SEM analysis. CR indicate the shared variance among the observed variables of a latent construct (Kline, 2016). CR values that are >.70 are regarded as acceptable reliability. Further it is useful to investigate the convergent and discriminant validity of the constructs. It is recommended concluding convergent validity if the average variance extracted (AVE) is not significantly lower than 0.5, and that standardized factor loadings of all items are not significantly lower than 0.5 (Cheung & Wang, 2017). Another way of assessing convergent validity is to use the obtained composite reliability, which according to Kline (2016) is established when items have high factor loadings onto one construct, and the other constructs are not highly correlated (>.85). To establish discriminant validity, the correlation between two constructs should not significantly exceed .70 (Cheung & Wang, 2017). Also, this study used Fornell and Larcker's (1981) method for attaining discriminant validity of two or more factors. By comparing the AVE of each construct with the shared variance (correlation) between the constructs, one can determine discriminant validity if the square root of the AVE of each construct is greater than its shared variance/correlation (Farrell, 2010).

4.4 Sample size

There is no rule of thumb about sample sizes in SEM that works across all studies, making it a highly debated topic among researchers (Kline, 2016). What

constitutes adequate sample sizes in SEM analysis depends on a multitude of factors; among these are the assumption of multivariate normality, model complexity, estimation technique utilized, and if there are missing data in the data set (Kline, 2016). However, it is often suggested that a sample size that exceeds N>200 is satisfactory based on reviews of studies in different research areas (Kline, 2016). Comparing these notions to the present study data, the screening process ensured normality and no missing data. Regarding model complexity, researchers have proposed that models consisting of five or less latent variables which all have at least three items responsible for factor loadings revealing high communalities (>.60) should be analyzed with a sample size exceeding N > 100 (Kline, 2016). The present model is relatively simple, consisting of only 3 latent variables which all have more than three items showing high communalities. Moreover, the data was normally distributed and had no missing values. As the study utilized maximum likelihood for estimation, the sample size of N = 182 was considered sufficient for further analysis.

5.0 Results

5.1 Descriptive and preliminary analysis

Means, standard deviations, Cronbach's alpha and inter-correlations of the various constructs sum score is provided in Table 1. The zero-order correlations of the constructs reveal moderate correlations between the constructs as presented below. From the table, one can also see that all constructs have means above 3, indicating positive loadings for all constructs. This suggests a positive level of inclusive leadership, psychological safety, and employee engagement in the virtual context.

Table 1:

Mean, Standard deviations, Chronbach's alpha, and zero-order correlation

Construct	Mean	SD	α	1	2	3
1. Inclusive leadership	4.01	.65	.93	1		
2. Psychological safety	3.53	.70	.70	.49*	1	
3. Employee engagement	3.95	.59	.94	.40*	.36*	1

Correlations are significant at the 0.01 level (2-tailed).

5.2 Hypothesis testing – SEM

Specification is the most important step of SEM, as proposed by Kline (2016). The analysis begins by specifying a measurement model using all items for the various latent factors (model 1, appendix 2). However, and as expected, a CFA analysis of this model indicated a model fit that fell short of the GOF thresholds (see Table 2). Although the Chi-square was significant and the SRMR value was sufficient according to the threshold proposed by Kline (2016), the CFI value was too low (<. 90) and the RMSEA value was too high (>. 08). As such, there was a need to respecify the measurement model to achieve good fit.

The study based its various respecifications on problematic residuals/error combined with low factor loadings and covariances, as proposed by modifications indices provided by AMOS 27.0, which also made theoretical sense. First, the CFA provides a standardized residual covariance matrix in which one can investigate whether some items contribute to poor local fit. Indeed, this was the case for some variables. In addition to contributing to poor local fit, the respective items were also the source of low factor loadings. The residual errors combined with low factor loadings were reason enough for the items to be dismissed in order to increase the model fit. The following process was performed step-by-step in order to identify which efforts led to a satisfactory model fit without sacrificing unnecessary amounts of data, keeping in mind that according to Kline (2016), it is not advantageous to over-modify a model that fits. And so, based on low factor loadings and high residual values, three items from the psychological safety scale and seven items from the employee engagement scale were removed and excluded from further analysis (see appendix 2). However, the model still fell just short of the threshold. And so, the model was further modified by covarying five pairs of items (see appendix 2). The respecifications are discussed in the following chapter.

The respecified measurement model (model 2, appendix 2) displayed sufficient GOF indices when testing Chi-square, CFI, RMSEA, and SRMR (see Table 2). As such, the respecified measurement model is utilized for further analysis. A well-known issue for many SEM researchers is equivalent models, meaning that one might be missing out on models that may fit the data better (Kline, 2016).

However, and with this in mind, Kline (2016) also emphasizes the importance of not over-modifying a model that fits well. The CFA analysis revealed a measurement model that fit the data to a satisfactory degree and was therefore adopted for further analysis. The respecified measurement model is presented in appendix 2, model 2.

Table 2:

Model fit indices for measurement model and respecified measurement model.

Model	χ2	df	χ2/df	CFI	RMSEA [CI1]	SRMR	Comments
1	1474.134	524	2.813	.749	.100 [.094 - .0106]	.078	*All items included*
2	488.963	244	2.004	.907	.074 [.065 - .084]	.061	*Items Safe_3R, Safe_6R, Safe_7R, Cog_3, Cog_4, Cog_5, Cog_6, Phy_1, Phy_4, Phy_6 are excluded*

*Chi-Square significant at the 0.001 level. 1 90% confidence interval RMSEA.

5.3 Reliability and validity

The composite reliability score for all the scales utilized in this study met or exceeded the threshold for sufficient values (> .70): *inclusive leadership* CR= .87, *psychological safety* CR= .70, and *employee engagement* CR= .88. As such, both reliability and convergent validity were established. However, there are more thorough ways to investigate the convergent validity of the constructs, such as the procedure proposed by Cheung and Wang (2017). The average variance extracted (AVE) revealed a score for the psychological safety scale that could be considered problematic (< .50), while the other two constructs were satisfactory: *psychological safety* AVE= .35, *inclusive leadership* AVE = .76, *employee engagement* AVE = .50. In addition, the scale contained one item that had a lower standardized factor loading than the proposed satisfactory value (>.50) (Cheung & Wang, 2017). Combined, these two findings suggested that the psychometric properties of the psychological safety scale could be questionable. The other two scales (inclusive leadership and employee engagement) showed satisfactory psychometric properties with regards to convergent validity.

This study used the Fornell and Larcker (1981) method to establish discriminant validity. Table 3 provides an overview of the square root of the AVE compared to the correlations/shared variance between the constructs. As the square roots of the AVE of all constructs were larger than the correlations of the constructs, discriminant validity was supported.

Table 3: *Discriminant validity*

Latent variables	1	2	3
1. Inclusive Leadership	**.76****		
2. Psychological Safety	.49*	**.59****	
3. Employee Engagement	.40*	.36*	**.70****

***Square root of AVE.*Correlations/shared variance between constructs.*

5.4 Structural model

Having established a good fitting measurement model, the model was then specified by introducing paths between the latent factors according to the hypotheses (directional paths). The structural model is presented in figure 1 (appendix 1) and achieved the exact same model fit GOF indices as the measurement model, indicating sufficient model fit with regards to all thresholds.

Table 4:

Model fit indices for structural model.

Model	χ2	df	χ2/df	CFI	RMSEA [CI1]	SRMR	Comments
1	488.963*	244	2.004	.907	**.**074 [.065-.084]	**.**061	*Items Safe_3R, Safe_6R, Safe_7R, Cog_3, Cog_4, Cog_5, Cog_6, Phy_1, Phy_4, Phy_6 are excluded.*

*Chi-Square significant at the 0.001 level. 1 90% confidence interval RMSEA.

The results from the SEM analysis are provided in table 5 and show the estimates obtained for the direct, indirect and total effects between the latent variables. Based on the analysis, only one hypothesis was found non-significant (P > 0.5). Hypothesis 1 (H1: there is a direct positive association between inclusive leadership and employee engagement) was therefore rejected. Inclusive leadership showed a significant positive association with psychological safety, which

confirmed hypothesis 2. Concluding the direct effects, psychological safety demonstrated a significant positive association with employee engagement, hence supporting hypothesis 3. Due to the insignificant finding related to H1, full mediation (H4) was established. As such, psychological safety fully mediated the relationship between inclusive leadership and employee engagement, as proposed by hypothesis 4. The total effect obtained for inclusive leadership and employee engagement was also significant at the p > 0.01 level. The squared multiple correlation (R^2) indicated that the model explained 53% of the variation in employee engagement. Moreover, the variation in inclusive leadership explained 43% of the variation in psychological safety.

Table 5:

Estimates of direct, indirect and total effects between latent variables

			Non-parametric bootstrap 95% CI			
	Ustd.	S.E.	Lower	Upper	p	Std.
Direct effects						
Inc. Lead. → Engage	-.021	.162	-.339	.256	.860	-.022
Inc. Lead. → Safety	.748	.087	.486	.825	**	.658
Safety → Engage	.624	.157	.463	1.066	**	.742
Indirect effects						
Inc. Lead. → Safety → Engage	.467	.144	.297	.814	**	.488
Total effects						
Inc. Lead → Engage	.445	.085	.294	.628	**	.466

Note: Inc. Lead. = Inclusive leadership, Engage = Employee engagement, Safety = Psychological safety. Confidence intervals and standard errors are based on non-parametric bootstrapping. Number of bootstraps = 1000. ** Coefficients are significant at the 0.01 level (2-tailed).

6.0 Discussion

The purpose of this study was to investigate whether boundary conditions imposed by virtual communication could influence the association between inclusive leadership behaviors, psychological safety, and employee engagement. By taking advantage of the unprecedented surge in home-office work in 2020-2021, the study utilized a rather simple methodology to investigate how employees engaged themselves in the virtual workplace. Treating inclusive leadership as the solution, this study adds to theory and practice in a domain that has come to stay. Many organizations have now come to accept home-office work, subsequent to stay-at-home restrictions imposed during the COVID-19

pandemic, making research in this area even more pertinent. The hypothesized associations analyzed above are further discussed in the following sections.

Putting it all together, the findings indicated three significant associations between the constructs investigated when using the present model. The present paper has emphasized why employee engagement and psychological safety is important for the virtual context. Based on previous research pertaining to the two constructs, the present paper proposed that inclusive leadership behaviors could engender both psychological safety and employee engagement in the virtual context. As stated above, the SEM revealed that inclusive leadership in the virtual context was found to have a significant positive association with psychological safety, which in turn had a significant positive association with employee engagement. These findings coincided with previous research form the traditional face-to-face context (Carmeli et al., 2010; Detert & Burris, 2007; Malik, 2017; Nembhard & Edmondson, 2006; Rich et al., 2010) and give support for support Bakker and Albrecht's (2018) notion that modern technological advance could buffer employee engagement. Consequently, these findings also contradict Edmondson's (2003) and Gibson and Cohen's (2003) doubt as to the effectiveness and feasibility of psychological safety in the virtual context. It also contradicts Shaik and Makhecha's (2019) skepticism regarding employee ability to perceive psychological safety. Surprisingly though, inclusive leadership and employee engagement revealed a non-significant, association. This finding contradicted previous research from the face-to-face context that found inclusive leadership behaviors to be strongly associated with employee engagement (Malik, 2017).

The structural model utilized in this study adhered to the thresholds for global and local fit indices, supporting the retention of what is deemed a good fitting model. Effect sizes in SEM are represented in the standardized regression coefficient and R^2. All items' standardized regression coefficients exceeded 0.5 with the exception of one item (.44), indicating that almost all items had large effects. In fact, the R^2 indicated that the model explained 53% of the variation in employee engagement, a finding that solidified the strength of the model. In the following chapter, the theoretical and practical implications are discussed, the strengths and limitation of the study are addressed, and suggestions for future research.

6.1 Theoretical implications

This study could be classified as a replication study, as the constructs emphasized here have been tested both theoretically and empirically in previous research (Christian et al., 2011; Edmondson, 2004; May et al., 2004). However, this study contributes to the literature in that it investigated these constructs in the virtual context while also utilizing a mediation model. The aim of the study was to investigate how employees engaged themselves virtually, proposing that inclusive leadership would engender psychological safety and employee engagement. Inclusive leadership behaviors were considered advantageous in overcoming the challenges posed by virtual work, and the results of the study indicated that this was indeed the case. Previous research had investigated the associations between leaders whose behaviors fostered both psychological safety and employee engagement, as well as how psychological safety was associated with employee engagement (Christian et al., 2011; Edmondson, 2004; May et al., 2011). By capitalizing on the surge in home-office work, this study has replicated these findings in the virtual context. As the results indicated, the findings were theoretically interesting in that the expected direct association between inclusive leadership and employee engagement was found to be non-significant. However, the association between the two constructs was indeed mediated by psychological safety, which was strongly associated with both inclusive leadership and employee engagement.

6.1.1 Employee engagement

This study emphasized employee engagement as the outcome variable. The mean value score obtained in the preliminary analysis showed a positive degree of employee engagement in the virtual context (3.95 out of 5), contradicting Morgan et al.'s (2014) skepticism regarding employees' ability to engage themselves in the virtual context through information technology. Furthermore, psychological safety had a strongly significant positive association with employee engagement. Interestingly, and contrary to theoretical expectation, employee engagement was found to be non-significantly associated with inclusive leadership. This findings contradicted previous research from the face-to-face context which found inclusive leadership to be positively associated with employee engagement (Choi et al., 2017; Malik, 2017).

In measuring employee engagement, the study utilized the Job Engagement Scale (JES) developed by Rich et al. (2010), which captures Kahn's (1990) conceptualization. The 18-item measure was constructed by combining items from various other measures to capture the three dimensions (physical, emotional, and cognitive) (Brown & Leigh, 1996; Rothbard, 2001; Russell & Barrett, 1999). The measure was originally meant to be treated in a second-order factor model, however, it was more feasible to utilize a first-order factor model for this study due it's holistic nature and the respecification of the measurement model. As such, the present study investigated holistically the associations for employee engagement in the virtual context.

6.1.2 Psychological safety

Psychological safety as a construct is theoretically connected to the construct of inclusive leadership and Kahn's (1990) conceptualization of employee engagement and was therefore an important part of this study. By focusing on employee engagement as the outcome variable, the study argued for the importance of psychological safety as an antecedent to employees feeling secure to engage themselves. Preliminary analysis revealed a positive degree of psychological safety in the virtual context within our sample, with a mean score of 3.53 out of 5 overall. Psychological safety was indeed positively associated with both inclusive leadership and employee engagement, as expected in theory.

The SEM analysis revealed that psychological safety significantly mediated the positive association between inclusive leadership and employee engagement. Previous research from the traditional face-to-ace context has found psychological safety to mediate the associations between inclusive leadership and a range of positive outcomes, such as creativity, employee voice, work unit performance, taking charge behaviors, innovative work behaviors, and learning from errors (Carmeli et al., 2010; Detert & Burris, 2007; Hirak et al., 2012; Javed et al., 2017; Ye et al., 2019; Zeng et al., 2020). This study's findings from the virtual context were therefore theoretically anticipated, and consistent with previous research with regards to the mediating effect of employee perception of psychological safety on positive organizational outcomes. This study has then contributed to the

literature on virtual work by confirming the existence of psychological safety as an effective mediator of employee engagement when leaders engage in inclusive leadership behaviors.

6.1.3 Inclusive leadership

The inclusive leadership dimensions – openness, availability, and accessibility – were proposed in this study as a means to cultivate psychological safety and employee engagement in the virtual context. This notion was based on previous research findings that showed inclusive leadership to be both empirically and theoretically connected to the two other constructs (Carmeli et al., 2010; Choi et al., 2017; Malik, 2017; Nembhard & Edmondson, 2006). In essence, an inclusive leader encourages employee contribution and input through their expressed behaviors. These inclusive behaviors were argued to circumvent the problems posed by virtual work. The sample reported a high positive degree of perception of inclusive leadership, with a mean score of 4.01 out of 5.

This study utilized a 9-item measure developed by Carmeli et al. (2010) to measure inclusive leadership behaviors on three dimensions – openness, availability and accessibility. For this study, it was decided to analyze the construct by having all items load onto a single latent variable (e.g., IncLead, see figure 2) because the study investigated inclusive leadership holistically, meaning it did not focus on each inclusive leadership dimensions for their specific impact on the two other constructs emphasized in this study. In fact, when deconstructing the inclusive leadership scale into three latent variables, each representing one of Carmeli et al. (2010) dimensions, analysis revealed higher factor loadings and somewhat improved model fit for the construct. However, investigating such effects was not the aim of this study and the analysis was continued by treating the construct holistically. (Discussed in more detail under future research).

From theoretical standpoint, it was expected that the previous research findings would replicate in the virtual context, based on the impact of the inclusive leadership behaviors. However, the finding related to hypothesis 1 was unexpected when it was found to be non-significant. The answer may lie in Ryan and Deci's (1987) theory of self-determination. In short, the theory postulated that

humans have basic psychological needs for autonomy, competence and relatedness, which in turn guide human behaviors in that an individual is motivated either intrinsically or extrinsically (Deci & Ryan, 1987). The introduction of home-office work brings the discussion surrounding employees' needs to a new arena. It is logical to assume that people enjoy autonomy when working from home, perhaps even more so than in the traditional office setting. Also, it is essential to employee engagement that employees have a sense of motivation, and whether the motivation is extrinsic or intrinsic is guided by the work performed and the individual employee. As such, it could be that an inclusive leader interferes with employees' autonomy and competence by being overly present in an arena where the employees would rather have a higher sense of control. An eager manager overlooking the work performed and asking for input, might instigate extrinsic motivation (pleasing the manager), which research has shown to be less effective than intrinsic motivation (Ryan & Deci, 1987). In fact, research findings indicate that intrinsic motivation are far more influential than any other reward-based motivation in impacting employee engagement (Singh, 2016), meaning that employee self-determination is positively associated with employee engagement. This theoretical notion might explain the unexpected finding in this study related to hypothesis 1. However, the theory could also act as a good theoretical explanation for hypothesis 4, the mediating effect of psychological safety.

Supportive leaders usually show concern for employees' needs and feelings, provide feedback and encourage them to raise concern, develop new skills, and solve work-related problems (Deci & Ryan, 1987; May et al., 2004). Such supportive actions increase employees' self-determination and interest in work (Deci et al., 1989; May et al., 2004). In turn, these individual's "are likely to feel safer to engage themselves more fully, try out novel ways of doing things, discuss mistakes and lean form these behaviors when they are in supportive environments" (Edmondson, 1996, 1999; May et al., 2004, p. 6). Employees are therefore likely to engage themselves through self-determination fostered by a psychologically safe climate cultivated by supportive leadership behaviors (i.e., inclusive leadership). With this as a rationale, psychological safety could be

argued to mediate the association between inclusive leadership behaviors and employee engagement based on employee self-determination.

6.2 Practical implications

As the world transitions into becoming increasingly familiar with large-scale virtual work, research in this domain becomes valuable. Following this notion, it is worthwhile to reinvestigate established associations to confirm or deny their applicability to the virtual context. As emphasized earlier, context matters. Therefore, this study has contributed to the literature by investigating the association between inclusive leadership behaviors and employee engagement in the virtual context. The focus of this study was on constructs that have been theoretically and empirically tested in previous research from the face-to-face context (Christian et al., 2011; Edmondson, 2003; May et al., 2004). However, the present research was also contributory in that the three constructs, inclusive leadership, psychological safety, and employee engagement, were treated in a mediation model. The finding related to mediation in this study revealed interesting practical clues as to how the interplay between the three constructs manifested in the virtual context, especially when considering the lack of a direct positive association between inclusive leadership and employee engagement.

Employee engagement has been shown to contribute to organizational success, competitive advantage, productivity, and job and task performance (Harter et al., 2002; Rich et al., 2010). Cultivating and sustaining employee engagement is therefore an important organizational goal, regardless of context. As such, it is relevant to investigate how organizations can cultivate employee engagement in the virtual context, all the while keeping in mind that context could influence how things get done in practical terms. This study argued that the virtual context offered different boundary conditions in which associations played out, proposing that inclusive leadership behaviors might be effective based upon the limitations suggested that both leaders and employees were faced with. The findings indicated that inclusive leadership indeed was effective in cultivating employee engagement, however, this association was found through the mediating effect of psychological safety and not directly. This has practical implications in that organizations should strive to increase employee's perceptions of psychological

safety, which previously had been found to be associated with a multitude of positive organizational outcomes in the face-to-face context. Psychological safety also has strong ties to the construct of inclusive leadership (Carmeli et al., 2010; Hirak et al., 2012; Nembhard & Edmondson, 2006), indicating that psychological safety may be an effective tool for leaders and organization in the virtual context to foster positive employee outcomes (discussed further in a later section).

This study has revealed potential clues as to how leaders are perceived when reaching out to employees in the virtual context. It was surprising that the results following the analysis revealed a non-significant association between inclusive leadership and employee engagement. There was a positive degree of both inclusive leadership and employee engagement within the sample, and as such a positive direct association was to be expected. Moreover, the behaviors that made up the construct of inclusive leadership were theoretically expected to have strong ties to the antecedents of psychological safety, which further surprised the researchers. Employee self-determination and subsequent leader interference were proposed as potential contributing reasons for this finding. Based on this notion, leaders should avoid becoming too overbearing when interacting with employees on a virtual platform, based on employee's basic psychological needs (autonomy, competence, and relatedness). However, this brings into question the feasibility of adopting inclusive leadership behaviors into the virtual context. On a related note, however, such leadership behaviors were found to have a strong association with psychological safety, which in turn was associated with employee engagement. Therefore, as with much psychology, a balance must be struck in order to achieve maximum efficiency of said leadership behaviors.

6.3 Strengths and limitations

As home-office work became the norm following the COVID-19 pandemic, the present study was able to utilize a relatively simple methodology to investigate the associations between the three constructs. The data collection process for a study of this nature would have been more complex in a 'normal' world where the vast majority of the workforce operated in offices than in the virtual context/at home. When all non-essential employees transitioned into home-office jobs, it offered an unprecedented opportunity to research this domain, which by all indications looks

as if it has come to stay. And so, a particular strength of the present study is that it was able to capture ecological data from regular employees who were not used to or specially trained to work in the virtual context.

A second strength of the present study was the use of already well-established theories. The proposed solution to the problem of virtuality, that being inclusive leadership, was a relatively new construct, and relatively understudied when compared to other well-known leadership theories. The two remaining constructs, however, were widely known and recognized as strong theories that had been used in a multitude of studies. By using well-tested scales for measuring their respective constructs, the present study was confident in the results obtained. It was also beneficial to investigate a 'new' construct together with established ones as this strengthened the results.

The present study has identified several limitations which future research should address. The first limitation was related to cultural differences within the sample. Data collection by means of reaching out to individual employees is a time-consuming venture. And so, in order to adhere to the SEM sample size requirements, the researchers turned to the option of collecting targeted responses based on the research goal. However, the collection of Norwegian responses through the survey website was costly compared to responses from the U.S. Consequently, due to limited financial and time resources, responses were collected from the U.S. (60%) and Norway (40%) and then merged together for analysis. The study has investigated these cultural differences with regards to relevant dimensions. Hofstede insights (2021) provide a service that continuously analyze cultures within countries with regards to six cultural dimensions – power distance, individualism, masculinity, uncertainty avoidance, long term orientation and indulgence (Hofstede, 2011). With the exception of indulgence, all the dimensions were somewhat relevant to the present study. When comparing the U.S. and Norwegian cultures, the two were relatively similar with regards to all relevant dimensions, except masculinity, which was related to motivation and the notion of wanting to be the best (Hofstede, 2011). Masculinity could be argued to be highly important to employee engagement with regards to employee motivation. It is a well-known fact that Norwegians score low on masculinity

(read law of Jante), and also that Americans generally score high on this dimension (Hofstede insights, 2021). With that being said, the present researchers were careful in drawing any inferences based on the similarities and differences in Hofstede's (2011) dimensions, and so the cultural differences within the sample were still considered a limitation to be addressed in future research. And so, while the collection of targeted responses proves fruitful with regards to reaching the sample size requirement, it also created a new issue related to cultural differences.

A second limitation was related to the respecification of the measurement model to adhere to the GOF threshold for model fit in SEM, as proposed by Kline (2016). Items were removed from the original scales used to measure psychological safety and employee engagement based on poor local fit and low factor loadings, and so shortened versions of the scales were used for the analysis. It is unusual in SEM to respecify models by removing items to such a degree. However, based on the similarity of the wording of many of the items in the employee engagement scale (see appendix 3), the respecifications were deemed justifiable. In fact, the linguistic similarities of the employee engagement scale are almost identical for some items, making respecifications theoretically simple and reasonable. However, one issue that could arise is related to the methodology. SEM analysis is performed on the basis of various assumptions (i.e., multivariate normality, sufficient sample size, etc.) (Kline, 2016). As such, there are many steps in which errors can be made. So, to assess whether the surprising result related to the association between inclusive leadership and employee engagement stemmed from the respecifications, the researchers built several equivalent models constructed of all items. By running the exact same analysis, values were obtained for the direct, indirect and total effects that were almost identical to the results obtained from the structural model. Kline (2016) stresses that there will always be equivalent models that might explain the data better and hence produce more precise results. But due to the aims of the present study, the structural model utilized was deemed to be a good fit for the hypotheses. With that being said, it would have been easier to retain all items, eliminate this discussion of respecifications altogether, and at the same time maintain construct and content validity. If the researchers could have attained sufficient model fit by keeping all items as is, the study would have had more reliable results to test the hypotheses.

However, such was not the case for the present model and sample, and therefore respecifications were necessary. Because this called into question content and construct validity, it was considered a limitation of this study.

This study has taken a holistic approach with regards to the input and outcome variable. This allowed for testing of the theories' basic tenets, and how they function in the virtual context, by use of a relatively simple methodology and a cross-sectional design. However, the cross-sectional design became a third limitation of the present study. Although the cross-sectional design is time effective, easy to manage, and easy to draw hypotheses from, it is also prone to weaknesses such as recall and desirability bias (Grimm, 2010), and ambiguity surrounding the cause and effect because data is collected at just one moment in time. Consequently, the associations identified in this study should be carefully interpreted, and research should further test the present model extensively to solidify the results.

A fourth limitation was related to the SEM analysis. As discussed in a previous section, there was a lot of debate among academics and statisticians as to what should be considered a sufficient sample size for SEM analysis, and the ideas proposed were conflicting. Researchers reviewed several studies utilizing SEM analysis and recommended that $N > 200$ was sufficient (Kline, 2016). This recommendation was followed in this study. However, it was also argued that several factors related to the model, such as estimation technique, number of latent variables, the assumption of normality, and data characteristics could allow for smaller sample sizes ($N > 100$) (Kline, 2016). Based on the present model, this notion formed the basis for why this study was satisfied with $N = 182$. However, a larger sample size may have impacted the results or even produced a different result altogether, based on the notion that there is no gold standard for sample sizes in SEM. Consequently, the sample size in this study must be considered a limitation.

A fifth and final limitation was related to the poor convergent validity observed in the psychological safety scale. This study utilized a 7-item scale developed by Edmondson (1999) which has been used in a substantial amount of research.

Three items were reverse coded due to negative wording. However, the CFA revealed that these three items were the source of considerably problematic local fit as well as having low factor loadings. As a result, the reverse coded items were removed from further analysis in order to adhere to the GOF indices emphasized in this study. Even though the shortened scale was satisfactory in terms of model fit, composite reliability, and divergent validity, it fell just short of the threshold for satisfactory convergent validity. This was an indication of questionable psychometric properties regarding the scale for this sample and could therefore introduce ambiguity into the meaning of the results. With that being said, the convergent validity score did not differ significantly from the preferred limit value of .50, and the factor loadings were close to, if not, satisfactory. As psychological safety was a well-established construct in the literature, it was surprising that this study was not able to obtain sufficient convergent validity (Edmondson, 1999). The convergent validity of psychological safety did not meet either criterion or could therefore introduce ambiguity into the interpretation of the results. Consequently, the poor convergent validity of the psychological safety scale was considered a limitation of the present study.

6.4 Future research

The holistic approach adopted in this study provides ample opportunites for future research. The first potential notion to build future research upon is to investigate the specific impact of the dimensions that make up the constructs emphasized in this study. Both inclusive leadership and employee engagement are based upon three different sub-dimensions. The conceptualization of inclusive leadership utilized in this study, as proposed by Carmeli et al. (2010), regards to openness, availability and accessibility displayed by the leader. As these behaviors are rather distinct from each other, it would be interesting to see the specific effect they have on psychological safety and employee engagement. Further, employee engagement, as per Kahn (1990), pertains to an individual's physical, emotional and cognitive engagement. And so, in the same manner as for inclusive leadership, it would be interesting to see which leadership behaviors that impact the various forms of engagement. Deconstructing the constructs to create models consisting of more latent variables with related items in higher-order models

would allow for testing of more specific hypotheses and hence contribute to a deeper understanding of the constructs in the virtual context.

Future research should also address the limitations posed by cross-sectionality by investigating the constructs in a longitudinal study. By doing so, research can investigate the effects rather than just the associations, using data captured over time, and infer more precise conclusions as to how the associations between the three constructs play out. Other changes to the methodology, such as introducing a large sample size as already discussed, or adopting a mixed methods design using qualitative and quantitative data together, could provide a deeper understanding of the associations between the construct in the virtual context.

In addition, it would also be interesting to look deeper into how psychological safety might act as an effective instigator of sought-after positive employee outcomes in the virtual context. Previous research from the face-to-face context has found psychological safety to be associated with a range of positive outcomes such as creativity, performance, innovative behavior, learning, taking charge behavior, speaking up behavior, and knowledge sharing (Carmeli et al., 2010; Edmondson, 2003; Hirak et al., 2012; Javed et al., 2017; Ye et al., 2019; Zhang et al., 2010; Zeng et al., 2020). Continuing in the same vein as the present study, it is useful for organizational theory to reinvestigate these already established associations in the virtual context. On a related note, it would also be interesting for future research to investigate the other two antecedents to employee engagement – meaningfulness and availability – on the employee level following Kahn's (1990) conceptualization. As with psychological safety, it is logical to assume that both psychological meaningfulness and availability influence how employee engage in the virtual context and is therefore an interesting avenue for future research.

Research should continue investigating how intrinsic and extrinsic motivation influences employee engagement via employee self-determination in the virtual context. These influences in this study were argued to perhaps be contributing factor as to why the surprising finding related to the direct association between inclusive leadership and employee engagement was observed. Research on Ryan

and Deci's (1987) theory of self-determination has revealed intrinsic motivation to be far more influential than extrinsic rewards-based motivation in impacting employee engagement in the face-to-face context (Singh, 2016). As such, it would be interesting to re-investigate these effects in the virtual context.

Lastly, a promising avenue for future research is looking deeper into sample characteristics. This study utilized a holistic approach using respondents that shared only one communality (i.e., working in the virtual context). Future research could specify these sample characteristics by looking into additional areas of interest, such as industry, age and education. In addition, research could investigate how factors for individuals within an organization or industry affect the associations in the virtual context, such as time of tenure, LMX relationships, and personality characteristics, as these characteristics could influence engagement. Moreover, how these constructs manifested themselves in the virtual context across cultures is a relevant question, as work today often transcends borders, making the virtual context a global phenomenon.

7.0 Conclusion

This study argues that inclusive leadership behaviors is an important organizational factor in cultivate employee engagement through the mediating effect of psychological safety when work is performed in a virtual context. The benefit of employee engagement has been highlighted in this study, which warrants why the constructs should be investigated within the boundaries of the virtual context with an emphasis on employee perception. In addition, the notion of why context matter has been explained with regards to leadership and employees. This study extends previous research as already established theoretical and empirical findings were tested once again, only this time through the virtual context. Results obtained by use of SEM, indicated that inclusive leadership was effective in fostering psychological safety, which in turn fully mediated the association between inclusive leadership and employee engagement. However, inclusive leadership was not found to have a direct positive association with employee engagement. Rather, a non-significant association was observed. Consequently, the model predicted that inclusive leadership behaviors would be effective in fostering psychological safety in the virtual context, which in turn is

strongly associated with employee engagement. Organizations that strive for employee engagement in the virtual context should therefore allow for psychological safety to flourish. And a means of doing so is for leaders to display inclusive leadership behaviors by being open to employee input and contributions and being appreciative of employee efforts and needs. And as a result, organizations can use the resources already present within the organization to become increasingly competitive within the knowledge economy.

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9.0 Appendix

9.1 Appendix 1: Structural model

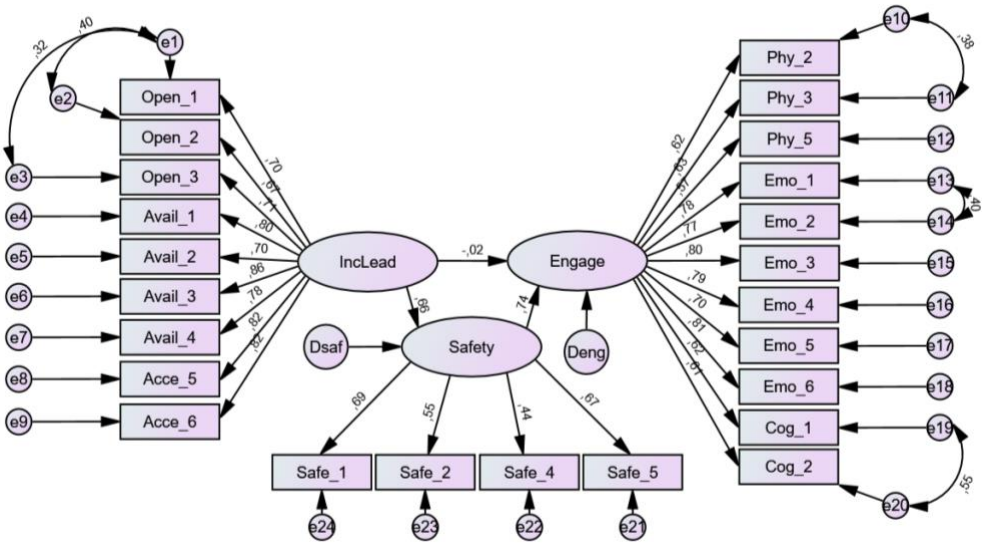
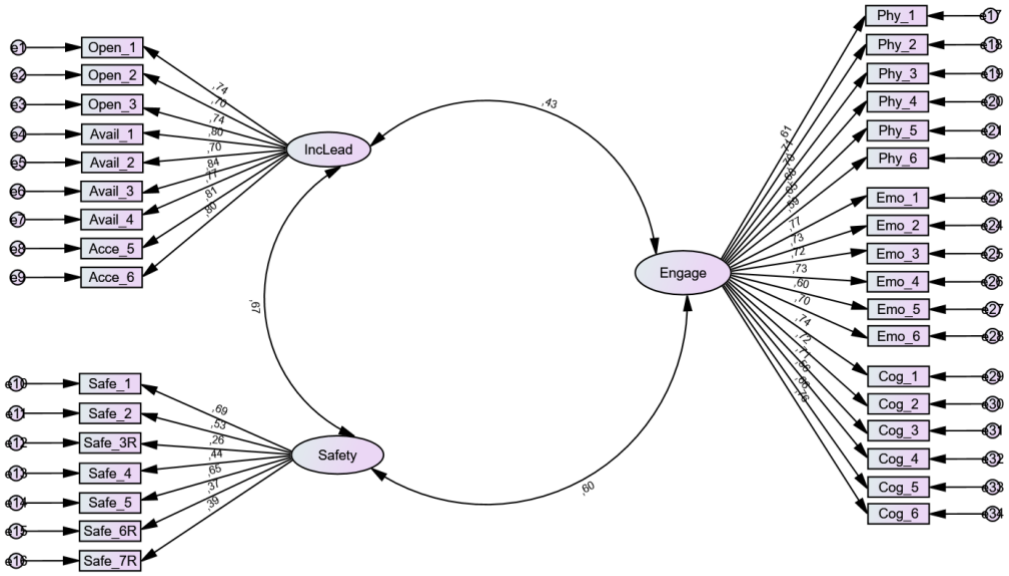


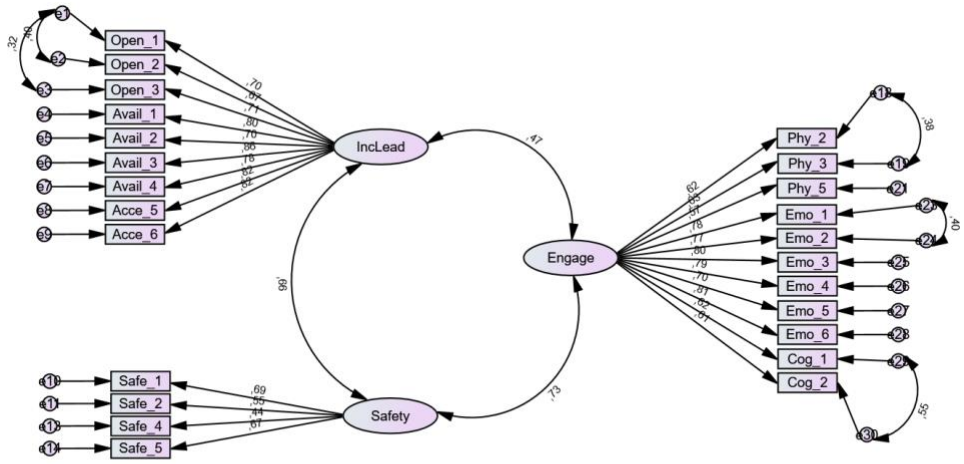
Figure 2: Estimated by maximum likelihood with bootstrap and 95% confidence interval. Figure is showing standardized coefficients. Observed variables (indicators) are represented in rectangles, while latent variables (factors) are represented in circles

9.2 Appendix 2: Measurement and respecified measurement model

9.2.1 Model 1: Measurement model



9.2.2 Model 2: Respecified measurement model



9.3 Appendix 3: Measures

9.3.1 Inclusive leadership

Open_1:	The manager is open to hearing new ideas.
Open_2:	The manager is attentive to new opportunities to improve work processes.
Open_3:	The manager is open to discuss the desired goals and new ways to achieve them.
Avail_1	The manager is available for consultation on problems.
Avail_2	The manager is an ongoing 'presence' in this team - someone who is readily available.
Avail_3	The manager is available for professional questions I would like to consult with him/her.
Avail_4	The manager is ready to listen to my requests.
Acce_5	The manager encourages me to access him/her on emerging issues.
Acce_6	The manager is accessible for discussing emerging problems.

9.3.2 Psychological safety

Safe_1	People at this organization are able to bring up problems and tough issues.
Safe_2	I feel safe to take risks in this organization.
Safe_3	It is difficult to ask other members of this organization for help.
Safe_4	No one at this organization would deliberately act in a way that undermines my efforts.
Safe_5	Working with members of this organization, my unique skills and talents are valued and utilized.
Safe_6	If I make a mistake at this organization, it is often held against me.
Safe_7	People at this organization sometimes reject others for being different.

9.3.3	*Employee engagement*
	Physical Engagement
Phy_1	I work with intensity on my job.
Phy_2	I exert my full effort at my job.
Phy_3	I devote a lot of energy to my job.
Phy_4	I try my hardest to perform well on my job.
Phy_5	I strive as hard as I can to complete my job.
Phy_6	I exert a lot of energy on my job.
	Emotional Engagement
Emo_1	I am enthusiastic in my job.
Emo_2	I feel energetic at my job.
Emo_3	I am interested in my job.
Emo_4	I am proud of my job.
Emo_5	I feel positive about my job.
Emo_6	I am excited about my job.
	Cognitive Engagement
Cog_1	At work, my mind is focused on my job.
Cog_2	At work, I pay a lot of attention to my job.
Cog_3	At work, I focus a great deal of attention on my job.
Cog_4	At work, I am absorbed by my job.
Cog_5	At work, I concentrate on my job.
Cog_6	At work, I devote a lot of attention to my job.