Leader-Employee Interaction In The Virtual Workspace: The Effect Of Perceived Leadership Communication Quality Across Channels On Employees' Engagement Levels

by

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COMPULSORY DECLARATION:

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, cited and referenced.

Signature: Date: 06/09/2022

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To continuously living everyday according to my motto, L.I.F.E.: Loyalty, integrity, fairness and equality.

Abstract

Leader-member communications and employee engagement (EE) are critical for organisational success (Barhite, 2017; Kelly, 2021; Kohntopp & McCann, 2020). With a near-instantaneous shift to remote work during the Covid-19 pandemic, the nature of communication between leaders and followers has changed (Alexander et al., 2020; Braier et al., 2021). In turn, there is uncertainty as to how leader-member communication exchanges and associated EE are facilitated among workers in the remote context (Abowd et al., 2020; Zeuge et al., 2020). Moreover, there is limited research on how to achieve appropriate leadership communication quality and EE enhancement in the virtual leadership-employee interactional context (Bark et al., 2015; Chanana, 2020). It is against this background that the proposed study sought to examine the extent to which leadership communication quality (LCQ), across different channels, affects the level of EE among South African remote employees. The present study assessed LCQ across the following channels: video-conferencing, telephone/audio-conferencing, e-mails, and companies' intranet instant messaging (IIM) channels.

This study was founded in the theoretical integration of Social Exchange Theory (Homans, 1958) and Media Richness Theory (Daft & Lengel, 1984). The study hypothesised that greater perceived LCQ, through the use of richer channels, would increase EE among employees in the virtual workspace. A descriptive, cross-sectional, quantitative research design was conducted to examine the study's hypotheses. Data was gathered via an online self-report survey from South African (SA) employees that engaged in full-time and part-time remote working schedules (N = 179). Pearson correlation analyses confirmed positive relationships between the LCQ of each channel and EE. However, once all channels were combined in one multiple regression model, only the LCQ of video-conferencing channels was found to be a unique predictor of EE levels. Friedman tests revealed that the respondents' mean rankings of the two LCQ sub-facets assessed (*communication clarity* and *leadership behaviour transmission*) were higher for video-conferencing channels than for the other channels. Cumulatively, the research revealed that the channel associated with the highest LCQ was video-conferencing, and that leaders could most likely increase EE among their remote employees by using this channel compared to the other channels assessed. These results may contribute valuable insight to inform the development of digital leadership strategies and connectivity interventions in organisations for the future world of work.

Keywords: employee engagement, leadership communication quality, communication channels, South Africa, remote workers

Glossary of Key Terms

Audio-conferencing channel. Synchronous conferencing calls that utilise audio features within actual time. For example, Zoom calls or Microsoft Teams calls with camera off and or telephone/audio-only calls.

Communication Channels (referred to as "channels" within the study). The study defined communication channels as the mediums through which communications between leaders and employees take place.

Communication Clarity. The present study defined *communication clarity* as a channel's ability to allow leaders to be clear and comprehensible, resulting in employees grasping the intended message regarding tasks, goals, missions and other work-related information (Bark et al., 2019).

Communication Reliability. In the current study, *communication reliability* is defined as a channel's ability to allow timeous communication between the employee and their direct leaders, with minimal issues in receiving efficient responses.

Employee engagement (EE). The study defined EE as a worker's strong emotional connection to their organisation, and are willing to commit time and effort into their vocational roles and activities given a positive, work-related fulfilled mindset (Schaufeli et al., 2002).

Intranet instant messaging (IIM) channel. Internally tailored instant messaging platform (used by a company). For example, Microsoft Teams "chat" text or Slack.

Leadership Behaviour Transmission. The present study defined *leadership behaviour transmission* as a channel's ability to allow a leader to i) show their respect and appreciation for efforts made by their employees, and ii) motivate and inspire their employees.

Leadership Communication Quality (LCQ). The study defined LCQ of a channel within a broader leadership perspective by using leadership theory facets. The study utilised a quality measure that argues to appropriately examine LCQ of channel in a leadership context by its incorporation of three leadership theory sub-facets. These include, *communication clarity*, *leadership behaviour transmission* and *communication reliability* of a channel (Bark et al., 2019).

Lean channel. If a channel is low among the following four constructs (feedback immediacy, multiple non-verbal and social cue transmission, personalisation, and language variation), it would be categorised low in richness and proposed to be less effective in transferring complex messages (Daft & Lengel, 1984). For example, emails.

Media richness theory (MRT). MRT proposes that efficient channel-mediated communication occurs when there is appropriate matching of channel richness with the equivocality of a specific task (Daft & Lengel, 1984). A channel's richness is measured by the following four constructs: feedback immediacy, multiple non-verbal and social cue transmission, personalisation, and language variation.

Remote worker: Virtual remote, remote worker, teleworkers are often used interchangeably, and can be understood to denote an employee that works at home and/or does not have to physically work within a conventional office space.

Rich channel. If a channel is high among the following four constructs (feedback immediacy, multiple non-verbal and social cue transmission, personalisation, and language variation), it would be categorised high in richness and have a greater ability to transfer a complex message (Daft & Lengel, 1984). For example, video-conferencing channels.

Social exchange theory (SET). Extensively used framework to comprehend the social behaviour between individuals in economic activities within social settings (Mitchell, 2015). SET's central proposition is that social behaviour is an exchange between two or more actors, where parties undergo constant negotiations to maximise rewards and avoid costs (Blau,1964). The satisfaction of each party ultimately occurs when each party receives an equitable return on transactions (Blau, 1964).

Video-conferencing channel. Synchronous conferencing calls that utilise both video and audio features within actual time. For example, video calls on Zoom or Microsoft Teams.

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Chapter 1: Introduction

1.1 Background

Organisations exist in a turbulent world of uncertainty and progressive digital and contextual disruption (Dhillon & Nguyen, 2020). Along with the Covid-19 pandemic forcing a disruptive wave of change, organisations have also been challenged by the quick pivot from face-to-face (FTF) leader-employee communications to online ones (Abowd et al., 2020; Baker, 2020; Dhillon & Nguyen, 2020; Zeuge et al., 2020). This sudden shift to online interactions has highlighted the increased productivity capabilities of a remote workforce (Kelly, 2021). As a result, both international and South African (SA) companies are predicting that remote working practices will be extended beyond the Covid-19 pandemic (BusinessTech, 2020; Kelly, 2021). However, the rapid expansion of virtual working has created concern among organisational leaders about how to create and sustain employee engagement (EE) amidst their remote workers (Zeuge et al., 2020). Yet, given the sudden shift to remote work in 2020, there is still limited literature on what relevant, key EE drivers are needed within the remote context (Chanana, 2020; Zeuge et al., 2020). Research on virtual communication has indicated that the quality of chosen leadership communication channels can potentially have a negative effect on EE levels in the virtual space (Panteli et al., 2019). The potential for communication quality to impact EE has previously been proposed by Pagan and Reissener (2013). Grounded in Social Exchange Theory (Homans, 1958), the researchers noted that effective communication that incorporates two-way and supportive management behaviours allowed for a sustained culture of EE in most contexts (Pagan & Reissener, 2013). However, this working assumption has not been tested in the SA Covid-19 pandemic remote work setting. This dissertation aimed to address this gap in the literature by reporting on a study that sought to examine the extent to which leadership communication quality (LCQ) of channels*[1] promoted EE across the multiple generations of employees who constitute today's workforce.

1.2 Problem Statement and Rationale

At the start of the Covid-19 pandemic, many organisations in SA reported having outdated infrastructure and being inadequately prepared to respond to the sudden shift to mainly remote leader-employee exchanges (BusinessTech, 2020). In turn, SA companies are described to still be "playing catch-up" in terms of learning how to manage and **engage their**

[1] *Within this study, the word "channels" is used to denote communication channels, which are defined as the mediums through which communications between leaders and employees take place.

workforce remotely in the medium-to-long-term (Braier et al., 2021). Echoing these concerns, Alexander et al. (2020) stressed that if organisation-person connectivity is limited long-term, EE and employee motivation to produce optimally will be reduced. This outcome is highly possible and relevant in the Covid-19 pandemic context, where workers are restricted from physical work-related interaction (Alexander et al., 2020). A long-term decline in EE is problematic, as EE has been shown to play a pinnacle role in virtual employee productivity and the ability of companies to remain competitive (Kelly, 2021). In an attempt to facilitate EE in the tumultuous Covid-19 pandemic context, Zeuge et al. (2020) noted that the relevance of existing literature on EE was limited because it was formulated in the pre-Covid-19 pandemic climate. Therefore, a more comprehensive, updated understanding of EE drivers needs to be established to inform appropriate practices that are relevant to the realities of today (Zeuge et al., 2020).

A possible solution to enhance EE among remote workers is through **effective leadership communication** with employees, which has been shown to be crucial for an organisation to establish favourable virtual employee experiences (Bark et al., 2019; Kohntopp & McCann, 2020). In turn, it has been shown that meaningful employee experiences are important to build and sustain high EE levels among virtual workers (Kohntopp & McCann, 2020). Yet, by late 2020, only 37% of companies in SA had successfully advanced with (or had completely implemented) their new digital communication strategies (BusinessTech, 2020). Not having clear communication strategies is concerning, as identifying optimal leadership communication structures is critical to connect, engage, and manage all employees (Kohntopp & McCann, 2020; Welch, 2011). SA companies seeking guidance around communication strategies will, however, be met with predominantly international literature on this research area, which has a prevalent focus on teams in the pre-Covid-19 pandemic context (Bark et al., 2019; Beebe & Masterson, 2009; Hung-Baesecke & Men, 2015; Suthers, 2017). The absence of SA context-specific research means that it is difficult to draw conclusions about effective strategies for SA-based virtual leader-employee communication.

Existing literature on remote work has highlighted that leaders of virtual workforces and teams must engage their employees by utilising various channels (Men & Tsai, 2013; Men, 2014; Men, 2015). However, Mitchell (2015) noted that these leaders often have limited knowledge of the required communication quality that is needed to effectively enhance EE. There is also limited research on **leadership communication quality (LCQ) across various channels** (Bark et al., 2015). Additionally, literature on whether LCQ across channels enhances

EE in SA has been significantly overlooked. This research gap prompted this study to focus on LCQ when exploring the drivers of SA remote workers' EE in the virtual workspace.

Given the **intergenerational differences** in most modern organisations, the study further explored how age may impact the perceived LCQ of different channels. Literature has shown that organisations are having to manage four generational cohorts with unique differences in values, communication preferences, and drivers of EE (Bonnema & Hoole, 2015; Dunaetz et al., 2015). Namely, the generational cohorts are Baby Boomers, Generation X, Millennials, and Generation Z. Researchers questioned if "a one size fits all" approach regarding leadership channel usage will thus sustain the EE levels for all generational cohorts (Dunaetz et al., 2015; Robison, 2021). Scholars have referred to the 'net' generation, yet there is minimal research investigating workplace communication practice preferences (Jones, 2017; Tipton, 2017). This study thus sought to understand if generation-specific preferences influence perceived LCQ of various channels for virtual leader-employee interactions.

1.3 Significance of the Study

Currently, SA organisations are faced with the novel challenge of having to rapidly adapt to the online working environment. It is thus essential to develop SA-specific strategies to increase and maintain levels of EE, employee motivation and company productivity output. Understanding which channels are most optimal in terms of their perceived LCQ and consequent enhancement of EE could provide valuable input for digital connectivity interventions for the future world of work (FwoW). Additionally, communication experts and organisational leaders of the FwoW can use this study's findings to better comprehend remote workers' EE levels within the virtual environment. Industry experts would be able to utilise this data to create and implement appropriate leadership communication strategies that meet virtual multigenerational workforce preferences, and possible associated EE levels.

1.4 Literature Review Strategy

The researcher utilised an extensive variety of resources. These include peer-reviewed journal articles, Global Research company reports, credible online articles, and dissertations. Sources were accessed systematically through Google Scholar, as well as the researcher's university library portal that encompasses extensive and credible databases. These include; EBSCO Host, Emerald, Sage and Springer Link. The following terms were used in various combinations to gather relevant articles for the study; 'remote workers', 'employee engagement', 'communication channels', 'communication channel quality', 'leadership communication', 'leadership communication quality', 'multigenerational engagement', and 'multigenerational communication preferences'. Articles that were generated from the search

but deemed unrelated to the study's primary research question were excluded from the review. Relevant articles were referenced accordingly. Although the search initially intended to utilise sources within the recent ten years, the timeframe for inclusion was extended to within the past 20 years due to the minimal articles focusing on this area of research. This highlights the evident need for the study's research to address the research gap.

Chapter 2: Literature Review

2.1 Theoretical Framework

This study utilised two frameworks to examine the role of channels' LCQ in facilitating EE, namely Social Exchange Theory (SET; Homans, 1958) and Media Richness Theory (MRT; Daft & Lengel, 1984). SET was the grounding framework of the overall study, as it provided a fundamental framework to assess the interaction and resulting behaviours between leaders and employees (Homans, 1958). SET, initially developed by Homans (1958), has been used to comprehend the social behaviour between individuals in economic activities within social settings (Mitchell, 2015). SET's central proposition is that social behaviour is an exchange between two or more actors, where parties undergo constant negotiations to maximise rewards and avoid costs (Blau,1964). Each party is ultimately satisfied when they receive an equitable return on transactions (Blau, 1964). Applying the SET framework to this study, the underlying assumption was as follows. Individuals responding to a channel that transfers supportive and clear leadership behaviours were proposed to be more likely to reciprocate in a positive manner (i.e. increased EE). MRT was used as an additional lens to examine EE facilitation, which also accounted for the relative richness of different channels in transmitting information and visual cues within the remote working environment (Daft & Lengel 1984). Based on the theoretical integration of both SET and MRT, this study hypothesised that the perceived benefits of attaining greater LCQ when using richer channels would increase workers' EE levels in the virtual workspace.

SET's relevance to the current study is supported by its use in previous research (Brunetto et al., 2011; Fay & Kline, 2011; Mitchell, 2015). Barhite (2017) utilised SET in explaining the greater likelihood for employees to commit when organisations and leaders provide elements that foster EE (Barhite, 2017). Likewise, Mbhele's (2016) study on the effects of internal communications on EE within a SA government department confirmed SET's application. Specifically, SET was shown to support a series of leader-employee interactions to negotiate meaning (Mbhele, 2016). Furthermore, Pagan and Reissener's (2013) utilisation of SET confirmed that organisations providing supportive communication facilitated EE and productivity in return (Pagan & Reissener, 2013). The researchers emphasised that communication is the key mechanism through which leaders express organisational undertakings, reciprocity of social relationships, and managerial support to their employees (Pagan & Reissener, 2013). In turn, effective communication enables associated attitudes of EE to be promoted and sustained. Ultimately, SET's various applications in research show that SET's broad relational principles (with MRT being a secondary lens) are relevant for

investigating the study's following research purpose: examining the extent to which LCQ across various channels promotes EE among SA remote workers.

2.2 Employee Engagement (EE)

2.2.1 Definitions

Employee engagement (EE) is often considered the crucial driver of organisational success, which is predicted to be no less vital in the virtual working environment (Barhite, 2017; Mmope, 2010; Markwick & Robertson-Smith, 2009). Although extensively examined, EE has no universal definition among theorists (Kahn, 1990; Macey & Schneider, 2008; Markwick & Robertson-Smith, 2009; Schaufeli & Bakker, 2004). As the "engagement" construct has developed over time, it has been coined in multiple, inconsistent ways within literature (Markwick & Robertson-Smith, 2009). For instance, EE has been defined as a psychological or affective condition (Kahn, 1990), whilst Macey and Schneider (2008) defined EE as a discretionary effort, or a positive behavioural performance measure and attitude.

A commonality among EE definitions is that it is described as a desirable state which has an organisational role, and predicts commitment, focused energy, and passion (Macey & Schneider, 2008). Thus, one can argue that EE involves both behavioural and attitudinal components. For example, Kahn (1990) first conceptualised engaged employees as those eager to invest cognitive focus, emotional connectedness, and physical resources in their vocational actions and performances. Similarly, Maslach et al. (2001) described EE as a positive emotional, motivated state of accomplishment. Alternatively, the EE construct was argued to be multifaceted, but an exact definition should encompass passion and feeling (Macey & Schneider, 2008). The present study adopted Schaufeli et al.'s (2002) widely used definition, whereby EE can be understood to incorporate three core aspects: vigour, vocational dedication, and absorption. The study defined EE as a worker's strong emotional connection to their organisation, and their willingness to commit time and effort into their vocational roles and activities given a positive, work-related fulfilled mindset (Schaufeli et al., 2002).

2.2.2 Employee Engagement Among Remote Workers

Due to the sudden shift to remote work in 2020, research assessing EE and its outcomes is predominantly based on the traditional, physical workplace conditions, where outcomes have included organisational productivity and employee retention (Bates, 2004; Harter et al., 2002; Mmope, 2010). Thus, this pre-Covid-19 pandemic research into EE cannot be reliably used to fully explain relevant promoters and outcomes of EE in the current context. In turn, this has resulted in limited research regarding the predicted disruption to the algorithm of how EE occurs among remote employees (Abowd et al., 2020; Zeuge et al., 2020). The limited Covid-

19 pandemic research did indicate that remote working in SA and international contexts led to a short-term enhancement in EE due to enabling greater work flexibility (Braier et al., 2021; BusinessTech, 2020). Despite the short-term increase in EE observed during the early phases of the Covid-19 lockdown, it is not certain whether this outcome will be sustained, and in fact, it has been argued that EE will decline in the long term (Alexander et al., 2020). This rationale is based on the lack of social interaction experienced in the remote working context compared to regular in-office FTF employee-leader communications, especially during the Covid-19 pandemic (Alexander et al., 2020).

Studies on remote work have found that these work conditions do have a negative effect on EE-associated outcomes (Martinez-Amador, 2016; Davenport & Pearlson, 1998). Specifically, virtual intensity (dependence on virtual connectivity) was shown to moderate the impact of work-location stress and EE (Martinez-Amador, 2016). Thus, at a greater level of stress, low virtual intensity (on-site) employees were more engaged than higher virtual intensity (remote) employees (Martinez-Amador, 2016). Likewise, Davenport and Pearlson's (1998) study showed that managers in the remote working context were challenged to sustain motivation and a sense of belonging among employees. Importantly, EE is known to be negatively affected if these desired attitudinal components are not sustained (Tedla, 2016). Additionally, Dino et al.'s (2008) study on 261 professional-level teleworkers and their managers stressed that professional isolation among remote workers increased over long periods of remote working. This professional isolation has been indicated to negatively impact employee performance, which is linked to EE (Davis & Cates, 2013; Garcia et al., 2017). Furthermore, Garg and van der Rijst's (2015) SA study on cost-saving implications of remote working further confirmed these findings. These researchers found that factors that negatively correlated with EE, including professional isolation and neglect, were prevalent concerns in remote working conditions. In turn, the effects of the inevitable long-term decline in EE among remote workers was argued to be detrimental for organisations (Barhite, 2017; Van Wyk, 2019). Despite findings on the predicted challenges involved in sustaining EE, there appears to be a lack of research on the implications of virtual technology reliance on remote workers' EE levels. Moreover, drivers of these EE levels within the novel remote/hybrid workplace dynamic context need to be further assessed, especially in SA.

In attempts to find a solution to enhance EE, some researchers have argued for the heightened need to improve employee experiences in the remote setting (Alexander et al., 2020; Chanana, 2020), since employee experiences are found to be linked to fostering EE (Kelly, 2021). Employee experiences could be enhanced through increased employee-

leadership interactions and social connectivity (Alexander et al., 2020). Van Wyk (2019) indicated that EE is improved when organisations provide opportunities to experience connectedness with their managers and peers in a meaningful manner. Similarly, Chanana (2020) and Fallon (2020) recommended an increase in transparent and frequent communication structures in organisations to aid EE during the Covid-19 lockdown periods. Therefore, it may be critical to further understand how leadership communication facilitates EE.

2.2.3 Leadership/Management Communication as Antecedents of Employee Engagement

Communication (specifically from leaders) has been proven to be the crucial functional propeller in fostering EE and trust in virtual workspaces (Kohntopp & McCann, 2020). Likewise, Robison (2021) reported that leaders and managers were shown to affect 70% of EE variance, and were most optimally situated to provide a more authentic, connected, and engaged virtual experience for their remote workers.

From a theoretical perspective, Welch (2011) developed an engagement model indicating that leadership and/or managerial internal communication was a vital antecedent of EE. Communication was reported to facilitate a sense of belonging and commitment (EE facets) and influenced subsequent products of EE, such as task sensemaking (Welch, 2011). These outcomes were indicated to effectively facilitate physiological dimensions and conditions of EE, including meaningfulness, safety, and availability (Kahn, 1990; Welch, 2011). Barhite (2017) confirmed the validity of Welch's (2011) model of EE facilitation in virtual leadership conditions. Specifically, Barhite (2017) suggested that online leader communications can play an instrumental role in enhancing the virtual employee experience and improving sensemaking in a geographically dispersed workforce. In turn, this experience facilitated EE (Barhite, 2017). Despite the previous research into the link between leadership communication and EE, research on how communication facilitates EE among remote workers is limited in SA's Covid-19 pandemic context. This limited research is a concern, as with a near-instantaneous change from FTF to remote work, the nature of communication between leaders and followers has shifted (Alexander et al., 2020; Braier et al., 2021). Therefore, there is uncertainty as to how leader-employee communications can facilitate associated EE levels in the remote context given that EE relies heavily on channel-mediated communication.

There are an increasing number of channels available for leaders to use to engage employees, but a less effective channel choice by leaders can potentially have a negative effect on EE levels in the virtual space (Panteli et al., 2019). Therefore, it may be valuable to further establish whether different leadership communication channels influence EE facilitation among remote workers in SA.

2.3 Virtual Leadership Communication Effectiveness in Relation to Channel Quality

Leadership styles (i.e. transformational leadership) associated with higher EE levels have commonly emphasised the importance of communication quality in effectively inspiring and strengthening employees' motivations and resilience (Byrne et al., 2014; Fletcher, 2016; Li & Liao, 2014; Hamstra et al., 2016). Garg and van der Rijst (2015) stressed that when companies shift to remote working models, there is an unavoidable impact on the frequency and perceived quality of leader-employee communications. In this shift, the quality of leader-employee communications needs to be preserved given that these relationships significantly enhance employees' attitudes and productive behaviours within the working context (Garg & van der Rijst, 2015; Kim & Rhee, 2011; Men & Stacks, 2013). Yet, researchers have argued that effective virtual communication and associated employee productivity outcomes only occurs when channels are effectively used (Avolio et al., 2014; Hambley et al., 2007). While there are well-established associations between communication quality and employee attitudes, it is still not clear how the quality of communication channels should be measured (Mitchell, 2015). In this context, Media Richness Theory (MRT), which is a theoretical landmark for multi-channel outcome research, can be used to better understand the quality construct of different channels (Daft & Lengel, 1984).

2.3.1 Media Richness Theory (MRT)

Regardless of technological developments, incorrect channel choice often creates complications and can lead to two key issues: misinterpretation (due to lack of contextual cues) and equivocality (Barhite, 2017; Fristedt, 2021). MRT, initially developed by Daft and Lengel (1984), aimed to explain how various channels provide certain degrees of media richness depending on their available features. In turn, MRT has been used to show that communication efficiency is determined by employees' abilities to use channels of appropriate feature richness to minimise ambiguity (Elie-Dit-Cosaque & Pallud, 2008; Fristedt, 2021). MRT proposes that efficient channel-mediated communication occurs when there is an appropriate matching of channel richness with a particular task's degree of uncertainty (Daft & Lengel, 1984). According to MRT, channel richness means that it has a greater ability to transfer a message (Daft & Lengel, 1984). A channel's richness is characterised by the following four constructs: namely, feedback immediacy, multiple non-verbal and social cue transmission, personalisation, and language variation (Daft & Lengel, 1984). Based on MRT principles, the use of an inappropriate channel to relay certain information could prevent a message from

being delivered and interpreted correctly (Suthers, 2017). Consequently, this could lead to unfavourable outcomes, such as miscommunication and frustration (Elie-Dit-Cosaque & Pallud, 2008; Fristedt, 2021; Huntley, 2008).

Channels are often assigned to one of three MRT categories. Namely, rich (interactive media with non-verbal cue transfer abilities), moderate (interactive messages with a restricted transfer of non-verbal cues), and lean (written, non-interactive messaging) channels (Daft & Lengel, 1984). According to the four MRT criteria, video-conferencing channels are rich media alternatives to FTF communication that effectively transfer complex information (Erjavec, 2018; Fleischmann et al., 2019; Shannon, 2018). Likewise, if there is greater ambiguity in the communicated information, a richer channel (i.e. video-conferencing) is regarded as most effective (Daft & Lengel, 1984; Huntley, 2008). In a complex, rapidly changing environment like the remote work context, richer channels could also enable greater collaboration due to higher feedback and cue immediacy features (Shannon, 2018). As a result, the use of richer channels has been recommended within the virtual landscape (Shannon, 2018). Specifically, video-conferencing (i.e. camera-on Zoom calls), followed by telephone/audio-conferencing, were deemed medium-to-high in richness due to their visual and audio abilities in actual time (Fleischmann et al., 2019; Men, 2015). These richer channels were followed by e-mails and other text-based channels, all of which hierarchically decreased in media richness (Erjavec, 2018; Fristedt, 2021).

DeRosa et al. (2004) argued that MRT is outdated since it was developed in the 1980s and, thus does not account for newer technologies' abilities. Despite this argument, Dennis et al. (2008) and Ishi et al.'s (2019) more recent studies examined the theories viability in terms of its adaption to the modern technology context. MRT had initially characterised computer-mediated text-based channels as lean in richness (Daft & Lengel, 1984). However, the enhancement of instant text messaging platforms was more recently found to be somewhat richer than previously defined (Dennis et al., 2008; Ishi et al., 2019). Likewise, Aritz et al. (2018) revealed that traditional written tools (i.e. emails) are leaner and less successful within virtual team settings than more modern, interactive platforms (i.e. Slack). Thus, MRT research would hierarchically categorise popular leader-employee channels from high to low richness as follows: video-conferencing, telephone/audio-conferencing, intranet instant messaging (IIM) platforms, and then email (Men, 2015).

There has, however, been inconsistent empirical support for MRT in determining channel choice preferences in different situations (Hennig-Thurau & Vor dem Esche, 2013; Smith, 2021). Likewise, some researchers have indicated that media richness does not always facilitate a positive relationship with virtual employee performance or interaction success (Driskell et al., 2003; Hertel et al., 2005; Bommer et al., 2003). Nevertheless, Bark et al. (2019) defined effective leader-employee communication as a convergence process requiring rich, immediate information to maintain effective relationships and employee outcomes. With the understanding that channel richness plays a potential role in the quality and efficacy of leadership communication, it may be imperative to establish whether the richness of a channel used by a leader influences EE in the virtual space.

2.3.2 Leadership Communication Channel Richness Associated with Employee Engagement

Mitchell's (2015) survey of 71 United States virtual employees found that perceived quality of channel communication increased EE. Likewise, Hung-Baesecke and Men (2015) found that the interpersonal factor cues in leader-employee communications (enhanced in richer channels) had a positive association with EE. These interpersonal cues were predicted to facilitate more constructive employee attitudes towards their organisations and tasks, leading to enhanced EE (Hung-Baesecke & Men, 2015). Similarly, Bark et al. (2019) found a correlation between increased use of richer channels (by leaders) and productive employee attitudes associated with improved perceptions of leadership efficiency. This perceived leadership presence and efficiency was shown to be translated through non-verbal and social cues, such as body language, voice tone and facial expressions (Bark et al., 2019).

Richer channels have also been shown to enhance a sense of belongingness, trust and satisfaction among employees (DeRosa et al., 2004; Elie-Dit-Cosaque & Pallud, 2008; Fristedt, 2021; Mbhele, 2016), which are outcomes that have been previously linked to EE (Lampinen et al., 2018). Similarly, Beebe and Masterson's (2009) study on 64 virtual teams stressed that an essential component of effective message interpretation and communication is through understanding the context of the leader's message. Complete comprehension of a leader's message was found to be a crucial facilitator of employee trust, and achieved through the provision of nonverbal cues via richer channel features (Beebe & Masterson, 2009; Fristedt, 2021). While many previous studies have supported MRT, other studies have questioned its premises (Aritz et al., 2018; Rogers & Lea, 2005). Rather, these researchers have argued that leaner channels (such as email) are sufficient to build social presence, interactivity, and a sense of belonging in teams (Aritz et al., 2018; Rogers & Lea, 2005). Nevertheless, there appears to be sufficient research supporting the premise that leadership communication channel richness

has an effect on EE levels. Thus, the perceived quality of a leader's channel and its effects on EE could differ based on a channel's richness according to MRT components. Altogether, the literature and research presented above could be used to generate the first hypothesis of this study, which is stated below:

Hypothesis 1: EE has a more positive correlation with the richest channel in the leader-employee communication context compared with the leaner communication channels.

2.4 Leadership Communication Quality (LCQ) of Virtual Channels

As indicated in previous studies, the quality of leader-employee relationships and associated employee outcomes are enhanced by perceived communication quality (Bark et al.,2019; Erjavec, 2018). Given that previous research has yielded inconsistent findings about the validity of MRT, it is important to establish how to best measure the perceived quality of leadership communication channels other than solely measuring features of channel richness. Nardi's (2005) research on interpersonal communication noted that leader-employee interactions often go beyond pure task information exchange. Rather, these communications served to establish connectedness and support that enabled positive leadership outcomes on employee behaviours, such as EE and satisfaction (Bark et al., 2019; Nardi, 2005). Yet, existing MRT research has predominantly focused on channel appropriateness in the context of specific tasks, instead of an overall leadership setting (Bark et al.,2019; Erjavec, 2018; Men, 2014). Researchers have suggested that a channel's quality should emphasise key aspects found in prominent leadership theories, such as in Bass and Avolio's (1994) Full-range Leadership Model (Avolio, 2004; Bark et al., 2019). Thus, along with accounting for channel richness, this study defined perceived LCQ*[2] of a channel within a broader leadership perspective by using components of leadership theories. This definition was developed using a quality measure that examined the LCQ of a channel in a leadership context by its incorporation of three leadership theory sub-facets: *communication clarity*, *leadership behaviour transmission* and *communication reliability* of a channel (Bark et al., 2019).

Research has shown that leadership communication is of high quality when encompassing effective clarification of goals and tasks, inspiring and supporting subordinates, and recognising efforts in a timely manner (Avolio, 2004; Bark et al., 2019). When these leadership communication aspects were effectively transferred through a channel, enhanced leader-employee relationships, meaningful employee experiences, and associated employee attitudes linked to EE occurred (Bark et al., 2019; Chanana, 2020; Markwick & Robertson-

[2] *Going forward for ease of reading, the researcher refers to perceived LCQ as LCQ.

Smith, 2009; Shannon, 2018). Aligned with SET, employees viewed their work as meaningful and worthwhile when they perceived high communication quality with their leaders (Kahn, 1990; Serrano & Reichard, 2011). In turn, the perceived meaningful communications and supportive leadership through a channel have been argued to manifest enhanced EE (Mbhele, 2016; Kahn,1990). Taken together with the reviewed literature above, the study's second and third hypotheses were formulated as follows:

Hypothesis 2: LCQ in each channel is positively related to EE.

By employing these communication strategies to facilitate meaningful and engaging employee experiences, the study hypothesised that utilising channels with a higher LCQ would not only be positively related to, but would predict EE.

Hypothesis 3: Richer channels' LCQ explains a higher proportion of variance in EE than leaner channels.

When measuring LCQ's three proposed subdimensions, Bark et al.'s (2019) study was found to exclusively assess *communication clarity, leadership behaviour transmission,* and *communication reliability* in relation to channel quality in a leadership context. The study's findings revealed that all subdimensions were significantly higher in FTF communications than in email and telephone/audio-conferencing, which supports the premises of MRT. Yet, Bark et al. (2019) did not assess video-conferencing channels' LCQ impact on EE compared to leaner virtual channels. This highlights an evident gap in the current literature on the efficacy of virtual channels. It is thus important to understand how each subdimension of LCQ influences EE facilitation in the study's predominantly remote working context.

2.4.1 Communication Clarity

The present study defined *communication clarity* as a channel's ability to allow leaders to be clear and comprehensible, resulting in employees grasping the intended message regarding tasks, goals, missions and other work-related information (Bark et al.,2019).

2.4.1.1 Communication Clarity and Employee Engagement. *Communication clarity* is emphasised within leadership theories, where clarity has been shown to enhance transformational leadership success and associated employee outcomes, such as EE (Decuypere & Schaufeli, 2019; Judge & Piccolo, 2004). Suthers' (2017) study on

communication officers within hospitals found that unclear communication between employees and managers facilitated ineffective communication. As a result, employees felt excluded from the primary communication loop, and a likelihood of decreased employee motivation levels were found (Suthers, 2017). Similarly, Serrano and Reichard's (2011) argued that when employees have a clear understanding of their task/role, there is a higher possibility of increased EE and energy exerted in the role. Likewise, Markwick and Robertson-Smith (2009) stressed that when workers experience a sense of return on their efforts, they are likely to be more engaged in their work. Task and goal clarity through effective leadership communication is thus deemed crucial to achieving these meaningful work perceptions and positively associated EE levels (Markwick & Robertson-Smith, 2009).

2.4.1.2 Communication Clarity Relative to Channel Richness. Although it is established that leadership *communication clarity* can enhance EE levels, there is a lack of research that explores which channels are most effective in achieving clear communication in general leadership contexts. Referencing MRT's four components, richer channels were found to facilitate more social and non-verbal cues to aid in message clarity, such as communicating the message both verbally and visually (Daft & Lengel, 1986; Fristedt, 2021). Moreover, language variety and the ability to orally simplify an ambiguous or complex message have been achieved through richer channels (Huntley, 2008; Takeda, 2007). Conversely, the likelihood of ensuring clarity of all messages (simple and complex) sent by a leader through leaner channels is less certain (Huntley, 2008; Otondo et al., 2008). However, Coovert et al. (2008) argued that leaner channels may be more appropriate for communication exchanges with the purpose of efficient, clear task confirmation. Specifically, channels too rich in visual cues may distract from the intended task and interaction purpose (Coovert et al., 2008). For example, email is argued to be more appropriate for quick task clarification (Coovert et al., 2008). Despite this argument, given that leader-employee interactions generally involve both task and social relation message content, richer channels might be more likely to ensure content clarity and associated EE outcomes (Serrano & Reichard, 2011).

Thus, based on MRT and the literature mentioned above, the study proposed the following hypothesis:

Hypothesis 4a) *Communication clarity* in video-conferencing channels will be more positive than in leaner channels.

2.4.2 Leadership Behaviour Transmission

The present study defined *leadership behaviour transmission* as a channel's ability to allow a leader to i) show their respect and appreciation for efforts made by their employees, and ii) motivate and inspire their employees.

2.4.2.1 Leadership Behaviour Transmission and Employee Engagement. Leaders have been shown to be highly successful when they are able to motivate their employees through convincing vision, charisma, and employee consideration (Judge et al., 2004). Additionally, enhanced EE levels have been found to be the result of leaders providing visible signals of support, admiration and feedback towards their employees (Serrano & Reichard, 2011; Hakanen et al., 2006). The ability to foster leader transparency through visual, obvious cues is thus established as a crucial factor in motivating employees (Berggren & Bernshtvn, 2007). This conveyance of transparency has been predicted to have an impact on relationship and trust establishment and associated productivity outcomes, such as EE (Hung-Baesecke & Men, 2015). Moreover, Men and Stacks (2014) found that leadership communication behaviours impacted employees' cognitive reception of their leader's message which, in turn, influenced their attitudes and behaviours. Relatedly, Grant (2012) reported that leaders created employee motivation through visibly engaging in inspirational and respectful behaviours towards their employees. These behaviours were found to enhance EE and include the following: expressing optimism (Tims et al., 2011), a motivating vision (Grant, 2012; McCole et al.,2012), recognising employees' efforts and accomplishments (Shirom, 2006), consideration and respecting employee values (Serrano & Reichard, 2011). Yet, it is not clear which communication channels most successfully facilitate these effective leadership behaviours, and this question needs to be explored further.

2.4.2.2 Leadership Behaviour Transmission Relative to Channel Richness.

Based on MRT's four components, richer channels should facilitate greater personal orientation and social cue conveyance that enable "personality" transfer (Fristedt, 2021). In turn, the attainment of more personal, intimate interactions through richer cue-transmitting channels was found to enable the effective transference of emotions to the receiver (Daft & Lengel, 1984). Richer channels such as video and audio-conferencing have been shown to impact perceived organisational and leader authenticity (Shen & Kim, 2012). This enhanced leader authenticity was found to be established by richer channels vividly conveying facial and body language cues that were deemed critical when examining a leader's genuineness (Fristedt,

2021; Hung-Baesecke & Men, 2015; Mbhele, 2016; Shen & Kim, 2012). These transparency and authenticity enhancement outcomes are vital if leaders desire increased EE in the remote space (Hung-Baesecke & Men, 2015), which aligns with the study's hypotheses.

Based on the pre-mentioned literature, channel choice may thus affect the transfer and conveyance of social cues for engaging and motivating leadership. MRT suggests that video-conferencing is the best alternative to FTF communication in cue richness. Therefore, the current study proposed the following hypothesis:

Hypothesis 4b) *Leadership behaviour transmission* in video-conferencing channels will be more positive than in leaner channels.

2.4.3 Communication Reliability

The final dimension proposed to measure the LCQ of a channel in this study is *communication reliability*. *Communication reliability* is deemed higher when it has a greater ability to establish a reliable connection between parties (Fristedt, 2021; Huntley, 2008). In the current study, *communication reliability* was defined as a channel's ability to allow timeous communication between employee and their direct leaders, with minimal issues in receiving efficient responses.

2.4.3.1 Communication Reliability and Employee Engagement. Based on Bass and Avolio's (1994) Full-range Leadership Model, *communication reliability* is a central precondition for successful leadership and related employee outcomes. Conversely, laissez-faire leadership has been associated with leaders that were often unavailable when needed (Judge & Piccolo, 2004). A laissez-faire leadership style has been deemed ineffective, and was shown to result in poor employee performance and associated outcomes like EE (Judge & Piccolo, 2004). In consensus, Bark et al. (2019) cautioned that the greater delay in response (due to lower connection reliability) may have detrimental consequences on employee performance and attitudes. Similarly, Markwick and Robertson-Smith (2009) noted that attaining timely recognition and rewards from one's leaders was a significant driver of EE. Specifically, recognition was found to facilitate feelings of being valued and appreciated for the effort put into work (Markwick & Robertson-Smith, 2009). Moreover, timely recognition was deemed a job resource that leaders could use to enhance EE (Bakker et al., 2007).

2.4.3.2 Communication Reliability Relative to Channel Richness. In line with studies confirming MRT, leaner and asynchronous (text-based) channels have been found to encompass lower levels of feedback immediacy (Bark et al., 2019; Beebe & Masterson, 2009; Carr et al., 2019; Hayward, 2002). For example, one is not certain if the message sent in an email has been received until one attains a reply (Fristedt, 2021). Thus, timeous responses are not guaranteed with leaner channels. However, immediate feedback through oral communications have been shown to likely occur when leaders engaged with employees through video and audio-conferencing interactions (Fristedt, 2021; Huntley, 2008). Additionally, Marlow et al. (2017) argued that communication timeliness was a component that defined communication quality for virtual teams. However, the researchers posed a concern that timeliness was a challenge in the virtual setting due to time diffusion leading to response delays (Marlow et al., 2017). In turn, the researchers questioned if *communication reliability*/feedback immediacy was a suitable indicator for all effective communications in the virtual space (Marlow et al., 2017). Thus, this study seeks to examine this dimension further. Given MRT positing that video-conferencing is the best alternative to FTF communication in immediacy richness, the current study proposed the following hypothesis:

Hypothesis 4c) *Communication reliability* in video-conferencing channels will be more positive than in leaner channels.

Like the proposed LCQ subdimensions, findings in communication research have indicated that channel familiarity may play a role in the perceived quality of a channel (DeRosa et al., 2004; Tipton, 2017). An individual difference factor associated with channel familiarity is age generation. The study thus also seeks to explore this possible influencing factor further.

2.5 Age as a Possible Influencing Variable

The current workforce is more age-diverse than ever before, which is relevant because age-specific differences were found in communication preferences and the drivers of meaning, motivation, and EE (Bonnema & Hoole, 2015; Corrington et al., 2019). Likewise, researchers argued that individual differences (including age) influenced channel effectiveness and satisfaction (Aritz et al., 2020; Dunaetz et al., 2015). Similarly, Robison (2021) noted that the perceived richness of channels was often dependent on the varying levels of familiarity and competency of the user, which differed between generations. Yet, there are limited studies in this research area. Existing findings have indicated inconsistencies and a restricted understanding of channel preferences across ages (Dunaetz et al., 2015; Jones, 2017; Notre

Dame of Maryland University (NDMU), 2019; Tipton, 2017). Thus, these discrepancies and the lack of research in SA prompted this study to assess the final hypothesis, in an attempt to gain a more accurate understanding of how LCQ of channels is perceived among remote workers.

Hypothesis 5: Age generation differences significantly affect the ratings of LCQ across channels.

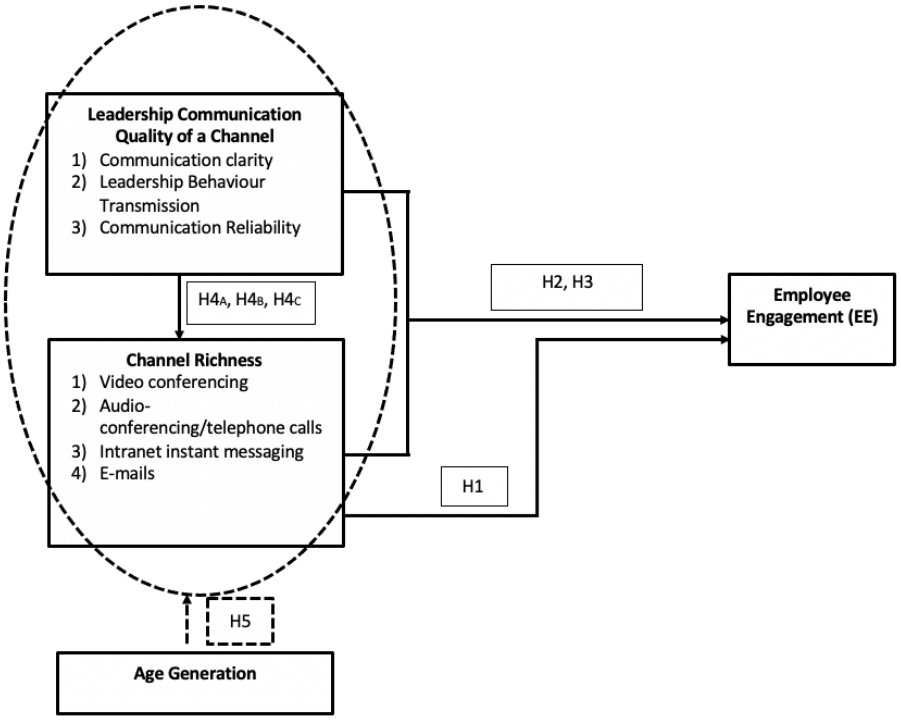
Altogether, the literature discussed above and the study's current hypotheses proposed a potential model (see Figure 1 below). The model describes the relationship between LCQ and EE, and also accounts for the possible roles that channel richness and age have in determining how a channel's LCQ is perceived. With reference to this model, the present study's research questions are the following:

(a) What are the effects of LCQ across four work-related channels on EE among SA remote workers?

(b) Are there age generation effects on LCQ across multiple channels among SA remote workers?

Figure 1

Proposed Theoretical Model Under Investigation Based on Study Hypotheses.



Chapter 3: Method

This chapter encompasses seven sections outlining the study's approach to testing the targeted hypotheses. These sections include: the research design, the sampling approach, participant characteristics, the measurement instruments employed, a detailed research procedure, ethical considerations for research, and a brief outline of statistical analyses used.

3.1 Research design

The present study followed a quantitative descriptive research design that was deductive in its methodology. The study employed a cross-sectional correlational design, as relevant quantitative data from participants were gathered at one point in time (Rosenthal & Rosnow, 2013). Following Setia's (2016) recommendations, this design was deemed suitable as it aligned with the researcher's purposes and constraints. These constraints included the need for the research to be cost-effective and timeous. Additionally, a quantitative data collection method was considered most appropriate, as this methodology has been highlighted to assess relationships between two or more variables (Terre Blanche & Durheim, 2011). Thus, the approach enabled the researcher to examine a relatively large data sample through a statistical package to investigate the following variables: LCQ of each channel and EE.

An electronic self-report questionnaire administered electronically via Qualtrics was utilised to gather the data for this study. Similar to Terre Blanche and Durheim's (2011) study, this data collection approach was found to be optimal due to enabling the investigation of multiple propositions and for statistical analyses to be employed. Additionally, the study's variables are characterised by subjective experiences. Thus, as per the recommendations in Veenhoven's (2012) study, a standardised survey to directly examine a large sample population of participants was deemed the most efficient approach within a short time period.

3.2 Sampling Procedure

Employees within SA organisations who engaged in part-time and/or full-time remote working arrangements were eligible participants for this study. This population was chosen given their first-hand experiences of engaging in virtual communication channel-mediated exchanges within their organisations. Additionally, this population may have provided a more accurate and isolated picture of the effects of communication channels on EE levels in a virtual workspace. Employees of all ages, genders, professions, industries and job-level rankings were eligible to participate and invited to complete the survey. Data collection was conducted through two non-probability sampling methods: convenience and snowball sampling. These techniques (through an online survey distribution method) accommodated the restricted Covid-19 pandemic climate. The sampling was conducted by electronically distributing the Qualtrics

survey's link with an invitation message and cover page. These invitations were sent by the researcher via email, WhatsApp, LinkedIn, Facebook and Instagram. The invitation message included a request to dispense this survey to the participants' networks who were also known to be engaging in remote working schedules (even if only part-time). In turn, this additional snowball sampling technique capitalised on the original respondents' contacts to access a greater sample for the study. To gain a larger population sample, multiple companies were also contacted to distribute the study's survey internally with an incentive to receive an executive summary of the study's findings.

3.3 Participants

After data cleaning, the study's sample comprised of respondents who fulfilled one main criterion: they engaged in remote working arrangements in SA (either part-time remote working or full-time). Whilst 289 responses were originally recorded, 110 responses had to be removed due to indicating "no" to engaging in remote working, and/or response completion of the cumulative scale was less than 75% attained (as advised in Field's (2017) research). Additional deletions were due to insufficient completeness between the dependent variable and relevant independent variable pairings for accurate relational testing. This action was in line with recommendations in Field's (2017) research. Therefore, the final sample encompassed 179 SA workers that engaged in part-time or full-time remote work.

As presented in Table 1 below, just under forty-six percent of the sample engaged in full-time remote work, whilst a slightly larger sample proportion (48.6%) engaged in part-time/hybrid remote work. Although respondents' ages included 18 and above, the majority of the respondents fell within the 41 to 56 years age category ($M = 4.4$; $SD = 1.19$; $N\% = 39.1\%$). Please refer to Table 1 for additional demographic information. Additionally, while isiZulu is the most spoken SA language, only 1.1 % indicated this was their first language. Seventy-seven percent of the sample's first language was English. These results may mirror the convenience and snowball sampling methods of the English-speaking researcher and their predominantly English network. Two respondents who did not speak one of the top five most spoken languages in SA selected "other" for the first language category and manually entered their first languages (German and Sesotho). Nearly half of the sample indicated that they worked in the business, finance or administration profession (42.5%). In contrast, professionals in the health (medicine/psychology) field had a lower representation among the eligible remote working cohort (4.5%). This lower representation of health workers in the sample may illustrate the possible physical interaction required within the health field, which is thus less compatible with the remote working space relative to other industries. Aligning

with the sample distribution falling within the higher age category, over a third of respondents were in senior/executive/top management jobs (34.6%).

Table 1

Demographic Statistics of the Participants

Characteristics		Frequency (*N*)	Percentage (%)
Remote working Status	Part-time/hybrid	87	48.6
	Remote work full-time	82	45.8
Age	18-24	16	8.9
	25-29	29	16.2
	30-40	35	19.6
	41-56	70	39.1
	57+	29	16.2
First Language	English	138	77.1
	Afrikaans	34	19
	isiXhosa	1	.6
	isiZulu	2	1.1
	Setswana	2	1.1
	*German	1	.6
	*Sesotho	1	.6
Industry Type	Science or Engineering	13	7.3
	Health (Medicine/ Psych)	8	4.5
	Teaching	10	5.6
	Business/Finance/Admin	76	42.5
	Technology (ICTs)	35	19.6
	Legal, Social or Cultural	13	7.3
	Other	23	12.8
	**Missing data	1	.6
Job-level Ranking	Entry level	11	6.1
	Intermediate	29	16.2
	Junior-level	24	13.4
	Middle-level Management	53	29.6
	Senior/Executive/Top Management	62	34.6

Notes. *Manual additions once clicking “Other”. **Missing data: respondent selection errors

3.4 Study Measures

3.4.1 Employee Engagement

The shortened (nine-item) version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli & Bakker, 2003) was used to measure EE (refer to Appendix A for scale). The scale

utilises a 7-point Likert scale ranging from 1 = Never to 7 = Always (Everyday) (Schaufeli & Bakker, 2003). Like the longer version of the survey, the extensively used UWES-9 encompasses three items for each dimension with satisfactory Cronbach's alphas varying from .81 to .85 for vigour; .83 to .87 for dedication; and .75 to .83 for absorption (Mitchell, 2015; Seppälä et al., 2009). Seppälä et al.'s (2009) study found that both the original 17-item as well as the 9-item UWES versions supported and measured the three-factor structure of EE: vigour, dedication and absorption. UWES-9 was thus recommended due to its impressive construct validity relative to the longer survey version (Seppälä et al., 2009). This scale was deemed appropriate for the present study as the UWES scale is an extensively used instrument to measure EE across studies and contexts (Breevaart et al., 2012; Fong & Ng, 2012; Mitchell, 2015). Studies have utilised the UWES-9 scale with virtual workers, deeming the scale appropriate for the present study's sample and context (Bedeian et al., 2012; Breevaart et al., 2012; Fong & Ng, 2012; Littman-Ovadia & Balducci, 2013). It has also repeatedly been shown to be reliable and valid to guard against researcher bias (Mitchell, 2015).

3.4.2 Communication Channels

The selection of channels for the study was based on channel popularity within prior managers' channel research (Bark et al., 2019; Men & Tsai, 2013; Men, 2014; Men, 2015). The present study assessed: video-conferencing, telephone/audio-conferencing, e-mails and companies' IIM platforms (internally tailored IIM).

3.4.3 Leadership Communication Quality

The quality of a channel (in the leadership context) was assessed using a 10-item scale for each channel that was newly developed in Bark et al.'s (2019) study (refer to Appendix B for scale used). This scale utilises a 6-point Likert scale, ranging from 1 =Do not agree at all to 6 = Completely Agree. This newly developed scale was appropriate for this research area as there has been no other established construct for communication quality encompassing *communication clarity, leadership behaviour transmission,* and *communication reliability* (Bark et al., 2019). Accordingly, the actual quality of a chosen channel was measured by 10 items each, which encompassed three subscales. Three items measured *communication clarity*, five items measured *leadership behaviour transmission*, and two items assessed *communication reliability*. The Cronbach's alphas for the subscales were deemed acceptable to excellent: .61 to .90 (Bark et al., 2019). The scale was initially catered to assess both the

actual quality and the quality needs (with the three subscales) for each channel. However, based on the study's purpose, only the actual channel quality was assessed. This was possible given that actual quality verse quality needs of each channel are independently measured on the scale (Bark et al., 2019). The scale's structure also allowed the researcher to select which channels will be assessed (with slight wording adjustments for appropriateness) without contaminating the scale's validity. Lastly, to further understand channel preferences, the participants were asked to select one of the indicated channels that they most preferred using to communicate with their direct supervisor.

3.4.4 Demographic items

Demographic items were included for the researcher to describe the participant sample. Participants were asked to select their age, whether they follow a part-time or complete remote working schedule, their first language, industry type, and job-level ranking (see Appendix C).

3.5 Procedure

Once the study's research aims were composed based on the reviewed literature, an ethics proposal was developed, and permission to conduct the study was obtained from the University of Cape Town's Commerce Faculty Ethics Committee. Refer to Appendix D for the ethical approval letter. The constructs' scales were then assembled into an anonymous online survey and distributed to participants utilising Qualtrics. The online survey was distributed via the following non-probability sampling methods (in the month of July 2021 to mid-August 2021), with a detailed cover page (refer to ethics subsection for more detail). The survey link was disseminated to eligible parties via various online platforms by the researcher and their acquaintances (upon researcher request). These included email, Whatsapp, LinkedIn, Facebook and Instagram. Over twenty large organisations within SA were also contacted by email to obtain permission to distribute the survey among their respective employees. These organisations were selected based on available contact information, and anticipated size (in terms of employee numbers) to gain a sufficient sample size. Only one large company granted permission for internal distribution. Once approval was granted, the researcher emailed the survey link to the appropriate personnel in that organisation who dispersed the link to their SA employees. To increase the organisation's permission rate, each organisation contacted was offered an incentive to receive an executive summary of the study's overall findings once the dissertation was completed. In line with Van Mol's (2016) findings revealing positive

correlations between response rates with frequent reminders, link reposts were employed across all distribution avenues five weeks into data collection and three days before the survey closed. Taken together, the response completion rate was 70%. The response rate encompassed the ratio of incomplete/opened and completed surveys. This response rate can be argued to be satisfactory given the survey fatigue experienced among employees during the Covid-19 pandemic (de Koning et al., 2021).

Data cleaning started when the survey was closed. The eligibility determinant assessed if the participants engaged in remote working arrangements. This was to ensure that the primary criterion was achieved. Once 110 cases were deleted due to specifics mentioned in the above participant subsection, the final sample size was 179. The remaining items were examined for any anomalies and errors. Moreover, all remaining survey items not required for analyses were removed.

3.6 Ethical Considerations and Data Management

All research procedures met the Ethics in Research Faculty of Commerce Handbook of UCT. Uncoerced recruitment was ensured through standardised invitations to all respondents and a confidentiality-ensured electronic survey. Additionally, upon opening the survey link, participants were immediately met with an informed consent cover page to notify them of the following specifics (see cover letter in Appendix D). This outlined the study's purpose, approximate survey completion time, associated benefits, and that there were no expected participation hazards. Subsequently, informed participants had to actively provide consent by clicking 'next' to begin completing the survey. The cover page provided guaranteed anonymity, voluntary participation, confidentiality, and their ability to stop completing the questionnaire at any time. Moreover, confidentiality was assured through purely reporting group trends.

Regarding data management, all personal identifications were deleted from the databases. Raw data is not planned to be published and was only used for the study's purpose. Raw data was only assessed by the researcher and their supervisor. Moreover, data was stored on the researcher's laptop which was password secured and not left unattended in public spaces to avoid unwanted data distribution.

3.7 Statistical Analyses

The entire dataset collected was immediately downloaded in a compatible format with Software Package for the Social Sciences (SPSS) version 24. Upon survey closure, data cleaning and coding were employed. Consequently, 179 responses were preserved and solely used for statistical analyses. Exploratory Factor Analysis (EFA) examined these scales' validity, whilst Cronbach's Alpha and Omega (produced from Stata version 17.0) were used to assess the scales' reliability. Subsequently, the remaining data (post-EFA-item removals) were analysed through descriptive statistics to comprehend and appropriately interpret participants' responses. This included assessing the frequency counts of respondents' preferences of channels to confirm if channel-effect aligns with preferences. Pearson Product-Moment correlation analyses verified the bivariate relationship hypotheses. To establish predictor effects, multiple regression analyses were used to analyse the extent to which the variance of EE among remote workers was explained by LCQ across channels. Finally, ANOVA and Friedman tests were used to assess the differential hypotheses.

Chapter 4: Results

This chapter presents the findings of the study. Firstly, it reports on the exploratory factor analysis (EFA), Cronbach's alpha, and McDonald's Omega results that examined the scales' validity and reliability respectively. Secondly, the study's descriptive results are outlined. Subsequently, the results of the correlation and regression analyses investigating the hypothesised variable relationships are described. Finally, repeated one-way ANOVAs and Friedman Test results are discussed.

4.1 Validity Analyses

An EFA with Principal Axis Factoring (PAF) was conducted to examine the dimensionality and construct validity of each scale. Whilst the study's sample was relatively small ($N < 300$), there were more than 10 responses per item for each scale. Thus, the subject-to-item ratios assessed were deemed sufficient for an EFA to be reliably run on each scale (Osborne, 2005).

Confirmatory Factory Analysis (CAF) is optimally used when there is a strong theoretical underpinning and rationale for which factors denote a variable (Field, 2017). This strong underpinning was not assumed in this behavioural study, given the relative newness of the LCQ scale. The study utilised a novel and narrower assessment approach of EE by its focus on exclusively investigating employees engaging in remote working practices in the SA Covid-19 pandemic context. Thus, the researcher could not confidently anticipate the scales' structures in this contextual application. An EFA was thus selected to assess if the LCQ and UWES-9 scales accurately measured the variables that they were theoretically supposed to assess.

As advised in Pallant's (2013) research, a PAF was most appropriate for the study as it emphasises latent constructs through its assessment of shared variance amongst items. In contrast, a Principal Component Analysis (PCA) condenses multiple items into fewer components without highlighting shared and unique variance differentiation between items (Henson & Roberts, 2006). This variance identification, achieved through a PAF, was needed to determine all relevant latent factors that could affect inter-variable correlations (Costello & Osborne, 2005).

The present study employed an oblique rotation to enable interpretation and minimise unnecessary complexity (Field, 2017). Oblique rotation (namely Direct Oblimin) was selected over an orthogonal rotation. This selection was due to there being theoretical evidence that LCQ and EE are latent variables, whereby the items in these latent variables tended to correlate with each other (Barhite, 2017; Bark et al., 2019; Schaufeli et al., 2002). Due to the factors' inter-item correlations, Direct Oblimin (oblique rotation variant) was employed to enable more precise representations of these factor interrelationships of the latent constructs (Field, 2017).

Specific assumptions had to be met prior to the employment of PAF for meaningful findings to be produced. The items' Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy values for every PAF round (conducted on each scale) were above .8 (see Table 2 below). As these values were all above the recommended .7 KMO cut-off (Field, 2017), the sample was deemed highly adequate. Additionally, all Bartlett's Test of Sphericity values were significant, indicating that each scale's items were sufficiently correlated (Tabachnick & Fidell, 2014). Thus, all scales were deemed satisfactory to run PAF analyses. The study utilised Kaiser's (1960) criterion where only factors with eigenvalues above one were extracted as they were deemed meaningful. For this study, factor loading values of .3 and above were considered significant, while loadings below the .3 cut-off were suppressed (Field, 2017; Tabachnick & Fidell, 2014). Additionally, items with cross-loading differences less than .2 were removed (Hinkin, 1998). For a summary of the EFA results, refer to Table 2 below.

Table 2

Results From Final Round of PAF for Each Scale

Scale	KMO	Bartlett's Test of Sphericity		Eigenvalue		Factor Loadings
		x^2	*df*	Factor Total	Factor Explained Variance	
EE	.91	1154.4*	36	5.72	63.53%	.61 > *r* >.89
LCQ of Video	.86	736.73*	28	4.48	55.94%	.43 > *r* > .91
				1.06	13.26%	.42 > *r* > .86
LCQ of Audio	.90	1259.38*	45	6.05	60.5%	.67 > *r* > .83
LCQ of Email	.89	1566.81*	45	6.22	62.19%	.61 > *r* > .92
				1.49	14.88%	.79 > *r* > .97
LCQ of IIM	.9	1717.18*	45	6.64	66.35%	.32 > *r* > .97
				1.14	11.44%	.58 > *r* > .77

Notes. Factor loadings under .3 were suppressed. *$p < .001$

4.1.1 Employee Engagement Scale (UWES-9)

All nine items significantly loaded (>.3) onto one factor with an eigenvalue of 5.72 (please refer to Table 2 above). Thus, this one-factor model of EE found did not replicate the initially proposed three-dimensional facture structure by Schaufeli et al. (2002). The factor was shown to account for 63.53% of the total variance. This cumulative variance exceeded the 50% level at which retained factors should explain the total variance (Streiner, 1994). This confirmed the unidimensional model's good fit in accurately measuring EE within the present study. The one factor was labelled as employee engagement.

4.1.2 LCQ of Video-Conferencing Channels' Scale (LCQV)

The reasons for two rounds of PAF being run on the LCQV scale are explained below.

Round 1. In round one, a two-factor structure with eigenvalues greater than 1 was produced. However, items 9, 4, and 10 significantly loaded (>.3) onto more than one factor, with items 4 and 10 having high cross-loading overlaps (cross-loading differences being .02 and .05 respectively). These flagged items stressed the need to assess their commonality scores prior to deletion. While commonality scores were not highly problematic (as values were >.2),

relative to the other cross-loading items with higher commonality values, items 4 and 10 were deemed more problematic items. This conclusion was due to items 4 and 10 sharing the least item variance of .4 and .43 compared to the other items (where ideally commonality values should be .6) (Field, 2017). Accounting for Hinkin's (1998) guideline of removing problematic cross-loading differences (values less than .2) and these items having the lowest commonality values, item 4 and item 10 were removed. A PAF was re-run without these items.

Round 2. From the remaining eight items, two factors were extracted with eigenvalues greater than 1. These factors were shown to account for 55.94% and 13.26% of the total variance respectively. Moreover, the two factors had a cumulative variance explained of 69.19%, thus surpassing the 50% level at which retained factors should explain the total variance (Streiner, 1994).

This two-factor structure confirmed that LCQV had two distinctive dimensions, namely *communication clarity* (factor 1) and *leadership behaviour transmission* (factor 2). To view factor loadings in detail refer to Table 3 in Appendix E. Specifically, all *communication clarity* items 1-3, as well as the remaining *communication reliability* item (REL1) loaded significantly onto factor 1 (*communication clarity*). All *leadership behaviour transmission* items 5-8 loaded significantly onto factor 2 (named *leadership behaviour transmission*). Factor loadings were satisfactory and significant (>.3), ranging between .42 and .91, with each factor having at least three significant item loadings with low cross-loadings to confirm their distinctness (Field, 2017). The study's factor structure thus did not replicate Bark et al.'s (2019) original three-factor LCQ structure. Nevertheless, the satisfactory factor loadings found provided support for the bi-dimensionality of the scale for LCQV and its use for the study.

4.1.3 LCQ of Audio-Conferencing/Telephone Channels' Scale (LCQA)

One round of PAF revealed one underlying factor with an eigenvalue greater than 1. The factor explained 60.5% of the variances. Thus, the cumulative variance of the model surpassed the 50% level at which retained factors should explain the total variance (Streiner, 1994). All ten items loaded significantly onto this factor. The satisfactory commonality values (ranging between .44 and .68) and high factor loadings (all above Field's (2017) recommended cut-off .6) further confirmed that the one-factor model was best suited to explain LCQA. This factor was labelled as LCQ for telephone/audio-conferencing channels. This unidimensional structure did not align with Bark et al.'s (2019) initial research suggesting a three-factor LCQ structure. Nevertheless, the PAF results supported the scale's unidimensionality and use in the study.

4.1.4 LCQ of Email (LCQE)

One round of PAF was employed across the 10 items. As shown in Table 2 above, two factors were extracted with eigenvalues greater than 1, which accounted for 62.19% and 14.88% of the total variance respectively. Thus, the cumulative variance of the model (77.07%) surpassed the 50% level at which retained factors should explain the total variance (Streiner, 1994). The high commonality values (ranging between .57 and .88) and satisfactory factor loadings (all above .61) further confirmed that the bi-dimensional model was best suited to accurately explain LCQE collectively. Like the other pre-evaluated LCQ scales, these results disconfirmed Bark et al.'s (2019) three-dimensional structure of the LCQ scale. All *leadership behaviour transmission* items (items 4-8) and *communication reliability* items (items 9 and 10) loaded significantly onto factor 1 (labelled *leadership behaviour transmission*). On the other hand, *communication clarity* items 1-3 loaded significantly onto factor 2 (labelled *communication clarity*). No problematic cross-loadings were evident, enabling the distinct two factors to emerge (Field, 2017). The PAF results provided support for LCQE's bi-dimensionality and use in the study. Refer to Table 4 in Appendix E for the factor loading layout and additional information regarding factor structure.

4.1.5 LCQ of Intranet Instant Messaging (LCQIIM)

One round of PAF was employed across the 10 items. As indicated in Table 2 above, two factors with eigenvalues greater than 1 emerged, which accounted for 66.35% and 11.44% of the total variance respectively. Thus, the cumulative variance of the model (77.79%) surpassed the 50% level at which retained factors should explain the total variance, deeming the model fit satisfactory (Streiner, 1994). Similar to the EFA results of previously mentioned LCQ scales, the three-factor structure initially proposed by Bark et al. (2019) was not replicated. However, two of the three dimensions of the proposed model emerged. The majority of the items significantly (>.3) loaded once onto one of the two factors: *leadership behaviour transmission* and *communication clarity*. Refer to Table 5 in Appendix E for a visual factor loading layout. Leadership behaviour transmission items significantly loaded onto factor 1 (labelled *leadership behaviour transmission*), whilst *communication reliability* and *communication clarity* items loaded onto factor 2. Most items significantly loaded once, but cross-loadings were evident for *communication clarity* items 1 and 3 (cross-loading differences of .24 and .34 respectively). However, these items displayed high commonality scores of .71 and .81 respectively. Additionally, neither of the cross-loading differences were less than

Hinkin's (1998) cut-off of .2 for problematic overlap (which would have required immediate deletions). Therefore, to maintain the scale items' strong shared variance, these cross-loadings were warranted acceptable by the researcher. Both *communication clarity* items (1 and 3) were concluded to have loaded significantly on the factor with the higher factor loading (factor 2) with the remaining *communication clarity* item 2 and both *communication reliability* items. Due to the predominant *communication clarity* item loadings on factor 2, this factor was labelled as *communication clarity*. The results therefore provided support for the LCQIIM's bi-dimensionality.

4.2 Reliability Analyses

Cronbach's alpha coefficients and McDonald's (1999) Omega coefficients (produced from Stata version 17.0) were calculated for all five scales to assess their internal consistency. Omega (ω) is similar to Cronbach's alpha (α), but is deemed more suitable in predominantly all practical applications. This is due to the latter coefficient being very restrictive (Chan & Deng, 2017). In fact, Hayes and Coutts (2020) and McNeish (2018) argued that Cronbach's alpha's restrictive assumptions are rarely achieved in practice. Thus, Omega is often alternatively used or accompanies Cronbach's alpha calculations, like within this study. Additionally, Omega was selected due to its ability to produce more realistic and accurate estimates of any scale's true reliability (Chan & Deng, 2017).

Cronbach's alpha assumes that one-dimensionality exists in a sample of test items, which, if conducted on a multidimensional scale, would lead to underestimating the reliability of the items (Field, 2017). Thus, the rationale to use both Cronbach's alpha and Omega coefficients was further supported due to the EFAs indicating that three scales violated the one-dimensionality assumption. In turn, both Cronbach's alpha and Omega coefficients were run on all scales for more accurate measurements of reliability. Refer to Table 6 below for a results summary of the reliability analyses.

Omega scores were interpreted in a similar manner to Cronbach's alpha, where threshold values of .7 and above were considered satisfactory (Chan & Deng, 2017). As shown in Table 6 below, Cronbach's alpha (α) and Omega (ω) values produced in the study exceeded the .7 criterion and were of similar values. These comparable values above the .7 criterion indicated acceptable and high levels of reliability for all scales (Anderson et al., 2010; Chan & Deng, 2017; Field, 2017).

To further confirm these findings, the scale's average inter-item correlations surpassed the Briggs and Cheek's (1986) .2 cut-off (see Table 6 below). All five scales' corrected item-total correlation values exceeded Field's (2017) .3 cut-off and no deletion of items sufficiently increased the scales' Cronbach's alpha further. Thus, no items were removed and all scales were retained for further analysis.

Table 6

Reliability Statistics for Scales After Final EFA-Item Deletions

Scale	α	ω	*N*	Avg. Inter-Item Correlations	Corrected Item-Total Correlations	Cronbach's Alpha If Item Deleted
EE	.93	.93	9	.58	.59 > *r* > .80	.91 > *r* > .93
LCQ of Video	.88	.87	8	.5	.59 > *r* > .71	.86 > *r* > .87
LCQ of Audio	.93	.93	10	.56	.64 > *r* > .80	.91 > *r* > .92
LCQ of Email	.93	.93	10	.58	.60 > *r* > .81	.92 > *r* > .93
LCQ of IIM	.94	.94	10	.62	.57 > *r* > .80	.93 > *r* > .95

Note. α = Cronbach's alpha; ω = Omega*; N*= number of remaining items

4.3 Descriptive Statistics

The sample was comprised of 179 respondents for each of the five variables, where each scale's mean score was assessed relative to their midpoint. Refer to Table 7 below for a summary of the descriptive statistics. The EE (UWES-9) scale utilised a seven-point rating and the LCQ of each channel scales used a six-point Likert scale. Thus, the total maximum scores for EE and each LCQ channel was 7 and 6 respectively. The closer the mean was to these respective maximum values, the higher the indicated levels of EE and LCQ were. Compared to their respective maximum total scores, the EE scale (*M* = 5.4; *SD* = .9), LCQV scale *(M* = 4.8; *SD* = .6) , LCQA scale *(M* = 4.7; *SD* = .7), LCQE scale *(M* = 4.4; *SD* = .9), and the LCQIIM scale (*M* = 4.4; *SD* = .8) had relatively moderate to high average scores. More specifically, LCQV *(M* = 4.8; *SD* = .6) appeared to be scored relatively higher than the other LCQ scales according to the same six-point scale. In summary, while EE seemed to have a higher mean than the LCQ scales, the mean LCQ for the video-conferencing channel was reported to be higher than the LCQ of other channels assessed.

Each scale's deviation from normality was examined by assessing the kurtosis and skewness values. The data was considered normally distributed if both scores were zero or close to zero (Field, 2017). These values presented in Table 7 below highlighted that the normality assumption was not met. All scales were negatively skewed, revealing that more

respondents reported having higher EE levels, and perceived that all channels had sufficient to high LCQ. In terms of the kurtosis values, only the EE (UWES-9) scale's values were indicated to be platykurtic (i.e. thicker tails). In contrast, all of the LCQ scales had positive kurtosis values, suggesting that they were leptokurtic (Anderson et al., 2010). This informed the researcher that unlike for the EE scale, fewer respondents rated the channels' LCQ with extreme scores. Given that the skewness and kurtosis values were not zero or very close to zero, the assumption of normality was violated for all variables under assessment. Nevertheless, all standardised skewness and kurtosis values were within the -3 to +3 range, which was deemed to be an acceptable distribution for further analyses (Onwuegbuzie & Daniel, 2002). Additionally, most parametric tests are deemed reasonably robust and can thus be utilised with this level of acceptable deviation from the normal distribution (Pallant, 2013).

Finally, in terms of respondents' preferences of channel use, video-conferencing channels were more frequently preferred (35.8%), closely followed by emails (30.2%), while IIM (13.4%) was observed to be least preferred out of the channels assessed. Refer to Table 8 in Appendix E for further details.

Table 7

Descriptive Statistics for the Sample of Remote Workers (N = 179)

Scale	*M*	*SD*	Min	Max	Skewness	Kurtosis	1	2	3	4	5
EE	5.4	.9	3.44	7	-.33	-.99	1				
LCQV	4.8	.6	2.13	6	-.85	1.94	**.39****	1			
LCQA	4.7	.7	2	6	-1.04	2.34	**.36****	.72**	1		
LCQE	4.4	.9	1.1	6	-.83	1.04	**.34****	.57**	.70**	1	
LCQIIM	4.4	.8	1.	6.	-1.06	1.77	**.23***	.52**	.63**	.65**	1

Notes. *M* = Mean; *SD* = Standard deviation; ** $p < .001$; * $p < .05$. EE refers to the UWES-9 scale.

4.4 Correlation Analyses

To test if the relationships between LCQ of each channel and EE (hypothesis 2) were statistically significant and positively correlated, Pearson Product-Moment correlation was utilised. Pearson's outputs were also used to assess if EE had a more positive association with the richest channel (video-conferencing) than with the theoretically leaner channels in the study (hypothesis 1). To view the correlation matrix, refer to Table 7 above.

Certain assumptions were needed to be met to warrant accurate Pearson Product-Moment correlation analyses. These include: no influential outliers, homogeneity of variance, normality and linearity (Field, 2017). All assumptions were reasonably met, except for the

slight deviation from normality as noted in the descriptive statistics section. This assumption violation was deemed negligible by utilising bootstrapping at a 95% confidence interval to gain more confidence in the findings (Field, 2017).

At the .001 significance level, EE was found to be positively and significantly related to LCQ of video-conferencing channels (r = .39, BCa 95% CI [.247, .519], p < .001, n = 179), telephone/audio-conferencing channels (r = .36, BCa 95% CI [.208, .489], p < .001, n = 179), and email (r = .34, BCa 95% CI [.198, .472], p < .001, n = 179). Whilst only significant at the .05 significance level, LCQ of IIM was also found to be positively related to EE levels (r = .23, BCa 95% CI [.078, .372], p < .05, n = 179). Given that significant correlations were found between each channel's LCQ and EE (with confidence intervals not encompassing zero), **hypothesis 2 was supported.** According to Cohen (1988), the positive correlation between LCQ of each channel and EE would suggest a medium effect. The correlational findings indicate that the LCQ of video-conferencing channels' (r = .39) positive correlation with EE was higher than the theoretically leaner channels in the study. Thus, **hypothesis 1 was also supported.**

4.5 Regression Analyses

With significant correlational findings reported above, isolated linear regressions assessed if each of the channel's LCQs were predictors of EE. These isolated analyses attempted to minimise possible inferences from theoretically stronger channels. Along with the linear regression outputs, LCQ predictor effects were examined in a multiple regression model. This enabled a more accurate assessment of hypothesis 3, which proposed that richer channels' LCQ explains a higher proportion of variance in EE than leaner channels.

4.5.1 Assumptions Testing of Multiple Regression

Necessary assumptions were met prior to conducting the linear and multiple regression analyses. Firstly, EE and LCQ of each channel were measured by interval scales, satisfying Field's (2017) criteria of the level of measurement. Additionally, the multiple regression model utilised four predictors (LCQ of the four channels). Based on Tabachnick and Fidell's (2014) formula (N should be greater than 50 + 8m, where "m" is indicative of the total amount of predictor variables), 82 participants were required for the study. With a 179 respondent sample, an adequate sample size was thus achieved. Regarding linearity and additivity, scatterplots were utilised to assess if each channel's LCQ predictor variable was linearly related to EE. Following Field's (2017) guidelines, the linearity assumption was also met (see Figures 2 to 5, Appendix F) as the graphs indicated no curvature. Positive linear relationships were shown

between each predictor and EE variable. The data points on all four scatterplots were dispersed around the line of best fit. As explained in Pallant's (2013) research, this scatter dispersion confirmed that the additivity assumption was achieved for the regression models.

When analysing the residuals, the assumption of independent observations was attained, as the Durbin-Watson statistics of the multiple regression model (DW= 1.89) and each linear model were revealed to be close to 2 (Field, 2017). With regards to the homoscedasticity of residuals assumption, all LCQ's scatterplots with EE showed dispersion of residual scores around zero to reasonably evenly fit within a band (see Figures 6 to 10, Appendix F). Notably, these graphs indicated that scores were clustered at the higher values of the LCQ scales. Nevertheless, all graph arrays showed that residuals at each point of the independent variable had relatively similar variances (Field, 2017). Therefore, homoscedasticity of variances was not seriously violated. In Field's (2017) research, the researcher stressed that residuals should be normally distributed for regression analyses to be employed. The standardised residuals data did not significantly deviate from, but remained relatively close to, the diagonal line on all P-P Plots. See Appendix F, Figures 11 to 20 for normality P-P plots and histograms. Whilst this demonstrated a slight deviation from the normality assumption, Hayes (2013) highlighted that minimal deterrents from normality should not compromise or bias the findings unless the sample is less than 100. As suggested in research, due to the current study's sample being above 100, the researcher concluded that the slight deviation was not problematic when employing these regression models (Field, 2017; Hayes, 2013).

The multicollinearity assumption was also investigated. The correlation analyses presented above showed that the bivariate correlations were between the LCQ of the different channels ($.52 < r < .72$). These bivariate correlations were lower than the .9 cut-off that is recommended in existing research (Field, 2017; Pallant, 2013). Thus, no problematic multicollinearity evidence amongst predictors was revealed. To further rule out multicollinearity, the predictors' tolerance values ($.34 < TV < .51$) were above .1 and variance inflation factors ($2 < VIF < 3$) were below 10 (endorsed in Field's (2017) research). These robust tests thus further confirmed that no multicollinearity concerns were identified. As advised in Field's (2017) research, the predictor and dependent variables should have non-zero variance prior to undergoing regression analyses. As shown in Table 7 above (descriptives section), the standard deviations of all LCQ and EE variables were not zero. Thus, confirming that the non-zero variance assumption was upheld. Finally, as recommended in Tabachnick

and Fidell's (2014) study, possible model bias was assessed by identifying the presence of outliers and influential cases. Regarding outliers, all linear and multiple regression models had standardised residual values within the -3 to +3 range (Tabachnick & Fidell, 2014). Thus, these findings suggested that there were no outliers extreme enough that may have distorted the model's outcome. Moreover, the robust Cook's distance tests' statistics of the multiple (= .11) and linear regression models were all below one (for details, refer to Table 9 below). Thus, these findings indicated that there were unlikely influential cases in the model to compromise the regression results (Field, 2017).

4.5.2 Results of Regression Analyses

In the individual linear regressions, all channels' LCQs were flagged as significant predictors of EE at the .05 level. Table 9 below contains a summary of the regression results. Each linear regression showed that EE was positively predicted by LCQ of video-conferencing channels (standardised β = .39, t = 5.65, p < .001, 95% CI[.376, .780]), LCQ of telephone/audio-conferencing channels (standardised β = .36, t = 5.09, p < .001, 95% CI[.293, .665]), LCQ of email (standardised β = .34, t = 4.89, p < .001, 95% CI[.214, .506]), and LCQ of IIM channels (standardised β = .23, t = 3.10, p < .05, 95% CI[.092, .413]). In the separate iterations within the study, the LCQ of video-conferencing channels, followed by telephone/audio-conferencing channels contributed the most to EE relative to the other channels in the study (as shown by its highest adjusted R^2 value). Notably, LCQ of email appeared to explain a higher proportion of variance in EE than the LCQ of IIM channels. Thus, in terms of comparing the leaner, text-based channels, the theoretically leaner of the two (email) had a stronger effect on EE than the proposed richer text-based channel (IIM).

Once all channel's LCQ predictors were simultaneously added to the model, however, only the LCQ of video-conferencing channels was shown to be a significant predictor of EE, $F(4, 174) = 9.54$, p <.001. This information is summarised in Table 9, model 5 below. The combined model indicated that 16.1% (adjusted R^2) of the variance in EE can be accounted for by the linear combination of all channels' LCQ. This adjusted R^2 finding is a mere 1.3% more than when LCQ of video-conferencing channels was the only predictor. Ultimately, when holding all other LCQ of channels constant, LCQ of video-conferencing channels was indicated to be the sole significant predictor of the 179 EE responses. Yet, LCQ of video-conferencing channels was only significant at the .05 level in the combined model

(standardised β = .27, t = 2.64, p < .05, 95% CI[.099, .687]). Nevertheless, LCQ of video-conferencing channels was shown to have the strongest effect.

Taken together, the findings only partially supported the working assumption that channel richness aided in determining quality effectiveness. **Thus, Hypothesis 3 can be argued to be partially supported** as the richer channels' LCQ (video and telephone/audio-conferencing channels) did explain a higher proportion of variance in EE than the leaner, text-based channels (email and IIM).

Table 9

A Summary of Regression Analyses Outputs

Model	R^2	*Adj.* R^2	Predictor	*b*	*B*	*t*	*p*	95% CI	Cooks D
1 Linear	.391	.148	Constant	2.6		5.20	.000	[1.611, 3.580]	
			LCQ of Video	.58	.39	5.65	.000	[.376, .780]	.09
2 Linear	.357	.123	Intercept	3.16		7.15	.000	[2.289, 4.035]	
			LCQ of Audio	.48	.36	5.09	.000	[.293, .665]	.09
3 Linear	.343	.113	Intercept	3.8		11.36	.000	[3.136, 4.455]	
			LCQ of Email	.36	.34	4.86	.000	[.214, .506]	.04
4 Linear	.227	.046	Intercept	4.28		11.70	.000	[3.554, 4.995]	
			LCQ of IIM	.25	.23	3.10	.002	[.092, .413]	.08
5 Multiple	.424	.161	Intercept	2.5		4.9	.000	[1.494, 3.506]	.11
			LCQ of Video	.39	.27	2.64	.009	[.099, .687]	
			LCQ of Audio	.12	.09	.77	.440	[- .191, .437]	
			LCQ of Email	.2	.19	1.79	.076	[- .021, .413]	
			LCQ of IIM	-.10	-.09	-.96	.338	[-.313, .108]	

Notes. N = 179 after listwise deletion of missing data.

4. 6 Repeated One-way ANOVA and Friedman Test Analyses

Once the relational hypotheses were tested, ANOVA analyses were used to examine if age generation differences significantly affected the ratings of LCQ across the different channels (hypothesis 5). Moreover, the non-parametric Friedman*[3] test was used to assess the following: whether the rankings of employee perceptions of (hypothesis 4a) *communication clarity* and (hypothesis 4b) *leadership behaviour transmission* in video-conferencing channels were more positive than in leaner channels within the study. While the intention was to also

[3] *The researcher battled to locate the original date of the Friedman Test.

assess *communication reliability*, the factor analyses results did not find this dimension to be a distinct factor within this study. Thus, **Hypothesis 4c could not be addressed.**

The Friedman test was used to examine the study's hypothesis 4a and 4b to gain confidence in the results. The Friedman test was deemed most suitable due to its robustness regarding relevant sphericity assumption violations found when testing hypothesis 5 via a one-way repeated measures ANOVA (Fadeyi, 2021). Additionally, the Friedman test was able to compare the variance by ranks of three or more groups within a sample, a feature needed given that the subdimensions were assessed across four channels (Fadeyi, 2021).

4.6.1 Assumption Testing

Assumptions of normality for error variance were concluded to be sufficiently upheld through analyses of P-P plots (confirmed in regression assumptions). However, the additional assumption of data sphericity needed to be examined to undergo the following analyses (Field, 2017). For each ANOVA run, Mauchly's test indicated that the assumption of sphericity was violated ($p < .001$). Also found in Field's (2017) research, this finding suggested that at least one of the grouping pairs' difference variances were not the same as the rest of the pairings within the data. Thus, this result provided a rationale to assess the differential hypotheses further. Following Field's (2017) guidelines, given that Greenhouse-Geisser correction was above .75 for each ANOVA run, the Huynh and Feldt correction was applied accordingly. Refer to Table 10 in Appendix G for sphericity values.

4.6.2 ANOVA and Friedman Test Results

When including age (ordinal variable) as a between-subjects factor, the results with the Huynh and Feldt correction indicated that there were no differences between the age categories with regards to the ratings of the channels' LCQ , $F(11.05, 480.82) = 1.55$, $p = .109$. Thus, **hypothesis 5 was not supported.**

As shown in Table 10 in Appendix G, results on the main effect of LCQ with the Huynh and Feldt correction reported that at least one of the channels' LCQs were significantly different ($p < .001$) from one of the assessed channels. These findings provided a rationale to further explore LCQ's sub-facets across channels via Friedman tests.

Friedman test results revealed that across the channels, differences were found in how *communication clarity* and *leadership behaviour transmission* were rated. As shown in Figures 21 and 22 in Appendix G, the graphs presented higher frequency bars for lower rankings of *communication clarity* and *leadership behaviour transmission* for IIM and email. Whereas, higher frequency bars were evident for higher rankings of these subdimensions for video and telephone/audio-conferencing channels. Nevertheless, video-conferencing channels had the highest mean rank for both subdimensions (*Mean Rank*= 2.89 and *Mean Rank*= 3.07) than the leaner channels. Thus, **Hypothesis 4a and b were supported.** Notably, these indicated differences between the mean ranks were all significant ($p < .05$) except for differences between email and audio ($p = .967$) for *communication clarity*, and between IIM and email ($p = .474$) for *leadership behaviour transmission*. Refer to Table 11 below for a summary of results for all hypotheses.

Table 11

Results Summary of Hypotheses

Hypotheses	Results
H1: EE has a more positive correlation with the richest channel in the leader-employee communication context compared with the leaner channels.	Supported.
H2: LCQ of each channel is positively related to EE.	Supported.
H3: Richer channels' LCQ explains a higher proportion of variance in EE than leaner channels.	Partially supported.
H4A: *Communication clarity* in video-conferencing channels will be more positive than in leaner channels.	Supported.
H4B: *Leadership behaviour transmission* in video-conferencing channels will be more positive than in leaner channels.	Supported.
H4C: *Communication reliability* in video-conferencing channels will be more positive than in leaner channels.	Could not be examined.
H5: Age generation differences significantly affect the ratings of LCQ across channels.	Not supported.

Chapter 5: Discussion

The current study's primary aim was to identify if the LCQ of four distinct channels affect SA remote workers' EE levels. The secondary aim was to determine whether LCQ's subdimensions varied in intensity across channels. The final aim was to examine if generation differences impacted on the ratings of channels' LCQ.

The current chapter discusses the main findings of the data analyses whilst reflecting on relevant research literature. The discussion first includes an examination of the psychometric properties of the various scales used, followed by an interpretation of the study's results. The theoretical and practical implications of the findings are discussed. Lastly, the study's limitations are explored, future research recommendations offered and conclusions presented.

5.1 Psychometric Scale Properties

5.1.1 LCQ Scales

The LCQ scale was conceptualised by Bark et al. (2019) and had only been used previously in Bark et al.'s (2019) one published study in Germany, a westernised country with a strong economy. Thus, it was unclear as to whether the LCQ scale would be a valid and reliable measure within the SA context. This uncertainty is based on an assumption that relative to many westernised countries, SA's technology integration and advancement of virtual channel feature capabilities in the workplace are delayed (Braier et al., 2021). Additionally, video-conferencing and IIM channels have not been previously assessed/included in the LCQ scale due to the scale's relative newness. Thus, there is merit in engaging in some discussion of the psychometric properties of the LCQ scale.

The current study's findings were not in complete alignment with Bark et al.'s (2019) proposed three-dimensional structure of LCQ. Rather only bi or uni-dimensional factor structures were found for LCQ. *Communication clarity* and *leadership behaviour transmission* were found to be distinct factors of measuring LCQ, consistent with Bark et al.'s (2019) findings. However, the proposed *communication reliability* dimension was not found to be a distinct measure of LCQ for any channel examined. The differences in scale performance from the original article and scale conceptualisation may be explained by an argument found within Koo and Ryoo's (2010) research. According to these researchers' narrative, the reliability of a channel is heavily influenced by one's contextual environment (Koo & Ryoo, 2010). In turn, Koo and Ryoo (2010) recommend a further examination of these influences in different settings. Possible environmental influences posed by the researchers may be a relevant explanation for the difference between the current study's findings and the original

conceptualisation of LCQ. Bark et al.'s (2019) study was based in Germany whilst the current study was based in SA (a country with more restricted resources). Thus, socio-economic factors (such as internet strength or data availability) may pose a rationale for why the factor structure varied from that which emerged in the original study. This is perhaps a weakness of the LCQ scale, as the measures used to examine this subdimension factor of interest may not be a fully viable measurement in the SA or other developing nations. These viability concerns may be due to item wordings referring to outcomes shaped by internet speed and accessibility, rather than solely on the proposed LCQ facets. For example, the scale items' wordings of "..reached me in time" and "messages are answered quickly" may not be a reflection of the leader's ability to communicate, but a context-specific resource barrier.

An additional explanation for *communication reliability* not falling into a distinct factor could be founded on psychometric property principles. Whilst *communication clarity* and *leadership behaviour transmission* had three and five items respectively, *communication reliability* had only two items. Psychometric research has indicated that more than two items representing a proposed factor are needed for a distinct factor to emerge/load (Gosling et al., 2003; MacCallum et al., 1999). Given the novelty of assessing LCQ of channels with these proposed subdimensions, there is insufficient theoretical evidence to warrant only two *communication reliability* items being adequate to measure this likely factor. Thus, a possible increase in the number of items measuring this construct may have enabled its own distinct factor to emerge. A final possible explanation for this differing factor composition is the lack of negatively worded items within the questionnaire, enhancing the likelihood of acquiescent response bias (Weems et al., 2003). The possibility of this bias is high due to the *communication reliability* items being at the end of each LCQ scale. Therefore, this could explain the *communication reliability* items inconsistently loading on either the *communication clarity* or *leadership behaviour transmission* factors.

The telephone/audio-conferencing channel's LCQ scale was found to be unidimensional, presenting doubt for the need for more than one distinct factor to measure LCQ for this channel. While this finding was unexpected, it may be explained by the assessment of Bark et al.'s (2019) conceptualisation of the LCQ scale and its three sub-facets. The scale was constructed by assessing the criterion validity of each sub-facet with an established scale. These scales are: Liu et al. (2010)'s Clarity scale, Bass and Avolio's (1995) Multifaceted Leadership Questionnaire (MLQ), and Laissez-faire leadership scale (MLQ's subscale). Whilst criterion validities were satisfactory, the reference scales are argued to not be distinct theoretical constructs from each other. Rather, there is an overlapping construct

effect, which may have led to all items being loaded onto one factor. For example, context clarity is somewhat similar to leadership transparency, while transparency is linked to trust and leadership reliability. Therefore, either increasing the number of items per subdimension or utilising more distinct leadership facets could have resulted in less ambiguous items. In turn, this could have enabled respondents to differentiate between items that most optimally relate to each LCQ subdimension measured.

5.1.2 UWES-9 (Employee Engagement Scale)

The researcher could not locate any study utilising the UWES-9 scale in the SA remote employee context during the Covid-19 pandemic. Thus, there is value in discussing its psychometric properties. The UWES-9 scale did not perform as expected, as a unidimensional factor model of EE was found within the study. This finding means that respondents perceived vigour, dedication, and absorption facets to measure a single factor of EE. This study's psychometric results thus contradicted the three-factor model found in international literature (Mitchell, 2015; Seppälä et al., 2009). These results, however, aligned with some previous studies concluding that UWES-9 was best represented as a unidimensional construct, as their factor analyses deviated from the three-factor model (Barhite, 2017; Ghee et al., 2017; Martin et al., 2021; Sonnentag, 2003; Spontón et al., 2012). A further observation is that most of the other existing longitudinal studies utilising the UWES-9 scale were examining EE in relation to job-task environment (Ghee et al; Seppälä et al., 2009). In the current case, the study utilised a condition encompassing both employees and their line managers as persons of reference. Thus, the individual-leader relationships can be described as complex and vertical, rather than the more horizontal job-person interactional experiences. This more complex, two-person interactional environment may make it challenging to distinctively differentiate between experiences of absorption, vigour, and dedication when measuring one's EE level compared to describing one's efforts in work tasks. This, in turn, may explain the one-dimensional structure of EE found. While the psychometric properties of the study's scales were unexpected, both the study's EFAs and previous literature support the scales' robustness. Thus, enabling confidence in the results and the ability to interpret the findings below.

5.2 Interpretation of Hypotheses' Results

The findings related to the hypotheses are examined in reference to prevailing literature.

5.2.1 LCQ Correlates with and Predicts Employee Engagement

As expected, there were positive relationships between LCQ and EE for each channel. Not only did LCQ positively correlate with EE, but it was also found to individually predict the participants' EE levels. The analyses of the findings thus indicate that remote employees

who used channels of higher levels of LCQ tended to experience higher levels of EE. These results are consistent with, and add to, prior novel research that found that the LCQ of telephone/audio-conferencing channels and email enhanced employee attitudinal outcomes (Bark et al., 2019). These findings are also supported by empirical research indicating that greater perceived leader-employee communication quality is positively linked to employee attitudes, such as EE (Bark et al.,2019; Erjavec, 2018; Mbhele, 2016; Serrano & Reichard, 2011). Additionally, LCQ was shown to predict EE in the study, whereby the quality and effectiveness of a channel was conceptualised by leadership theory facets and not purely by the feature richness of a channel. This finding thus reinforces the argument for theoretical leadership traits to be key points of measurement when examining LCQ of a channel and its associated attitudinal effects (Avolio, 2004; Ruck & Welch, 2012).

The correlational and predictor effects of LCQ on EE make sense when applying SET's cost-benefit principles to clarify these findings. A potential explanation is that a greater transfer of *communication clarity* and *leadership transmission behaviour* through a channel is likely to enable remote employees to perceive work as more meaningful and supportive. With this positive perception, there is a greater likelihood for an individual to recognise an equitable return for the effort put into their work. In turn, remote employees will reciprocate in a positive manner by increasing their EE and work-associated effort levels.

The study's significant relational effects of channels' LCQ on EE in a general setting poses doubt in Suthers (2017) and Marlow et al.'s (2017) research. The current study found LCQ of channels to significantly correlate with, and predict, EE in a broad leadership-employee context. However, the aforementioned researchers previously argued that only a narrower, context-specific approach should be used to measure a channel's quality/effectiveness on employee outcomes. Specifically, the impact of perceived quality of a channel on employees in the leader-employee setting is argued to be uniquely determined by the suitability of a channel relevant to task content and relational interaction circumstances (Marlow et al., 2017; Suthers, 2017). The current study thus nullifies the context-specific argument by utilising a LCQ construct that was able to show its effectiveness on EE in a holistic leader-employee setting that generally encompasses both task and relational needs.

5.2.2 LCQ Effectiveness Relative to Channel Richness

A further cross-examination of the correlation and linear regression results only partially supported the argument that LCQ effectiveness on EE increases when a channel is higher in MRT's four "richness" components. The expected and unexpected related findings are discussed below.

5.2.2.1 Expected Results. From the study's findings, it is clear that using some of the richer channels (video and telephone/audio-conferencing) does have more of an effective impact on EE than using leaner ones (email and IIM). In terms of supporting MRT research, the results indicate that video-conferencing channels have the strongest correlational and predictor effect on EE , followed by telephone/audio-conferencing channels. Subsequently, the leaner text-based channels were found to have the lowest correlational and isolated predictor effects on EE. Thus, **hypotheses 1, 2, and 3 (to an extent) were supported**. These results seemingly align with MRT literature suggesting that the richest channels are the most effective predictors of individual outcomes compared to leaner channels (Barhite, 2017; Daft & Lengel, 1984; Smith, 2014). MRT's premise that richer channels are most effective in driving positive employee outcomes was further supported by the findings when the channels were combined in one model. Specifically, the analyses revealed that only the LCQ of video-conferencing channels was shown to be a significant predictor of EE, thus nullifying the leaner channels' predictor effects. The fact that the LCQ of the leaner channels was a comparatively insignificant predictor of EE could indicate that the leaner channel's LCQ variables had a spurious relationship with EE (Armor et al., 2017). Thus, adding all variables of LCQ channels could have suppressed the LCQ of leaner channels and its weaker relationships with EE (Armor et al., 2017). Alternatively, the nullifying effect of video-conferencing channels' LCQ over the other channels could be explained by the fact that richer channels have the necessary features to facilitate nonverbal cues and feedback immediacy. These features are able to more effectively communicate a leader's care and willingness to aid their employees (Hung-Baesecke & Men, 2015). This, in turn, would enhance employee attitudes, such as EE (Hung-Baesecke & Men, 2015). As explained by MRT, leaner channels display a reduced ability to transfer nonverbal cues, which could explain the study's findings (Daft & Lengel, 1984).

Richer feature communication channels are also shown to facilitate a greater sense of belonging, trust, satisfaction, and message comprehension among employees (Beebe & Masterson, 2009; DeRosa et al., 2004; Elie-Dit-Cosaque & Pallud, 2008; Fristedt, 2021; Mbhele, 2016). These outcomes have been found to be associated with enhanced EE levels, and thus could explain the findings (Fristedt, 2021; Lampinen et al., 2018). This positive climate involves leaders indicating visible engagement, respect, and inspirational behaviour towards their employees (Grant, 2012; McCole et al., 2012; Serrano & Reichard, 2011). Video-conferencing channels' abilities to provide both visual and audio cues could increase the sense of trust/belonging among employees. In turn, its multiple cue-transferring abilties could enable the desired conditions for leader-employee interaction compared to the leaner channels.

Apart from MRT, the researcher can explain these findings in relation to the propositions of SET. It could be assumed that an inherent need to maximise one's benefits is met by the relatively greater provision of cues from video-conferencing channels. These perceived feature benefits from video-conferencing channels can be argued to exponentially outweigh other channels, whereby its predictor signals invalidate the leaner channels' effects. In turn, when exposed to all channels, remote employees may only reciprocate in a positive manner (increasing their EE levels) when they can utilise the seemingly most beneficial channel in a leader-employee setting as a meaningful return for their efforts (i.e. video-conferencing).

5.2.2.2 Unexpected Results. When embarking on this study the researcher hypothesised that the richer a channel was according to MRT characteristics, the more effective it would be on employee outcomes. The findings indicated that the two richest channels (video and telephone/audio-conferencing) did have stronger correlations and predictor effects than the leaner, text-based channels. However, the findings revealed that the working assumption (according to MRT) that feature richness determines LCQ effectiveness on EE is not completely linear. The top-to-bottom hierarchical order of the channels' LCQ indicated within the current study is as follows: video-conferencing, telephone/audio-conferencing, email, and IIM channels. The findings thus did not fully support the premises of MRT, which are that the leaner a channel is the less effective it will be on employee outcomes in complex/changing settings (Shannon, 2018). In fact, when assessing the individual predictor and correlational values of LCQ and EE, email was found to be a stronger predictor (in isolation) than IIM. This finding was unanticipated as the study was drawn from MRT principles used within other MRT studies, which indicate that emails are leaner than the more interactive text channels like IIM and Slack (Aritz et al., 2018; Dennis et al., 2008; Ishi et al., 2019). Thus, MRT cannot fully explain these findings. This finding could be explained by Rogers and Lea's (2005) response to MRT when examining the leaner text-based channels. These researchers suggest that lean text-based channels are deemed effective to enable group motivation outcomes as long as the condition of social presence is sufficient (Rogers & Lea, 2005). Thus, to explain the current study's findings, the researcher can question if communication styles used by the respondents' leaders through email enabled a greater social presence and associated EE outcomes. This could have outweighed its inherent channel feature richness availabilities.

The findings that partially oppose the idea that richness of a channel implies greater effectiveness in complex settings are consistent with existing work that has contrasted MRT principles (Bommer et al., 2003; Coovert et al., 2008; Driskell et al., 2003, Hertel et al., 2005).

This body of work provides evidence that channels with richer features do not always enable positive relationships with virtual employee outcomes associated with EE. An additional explanation for the current findings can be found by referring to Barhite's (2017) study. The researcher found that using richer rather than leaner channels more frequently did not significantly impact EE. Rather, Barhite (2017) proposed that the quality of leader-member exchanges (LMX) could be the determining factor of EE. The central proposition of LMX theory is that leaders create differing social relationships (low to high in quality) with their employees (Deluga & Perry, 1994). These varying leader-subordinate quality dynamics have been shown to impact the rewards and role-demands received by the subordinates (Yildiz, 2011). For example, subordinates within high-quality LMX relationships have been shown to attain more open communication with their leaders (Yildiz, 2011). Optimal channels (such as email) that innately enhance the communication satisfaction of LMX relationships could thus be argued to enhance EE (Barhite, 2017). This explanation would stray from the former MRT guideline that a channel with richer features will have a greater effect on EE in the remote setting. Therefore, regardless of the extent to which a channel transfers non-visual cues and its feedback immediacy features, the quality of existing leader-employee relationships may influence and explain why the LCQ of email facilitated EE more than the LCQ of IIM in the study.

The finding that feature richness of a channel is not the sole indicator of its LCQ effectiveness on EE can be explained by theories such as Media Synchronicity (MST, Dennis et al., 2008) and Channel Expansion Theory studies (Carlson & Zmud, 1999; Fulk et al., 1987; Tipton, 2017). These theories' propositions are that subjective influences (such as channel familiarity, frequency, social influence and channel accessibility) determine the perceived richness and quality effectiveness of a channel (Carlson & Zmud, 1999; Fulk et al., 1987; Tipton, 2017). Walther (1992, 1996) found that individuals who were more familiar with certain channels, used the channel more frequently. As a result, the perceived effectiveness, quality and richness of that channel increased. Kohntopp and McCann (2020) added that the frequency and delivery of communication methods by leaders also influenced the facilitation of EE. Marlow et al. (2017) suggested that the more frequently a channel is used, the more likely it is to enable a greater degree of universal comprehension, sense of belonging, and clarity of message. Thus, based on this argument, if the current study's sample of employees used email more frequently than IIM, their leaders may have adapted to use other communication techniques to effectively transfer motivational, clarity, and support cues and presence. This, in turn, would increase perceptions of LCQ of the channel and its subsequent

effect on EE. This frequency-based explanation is feasible as e-mail is still a popular form of work-related communication used by leaders given its efficient and formal features (Frisdedt, 2021).

Familiarity and frequency influencing perceptions of LCQ could also be due to a channel's ability to meet the needs of employees' home resources (i.e. slow internet connection/time dispersion eliminating immediacy benefit of IIM). This is a viable explanation for LCQ of email being more effective on EE than IIM in the SA context, in which only 56% of the SA population has internet access at home (Castel-Branco et al., 2020). If one does not have stable internet connection at home, time dispersion could occur between leaders and employees. In turn, the rich features of more instantaneous channels (i.e. feedback immediacy) cannot be optimally used (Frisdedt, 2021). This rationale is used to explain the preferential trend among individual workers to often use email over instantaneous messaging for work-related communications (Fristedt, 2021). Otondo et al. (2008) also indicated that the perceived effectiveness of a channel has a greater correlation with fulfilment and related motivational attitudes (such as EE) when attaining to required contextual needs, rather than with its information processing features.

It is thus feasible to suggest that, along with the feature richness of a channel, there are other influencing factors impacting how effective the LCQ of a channel is on EE. Rather, environmental and subjective influences may affect the perceived LCQ of a channel, subsequent meaningful work perceptions, and EE attitudes. Subjective influences playing a possible role in a channel's LCQ rating/effectiveness (and possible associated EE facilitation) is consistent with the study's preferential findings. Respondents' preferences for channel usage did not fully align with the actual effectiveness/richness intensity of a channel. For example, while video-conferencing channels were found to be most effective and preferred, email was found to be the second most preferred even though findings indicated that email was less effective in EE facilitation than telephone/audio-conferencing channels.

5.2.3 Communication Clarity and Leadership Behaviour Transmission Across Channels

Respondents' rankings of *communication clarity* and *leadership behaviour transmission* for video-conferencing channels were unmistakably higher than the leaner channels within the study. Thus, **hypotheses 4a and 4b were supported.** This was expected and can be explained using the propositions of Daft and Lengel (1984)'s MRT. Reflecting on MRT's four components, richer channels (i.e. video) have been found to facilitate more social and non-verbal cues, language variety, and personal orientation conveyance to aid message clarity, simplification, leader personality, and transparency (Daft & Lengel, 1986; Fristedt,

2021; Huntley, 2008; Hung-Baesecke & Men, 2015; Mbhele, 2016; Takeda, 2007). Otondo et al. (2008) similarly argued that the likelihood of ensuring clarity of messages by leaders is less guaranteed through leaner channels. This existing research explains the findings indicating that the intensity of LCQ's subdimensions was higher in the richest channel that encompassed both audio and video features. Video-conferencing channels' multifaceted features thus provided leaders with all-important feature resources that enabled them to best transfer their willingness, care, and communication clarity to their remote employees.

This study's results indicating video-conferencing channels to be highest in both subdimensions are not consistent with some literature. These findings contradict Coovert et al.'s (2008) and Huntley's (2008) results, who argued that e-mail communications are rich despite its leaner features. Coovert et al. (2008) argued that richer channels may provide unnecessary cues that could cause confusion or distract employees from the intended task of interaction aim, such as for fast task clarity purposes (Coovert et al., 2008). Leader-employee interactions focused on the intention of quick clarity and efficiency may thus explain some of the insignificant differences found across channels. For example, insignificant differences were found between email and telephone/audio-conferencing channels for *communication clarity*. Additionally, the insignificant differences found between IIM and email for *leadership behaviour transmission* can also be explained by Barhite's (2017) LMX argument. The researcher argued that the quality of LMX relationships may determine which channel is perceived as most optimal in quality to innately enhance the communication satisfaction of a certain leader-employee relationship (and associated EE levels). For example, if a leader-employee relationship is very formal, email may be viewed as a more optimal channel to attain appropriate support expected by a leader than the more casual IIM platform.

5.2.4 Age Generation as a Contextual Influence On LCQ

The study's repeated one-way ANOVA results showed no support for the hypothesis proposing differences between age generational cohorts with regards to the perceived LCQ of a channel. These findings were unanticipated as the perceived richness/quality of channels has been shown to be dependent on the varying channel familiarity and competency of the user, which is linked to age (DeRosa et al., 2004; Robison, 2021; Tipton, 2017). Other studies have shown that individual differences (including age factors) are found to influence perceived channel effectiveness and satisfaction (Aritz et al., 2020; Dunaetz et al., 2015; Robison, 2021). A possible explanation for this finding in the current study could relate to organisations having singular communication policies universally employed, regardless of the varying age groups. In turn, the exposure and familiarity to certain channels within a work environment would be

relatively evenly dispersed across ages due to social influences and accessibility factors. This finding opposes the argument that older generations would be less familiar with more modern technology (i.e. IIM). In turn, nullifies the rationale for channels' LCQ perceptions to significantly vary across age groups.

Rather than a focus on age, Dunaetz et al. (2015) argued for an emphasis on environmental and social trait aspects influencing varied perceived channel effectiveness and quality of channels. A possible explanation for age not being found as a contextual factor could be that personality is the individual difference factor influencing LCQ ratings of a channel. Macey and Schneider (2008) suggested that individuals vary with respect to inhibiting personality traits, which may influence their preferences and associated EE levels. Applying this understanding in the current study's context, those that are more proactive and/or have efficient tendencies may be drawn towards, and perceive a higher quality of, a channel that attains solely to the task at hand. Channels with perceived quality related to communication efficiency intent would be email (Fristedt, 2021). Alternatively, employees with personalities that are more socially inclined may be drawn towards, and perceive higher quality in, channels that attend to both interactional and task needs (i.e. video or audio-conferencing channels).

5.3 Theoretical Contributions and Practical implications

5.3.1 Theoretical Contributions

The findings contribute additional data to the emergent literature surrounding MRT and LCQ as a measurement of channel effectiveness. As a result, the findings could assist organisations and employees in enabling positive communication environments within the FwoW*[4] contexts. This contribution is pertinent as there has been limited research on LCQ of channels in the general leadership-employee interactional context (Bark et al., 2015). Rather, international literature has examined this research interest within certain task circumstances in the pre-Covid-19 pandemic context, with a predominant focus on teams and not individual EE responses (Bark et al., 2019; Beebe & Masterson, 2009; Erjavec, 2018; Hung-Baesecke & Men, 2015; Men, 2015; Suthers, 2017). There is thus a literature gap in how EE has been impacted by the arguably instantaneous replacement of FTF interactions with virtual ones. Therefore, the study's findings contribute to the understanding of how to optimally facilitate leader-member relationships and EE in a remote/hybrid setting. Specifically, the analyses of the

[4]* FwoW is an acronym for the future world of work.

findings indicate that two proposed subdimensions of LCQ of a channel is indeed a predictor (in isolation) of EE. Additionally, the current findings contribute to the existing literature exploring whether LCQ across channels enhances remote employees' EE in SA. At the time of the literature review, the researcher could not locate any study on this topic in SA. Hence, this current study would be the only SA study to utilise the LCQ scale and assess its relationship with channel quality and EE in the SA remote working context.

The results add to the literature on virtual communication and support Bark et al.'s (2019) insights on utilising both MRT and leadership facets in measuring and explaining a channel's quality within a broader leadership context. This dual utilisation nullifies the argument that the quality of a channel can only be measured depending on the contextual needs at hand. Thus, the study reinforces the notion that this generalised, cost-effective approach can be employed to assess whether a channel is optimal within a holistic leader-employee communication context.

Another theoretical contribution of the study relates to the construct validity of the LCQ of a channel. To date, the LCQ scale has only been conceptualised and used in one published study, where a three-factor structure emerged (Bark et al., 2019). However, a two-factor and one-factor structure arose from the respective examined channels' LCQ scales in the current study. The analyses of the findings showed relevance in focusing on at least two of LCQ's proposed three sub-facets when measuring a channel's LCQ: namely *communication clarity* and *leadership behaviour transmission*. In turn, the study could not assess the *communication reliability* subdimension across the channels. These findings suggest a need for a further theoretical investigation of the *communication reliability* subdimension's validity. This subdimension's items' wording, number of items per subdimension, and negative wording techniques could be examined further to improve construct validity. These preliminary analyses further add complexity to communication literature by highlighting the possibility that additional subjective and contextual influences may affect the measurement of perceived quality and effectiveness of a channel in a leadership context. Thus, socio-economic factors (such as internet strength or data availability) may pose a rationale for the factor structure within the SA context to differ from that observed in the international context. These contextual factors should thus be accounted for when employing and examining the LCQ scale's results in SA. Taken together, the study's theoretical implications will also have practical implications as discussed below.

5.3.2 Practical Implications

Various practical implications can be drawn from this study's results. Firstly, the results showed that LCQ of video-conferencing channels was the most robust predictor of enhanced EE levels among respondents. Based on these findings, organisations should emphasise the need for video-conferencing communications within their communication policies. In turn, this could rehumanise communication for improved and sustained EE levels within the virtual environment. Additionally, the discussed literature and findings indicated the beneficial effects of a channel's LCQ on EE. Thus, companies should consider implementing a training programme for leaders with the intention of improving their ability to best transfer *communication clarity* and *leadership supportive behaviour* through all types of channels to enhance EE. This leadership training intervention should not only be conducted at a team or department level, but at an organisational one. Implementing an organisation-level intervention is supported by Nielson et al. (2010), who suggested that these employments are most productive in embedding desired behaviour, norms and values within the entire company.

5.4 Limitations and Future Research Recommendations

The limitations of the study must be discussed and acknowledged, and these are linked to recommendations for possible future research opportunities.

Regarding the study's design, a purely cross-sectional quantitative approach was employed, which prevented the in-depth depiction of causal relations over time between LCQ and EE. Thus, the researcher could not conclude whether LCQ of a channel caused enhanced levels of EE. Additionally, due to the study being conducted at one point in time, it restricted the researcher from examining the likelihood that the LCQ of channels and EE levels may vary over time. This is an important limitation to consider, as changes within a company's telework practices may have occurred and/or the quality of leadership-employee relationships could have shifted over time. Whilst outside of this study's aim, there is merit in assessing causality or to compare various correlations across time (Setia, 2016). Thus, future research should employ longitudinal designs to assess possible lag effects on these construct relationships.

Another limitation pertains to the study's sample and sampling strategy. The survey was distributed among the general population via non-probability sampling. As explained in Setia's (2016) study, these non-probability methods may have produced selection bias and

restricted the generalisability of the study's results. Additionally, whilst various organisations within SA were contacted by email to obtain permission to distribute the survey among their respective employees, only one large company granted permission for internal distribution. In fact, the company's employees significantly contributed to the study's population sample. Yet, having only one company's communication and adoption styles represented in the sample may have heavily influenced and skewed the LCQ ratings of channels and its associated effects on EE. This argument is based on the possible influence of channel frequency and familiarity on LCQ ratings of a channel (Fulk et al., 1987; Tipton, 2017).

An additional limitation linked to the sampling strategy is that the researcher did not obtain existing company communication policies and information regarding telework/internet packages provided to employees. This information would have aided the researcher in comprehending whether there were moderating socio-economic influences on the relationship between a channel's LCQ and EE. A further limitation based on the non-probability sampling techniques used is the skewed age demographic characteristics (higher frequency among older ages) within the study. In turn, the study's sample did not encompass sufficient representation of the targeted general remote working population. The high proportion of individuals within older age categories may also be due to gaining responses from one company that may have a predominantly older workforce. Thus, future research should aim to utilise a multitude of organisations that encompass a workforce ranging across diverse age groups, and request access to companies' communication policies and adoption styles. This would enable more comprehensive analyses of comparative communication styles in relation to LCQ effects. In turn, this would allow for a more generalised data collection of LCQ across examined channels and its associated effects. The recommended sampling strategy would also aid in enhancing the sample size, and allow for more robust conclusions on the significance of future findings.

Only age (measured in generational cohorts) was assessed as an additional factor that could influence perceived LCQ in the present study, and it was not found to have a significant effect on LCQ rating differences in the study's sample. Thus, this study did not account for other socio-economic and subjective factors (i.e. personality) that may possibly influence LCQ ratings of a channel. Therefore, a richer intersectional lens should be utilised in future research when examining factors contributing to LCQ ratings and their associated EE outcomes. Future research should thus assess channel quality via a combined examination including MRT criteria, LCQ facets, and subjective/contextual factors. In turn, organisations understanding

these other subjective/contextual influences through an intersectional lens may aid in the comprehension and appropriate application of virtual channels within a diverse workforce (Macey & Schneider, 2008). Following on from the need to account for possible contextual influences, the current study utilised SET as the foundational theory in explaining the relationships of interest. However, this SET is shown to not consider underprivileged identities and associated cultural realities. For example, study sample populations assessing SET are predominantly white, international individuals (Emerson, 1976; Landor & Barr, 2018). Within SA's diverse climate, future SA research examining relationships based on SET's cost-benefit propositions should thus examine these construct relations relative to the intersecting inequalities that may be influencing the findings (Landor & Barr, 2018). As a result, these intersectional analyses would enable a more comprehensive and representative assessment of the SA remote workforce's EE and LCQ facilitation needs.

A final limitation of the current study is its use of MRT in reference to assessing channel quality. This is due to MRT having gaps in accounting for possible subjective influences impacting one's preferences for certain MRT criteria. Whereby, these subjectivities are argued to impact the perceived quality of a channel and its associated outcomes on employee attitudes (Tipton, 2017). Media richness still remains relevant, but the concern is that modernised channels can be utilised in various ways and are richer in some MRT criteria and leaner in others (Fristedt, 2021). Thus, utilising MRT's hierarchical guidelines may be oversimplified for the more complex mapping required for updated channels' usage needs within the leadership setting. Future research could thus assess how the channels are utilised in the general leadership communication context through qualitative interviews with leaders and employees. Thereafter, future researchers can reassess how the LCQ of each channel can be mapped out to attain a more modern model that outlines media richness and quality in a broad leadership setting.

Chapter 6: Conclusion

The unique feature of a channel's LCQ within the study is its focus on assessing channel effectiveness in a broader leadership setting, rather than by its appropriateness in different task circumstances. While not all results were anticipated, the overall analyses of this study's findings appear to show that LCQ of a channel is positively correlated to, and a predictor of, EE among SA remote workers. More specifically, LCQ of video-conferencing channels is shown to have the strongest correlation with, and be a positive predictor of, EE. Despite the study's limitations, the findings contribute valuable insight in stressing the need for organisations to use video-conferencing channels in all important leader-employee communications, which would, in turn, enable a more engaged remote workforce. Due to the results not precisely imitating MRT, future research is needed to assess other subjective and contextual influences on perceived channel quality in a leadership setting. This could enable a more accurate measurement of a channel's LCQ in the SA context. It is important to consider all contextual and subjective aspects that may be influencing the enhancement of EE in relation to the LCQ of channels used. As a result, this understanding would enable organisations and leaders to rehumanise communication processes and attend to employee needs within the virtual leader-employee context to aid meaningful remote work experiences.

References

Abowd, G., Choudhury, M., Das Swain, V., Saha, K. (2020, August 3-5). *Social and ubiquitous technologies for remote worker wellbeing and productivity in a post-pandemic world* [Conference paper]. *2020 IEEE Second International Conference on Cognitive Machine Intelligence (CogMI),* Atlanta, GA, United States. https://doi.org/10.1109/CogMI50398.2020.00025

Alexander, A., De Smet, A., & Mysor, M. (2020, July 7). Reimagining the Postpandemic. *McKinsey Quarterly.* https://www.mckinsey.com/business-functions/organization/our-insights/reimagining-the-postpandemic-workforce

Anderson, R., Babin, B., Black, W., & Hair, J. (2010). *Multivariate data analysis*. Pearson Prentice Hall.

Aritz, J.,Cardon, P. W., & Walker, R. (2018). Media use in virtual teams of varying levels of coordination. *Business & Professional Communication Quarterly*, *81*(2), 222– 243. https://doi.org/10.1177/2329490617723114

Armor, D.J., Cotla, C.R., & Stratmann, T. (2017). Spurious relationships arising from aggregate variables in linear regression. *Quality and Quantity, 51,* 1359–1379. https://doi.org/10.1007/s11135-016-0335-0

Avolio, B. J. (2004). Examining the full range model of leadership: Looking back to transform forward. In D.V. Day, S. J. Zaccaro, & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 71-98). Lawrence Erlbaum.

Avolio, B. J., Sosik, J. J., Kahai, S. S., Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *Leadership Quarterly, 25*, 105-131. https://doi.org/10.1016/j.leaqua.2013.11.003

Baker, M. (2020, April 14). Gartner HR survey reveals 41% of employees likely to work remotely at least some of the time post Coronavirus pandemic. *Gartner.* https://www.gartner.com/en/newsroom/press-releases/2020-04-14-gartner-hr-survey-reveals-41--of-employees-likely-to-

Bakker, A. B., Hakanen, J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology, 99,* 274–284. https://doi.org/10.1037/ 0022-0663.99.2.274

Barhite, B. (2017). *The effects of virtual leadership communication on employee engagement* [Doctoral dissertation, Bowling Green State University]. Semantic Scholar.

Bark, A. H., Braun, S., & Kirchner, A. (2019). Emails from the boss-curse or blessing. Relations between communication channels, leader evaluation, and employees' attitudes, *International Journal of Business Communication, 56*(1), 50-81. https://doi.org/10.1177/2329488415597516

Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Sage.

Bass, B. M., & Avolio, B. (1995). *MLQ Multifactor Leadership Questionnaire*. Mind Garden.

Bates, S. (2004, February 1). Getting engaged. *HR Magazine*, *49*(2), 44−51.

Beebe, S. & Masterston, J. (2009). *Communicating in small groups: Principles and practices* (9th ed.). Pearson.

Bedeian, A. G., O'Boyle, E. H., Cole, M. S., & Walter, F. (2012). Job Burnout and Employee Engagement: A Meta-Analytic Examination of Construct Proliferation. *Journal of Management, 38*(5), 1550-1581. https://doi.org/10.1177/0149206311415252

Berggren, E., & Bernshteyn, R. (2007). Organizational transparency drives company performance. *Journal of Management Development, 26*(5), 411-417.

Blau, P. M. (1964). *Exchange and power in social life*. Wiley.

Bommer, W., Kahnweiler, W., & Workman, M. (2003). The effects of cognitive style and media richness on commitment to telework and virtual teams. *Journal of Vocational Behavior, 63*, 199–219.

Bonnema, J., & Hoole, C. (2015). Work engagement and meaningful work across generational cohorts. *SA Journal of Human Resource Management, 13*(1), 1-11. https://doi.org/10.4102/sajhrm.v13i1.681

BusinessTech. (2020, August 12). Remote working leads to improved productivity study. *BusinessTech.* https://businesstech.co.za/news/enterprise/424600/remote-working-leads-to-improved-productivity-study/

Braier, A., Datar, A., Garrett, M., & Smith, S. (2021, February 10). Designing adaptive workplaces: How the public sector can capitalize on lessons learned from COVID-19. *Deloitte Insights*. https://www2.deloitte.com/xe/en/insights/industry/public-sector/designing-for-adaptive-work-in-the-public-sector.html

Breevaart, K., Bakker, A. B., Demerouti, E., & Hetland, J. (2012). The measurement of state work engagement: A multilevel factor analytic study. *European Journal of Psychological Assessment, 28*(4), 305. https://doi.org/10.1027/1015-5759/a000111

Briggs, S. R., & Cheek, J. M. (1986). The role of factor-analysis in the development and evaluation of personality-scales. *Journal of Personality, 54*(1), 106-148.

Brunetto, Y., Farr-Wharton, R., & Shacklock, K. (2011). Professionals' supervisor–subordinate relationships, autonomy and commitment in Australia: A leader– member exchange theory perspective. *The International Journal of Human Resource Management, 22*, 3496-3512. https://doi.org/10.1080/09585192.2011.599681

Byrne, M., Chughtai, A., & Flood, B. (2014). Linking ethical leadership to employee well-being: The role of trust in supervisor. *Journal of Business Ethics, 128,* 653–663.

Carlson, J. R., & Zmud, R. W. (1999). Channel expansion theory and the experiential nature of media richness perceptions. *Academy of Management Journal, 42,* 153– 170. https://doi.org/10.5465/257090

Carr, S.A., Ishii, K., & Lyons, M. M. (2019). Revisiting media richness theory for today and future. *Human Behaviour and Emerging Technologies, 1*(2), 124-131.

Castel-Branco, R., Mapukata, S., & Webster, E. (2020, September 17). Work from home reserved for the privileged few in SA. *BusinessDay*. https://www.businesslive.co.za/bd/opinion/2020-09-17-work-from-home-reserved-for-the-privileged-few-in-sa/

Chanana, N., & Sangeeta, D. (2020). Employee engagement practices during COVID-19 lockdown. *Journal of Public Affairs*, *1,* 1-8. https://doi.org/10.1002/pa.2508

Chan, W., & Deng, L. (2017). Testing the difference between reliability coefficients Alpha and Omega. *Educational and Psychological Measurement, 77*(2), 185-203.

Coovert, M. D., Elliott, L. R., Redden, E. R., & Walvoord, A. A. G. (2008). Empowering employees in virtual teams: Guiding principles from theory and practice. *Computers in Human Behavior, 24*, 1884-1906.

Corrington, A., Finkelstein, L., King, E., & Thomas, C. (2019, August 1). Generational differences at work are small: Thinking they're big affects our behavior. *Harvard Business Review.* https://hbr.org/2019/08/generational-differences-at-work-are-small-thinking-theyre-big-affects-our-behavior

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment Research and Evaluation, 10*(7), 1-9.

Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behavior and organizational design. In L. L. Cummings, B. M. Staw (Eds.), *Research in organizational behavior* (pp. 191-233). JAI Press.

Davenport, T. H., & Pearlson, K. 1998. Two cheers for the virtual office. *Sloan Management Review*, 39, 51-66.

Davis, R., & Cates, S. (2013). The dark side of working in a virtual world: An investigation of the relationship between workplace isolation and engagement among teleworkers. *Journal of Human Resource and Sustainability Studies, 1*, 9-13.

Decuypere, A., & Schaufeli, W. (2019). Leadership and work engagement: Exploring explanatory mechanisms. *German Journal of Human Resource Management, 1,* 1-27.

Deluga, R. J., & Perry, J. T. (1994). The role of subordinate performance and ingratiation in leader–member exchanges. *Group and Organization Management, 19*, 67–86.

Dennis, A. R., Fuller, R. M., Valacich, J. S. (2008). Media, tasks, and communication processes: A theory of media synchronicity. *MIS Quarterly, 32*, 575-600

Dhillon, R., & Nguyen, Q.C. (2020). *Strategies to respond to a VUCA World: A review of existing knowledge* [Doctoral dissertation, Lunds University]. Lunds Library Repository.

Dino, R. N., Golden, T. D., & Veiga, J. F. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter. *Journal of Applied Psychology, 93*(6), 1412.

Driskell, J. E., Radtke, P. H., & Salas, E. (2003). Virtual teams: Effects of technological mediation on team performance. *Group Dynamics: Theory, Research and Practice, 7*(4), 297–323.

Dunaetz, D., Lisk, T., & Shin, M. (2015). Personality, gender, and age as predictors of media richness preference. *Advances in Multimedia (Article No. 243980),* 1-9.

de Koning, R., Egiz, A., Kotecha, J., Ciuculete, A.C., Ooi, S. Z. Y., Bankole, N.D.A., Erhabor, J., Higginbotham, G., Khan, M., Dalle, D.U., Sichimba, D., Bandyopadhyay, S., & Kanmounye, U.S. (2021). Survey fatigue during the COVID-19 Pandemic: An analysis of neurosurgery survey response rates. *Frontiers in Surgery (Article No. 690680), 8,* 1-7. https://doi.org/10.3389/fsurg.2021.690680

DeRosa, D. M., Hantula, D. A., Kock, N., & D'Arcy, J. (2004). Trust and leadership in virtual teamwork: A media naturalness perspective. *Human Resource Management, 43*(2-3), 219- 232.

Elie-Dit-Cosaque, C., & Pallud, J. (2008, August 14- 17). *Isolation and emotions in the workplace: The influence of perceived media richness and virtuality* [Conference proceedings]. AMCIS 2008 Proceedings, Toronto, ON, Canada. https://aisel.aisnet.org/amcis2008/144/

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology, 2*(1), 335–362. https://doi.org/10.1146/annurev.so.02.080176.002003

Erjavec, K. (2018). Satisfaction with managers' use of communication channels and its effect on employee-organisation relationships. *Journal for East European Management Studies, 23*(4), 559-578. https://doi.org/10.5771/0949-6181-2018-4-559

Fadeyi, O. B. (2021). *Robustness and comparative statistical power of the repeated measures Anova and Friedman test with real data* [Doctoral Dissertation, Wayne State University]. Wayne State University Repository. https://education.wayne.edu/eer_dissertations/dissertation_-_opeoluwa_bfadeyi.pdf

Fallon, N. (2020, March 19). Managing from home. Here's how to keep your team engaged during coronavirus. *US Chamber of Commerce.* https://www.uschamber.com/co/run/human- resources/keeping-remote-employees-engaged

Fay, M. J., & Kline, S. L. (2011). Coworker relationships and informal communication in high-intensity telecommuting. *Journal of Applied Communication Research, 39*, 144-163. https://doi.org/10.1080/00909882.2011.556136

Field, A. (2017). *Discovering statistics using SPSS* (5th ed.). Sage.

Fleischmann, C., Aritz, J., & Cardon, P. (2019). Language proficiency and media richness in global virtual teams: Impacts on satisfaction, inclusion, and task accomplishment. *ACM Journals, 2*(4), 1-18.

Fletcher, L. (2016). How can personal development lead to increased engagement? The roles of meaningfulness and perceived line manager relations. *The International Journal of Human Resource Management, 51,* 921–924.

Fong, T. C. T., & Ng, S. M. (2012). Measuring engagement at work: Validation of the Chinese version of the Utrecht Work Engagement Scale. *International journal of behavioral medicine, 19*(3), 391-397. https://doi.org/10.1007/s12529-011-9173-6

Fristedt, S. (2021). *Communication, collaboration and belongingness in virtual teams: Mapping out enablers and constraints* [Bachelor Thesis, Malmo Universitet]. Diva Portal. http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1528622&dswid=-2962

Fulk, J., Power, J. G., Steinfield, C. W., & Schmitz, J. (1987). Social information processing model of media use in organizations. *Communication Research, 14,* 529– 553. https://doi.org/10.1177/009365087014005005

Garcia, A., Bentein, K., Herrbach O., & Guerrero S. (2017). How does social isolation in a context of dirty work increase emotional exhaustion and inhibit work engagement? A process model. *Personnel Review, 46*(8), 1620-1634.

Garg, A.K., & van der Rijst, J. (2015). The benefits and pitfalls of employees working from home: Study of a private company in South Africa. *Corporate Board Role, Duties and Composition, 11*(2), 36-49.

Ghee, A., Galligan, M., Hyland, P., McAuliffe, E., & Vallières, F. (2017). Measuring work engagement among community health workers in Sierra Leone: Validating the Utrecht Work Engagement Scale. *Journal of Work and Organizational Psychology, 33*(1), 41-46.

Gosling, S. D., Rentfrow, P. J., & Swann Jr., W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*(6), 504–528. http://doi.org/10.1016/S0092-6566(03)00046-1

Grant, A. M. (2012). Leading with meaning: Beneficiary contact, prosaically impact, and the performance effects of transformational leadership. *Academy of Management Journal, 55*, 458-476. https://doi.org/10.5465/amj.2010.0588

Hakanen, J., Bakker, A., & Schaufeli, W. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 43*, 495–513. https://doi.org/10.1016/j.jsp.2005.11.001

Hambley, L. A., O'Neill, T. A., & Kline, T. J. 2007. Virtual team leadership: The effects of leadership style and communication medium on team interaction styles and outcomes. *Organizational Behavior and Human Decision Processes*, *103*(1), 1- 20.

Hamstra, M.R.W., Mehmood, Q., & Nawab, S. (2016). Does authentic leadership predict employee work engagement and in-role performance? Considering the role of learning goal orientation. *Journal of Personnel Psychology, 15*(3), 139–142.

Harter, J. K., Hayes, T. L., & Schmidt, F. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268-279.

Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. The Guilford Press.

Hayes, A.F., & Coutts, J. J. (2020). Use Omega rather than Cronbach's Alpha for estimating reliability, but…*Communication Methods and Measures, 14*(1), 1-24. https://doi.org/10.1080/19312458.2020.1718629

Hayward, P. (2002). A comparison of face-to-face and virtual software development teams. *Team Performance Management: An International Journal, 8*(2), 39-48.

Hennig-Thurau, T., & Vor dem Esche, J. (2013). *German social media consumer report 2012/2013*.http://www.rolandberger.de/media/pdf/Roland_Berger_Social_Media_Consumer_Report_20130219.pdf

Henson, R. K., & Roberts, J. K. (2006). Use of Exploratory Factor Analysis in published research. *Educational and Psychological Measurement, 66*(3), 393-416.

Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review, 15*, 69–95.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods, 2*(1), 104-121.

Homans, G. C. (1958). Social behaviour as exchange. *American Journal of Sociology, 63*(6), 597-606.

Hung-Baesecke, C.F., & Men, L. R. (2015). Engaging employees in China: The impact of communication channels, organisational transparency, and authenticity. *Corporate Communications: An International Journal, 20*(4), 448 – 467. https://doi.org/10.1108/CCIJ-11-2014-0079

Huntley, B. (2008). *Media richness, social presence, group cohesion and content of computer-mediated and face-to-face communication* [Master's Research Project, University of the Witwatersrand]. Semantic Scholar. https://www.semanticscholar.org/paper/Media-richness%2C-social-presence%2C-group-cohesion-and-Huntley/e74bc81a0c09a4686248322c9d48174cb4deaa79

Ishii, K., Lyons, M., & Carr, S.A. (2019). Revisiting media richness theory for today and future. *Human Behavior and Emerging Technologies, 1*(2), 124-131. https://doi.org/10.1002/hbe2.138

Jones, L.M. (2017). *Strategies for retaining a multigenerational workforce* [Doctoral dissertation, Walden University]. Walden Dissertations and Doctoral Studies Collection. https://scholarworks.waldenu.edu/dissertations

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology, 89*, 755-768. https://doi.org/10.1037/0021-9010.89.5.755

Judge, T. A., Piccolo, R. F., & Ilies, R. (2004). The forgotten ones? The validity of consideration and initiating structure in leadership research. *Journal of Applied Psychology, 89*, 36-51.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*, 692-724.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*(1), 141-151.

Kelly, J. (2021, February 22). The 'hybrid model' of working remotely and in the office could create big expenses for companies and give rise to two classes of employees. *Forbes*. https://www.forbes.com/sites/jackkelly/2021/02/22/the-hybrid-model-of-working-remotely-and-in-the-office-could-create-big-expenses-for-companies-and-give-rise-to-two-classes-of-employees/?sh=7b464ce61bde

Kim, J., & Rhee, Y. (2011). Strategic thinking about employee communication behavior (ECB) in public relations: Testing the models of megaphoning and scouting effects in Korea. *Journal of Public Relations Research, 23*(2), 243–268.

Kohntopp, T., & McCann, J. (2020). Leadership in virtual organizations: Influence on workplace engagement. *School of Management Publications,141*, 1-26.

Koo, C., & Ryoo, S. Y. (2010). The moderating effect of media synchronicity in the communication media use and knowledge creation. *Asia Pacific Journal of Information Systems, 20*(2), 1-22.

Landor, A., & Barr, A. (2018). Politics of respectability, colorism, and the terms of social exchange in family research. *Journal of Family Theory and Review, 10*(2), 330-347. https://doi.org/10.1111/jftr.12264

Lampinen, M., Konu, A.I., Kettunen, T., Suutala, E. A. (2018). Factors that foster or prevent sense of belonging among social and health care managers. *Leadership in Health Services, 31*(4), 468-480. https://doi.org/10.1108/LHS-09-2017-0054

Larson, B.Z, Vroman, S.R., Makarius, E.E. (2020, March 18). A guide to managing your (newly) remote workers. *Harvard Business Review.* https://hbr.org/2020/03/a-guide-to-managing-your-newly-remote-workers

Li, N.A., & Liao, H. (2014) How do leader–member exchange quality and differentiation affect performance in teams? An integrated multilevel dual process model. *Journal of Applied Psychology, 99*(5), 847–866.

Littman-Ovadia, H., & Balducci, C. (2013). Psychometric properties of the Hebrew version of the Utrecht Work Engagement Scale (UWES-9). *European Journal of Psychological Assessment, 29*(1), 58-63. https://doi.org/10.1027/1015-5759/a000121

Liu, L. A., Chua, C. H., Stahl, G. K. (2010). Quality of communication experience: Definition, measurement, and implications for intercultural negotiations. *Journal of Applied Psychology, 95*, 469-487.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84.

Macey, W., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology, 1*(1), 3-30.

Markwick, C., & Robertson-Smith, G. (2009). *Employee Engagement: A review of current thinking.* Institute for Employment Studies .

Marlow, S., Lacerenza, C., & Salas, E. (2017). Communication in virtual teams: A conceptual framework and research agenda. *Human Resource Management Review, 27*(4), 575-589. https://doi.org/10.1016/j.hrmr.2016.12.005

Martinez-Amador, J. (2016). *Remote and on-site knowledge worker productivity and engagement: A comparative study of the effect of virtual intensity and work location preference.* [Doctoral dissertation, Case Western Reserve University]. ProQuest Dissertations & Theses.

Maslach, C., Schaufeli, W.B., & Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397–422

Mbhele, S. (2016). *Internal communication in achieving employee engagement within a South African government department* [Master's dissertation, University of Pretoria]. University of Pretoria Repository. https://repository.up.ac.za/bitstream/handle/2263/60508/Mbhele_Internal_2017.pdf?sequence=1

McCole, D., Jacobs, J., Lindley, B., & McAvoy, L. (2012). The relationship between seasonal employee retention and sense of community: The case of summer camp employment. *Journal of Park & Recreation Administration, 30*, 85-101.

McDonald R. P. (1999). *Test theory: A unified treatment*. Lawrence Erlbaum.

McNeish, D. (2018). Thanks Coefficient Alpha: We'll take it from here. *Psychological Methods, 23*(3), 1-54.

Men, L. R. (2014). Why leadership matters to internal communication: Linking transformational leadership, symmetrical communication, and employee outcomes. *Journal of Public Relations Research, 26*(3), 256–279.

Men, L. (2015). The internal communication role of the chief executive officer: Communication channels, style, and effectiveness. *Public Relations Review, 41*(4), 461-471.

Men, L. R., & Stacks, D. W. (2013). Measuring the impact of leadership style and employee empowerment on perceived organizational reputation. *Journal of Communication Management, 17*(2), 171–192.

Men, L. R., & Tsai, W. S. (2013). Towards an integrated model of public engagement on corporate social network sites: Antecedents, the process, and relational outcomes. *International Journal of Strategic Communication, 7*(4), 257–273.

Mitchell, R.N. (2015). *The correlation between virtual communication and employee engagement* [Doctoral dissertation, Walden University]. Walden Dissertations and Doctoral Studies Collection. https://scholarworks.waldenu.edu/dissertations

Mmompe, P.P. (2010). *The role of senior managers at the North-West University in internal communication and employee engagement* [Master's Mini-Dissertation, North-West University]. Boloka Institutional Repository. https://repository.nwu.ac.za/handle/10394/3138

Mulligan, R., Ramos, J., Martín, P., & Zornoza, A. (2021). Inspiriting Innovation: The effects of Leader- Member Exchange (LMX) on innovative behavior as mediated by

mindfulness and work engagement. *Sustainability,* 13, 1-18. https://doi.org/10.3390/su13105409

Nardi, B. (2005). Beyond bandwidth: Dimensions of connection in interpersonal communication. *Computer-supported Cooperative Work, 14*, 91–131.

Nielsen, K., Cox, T., & Taris, T. W. (2010). The future of organizational interventions: Addressing the challenges of today's organizations. *Work & Stress, 24*(3), 219-233.

Notre Dame of Maryland University (NDMU). (2019, February 6). The evolution of communication across generations. *Notre Dame of Maryland University*. https://online.ndm.edu/news/communication/evolution-of-communication/

Onwuegbuzie, A. J., & Daniel, L. G. (2002). A framework for reporting and interpreting internal consistency reliability estimates. *Measurement and Evaluation in Counseling and Development, 35*(2), 89–103.

Osborne, J. W. (2014). *Best practices in exploratory factor analysis.* CreateSpace Independent Publishing.

Otondo, R. F., Van Scotter, J. R., Allen, D.G. & Palvia, P. (2008). The complexity of richness: Media, message, and communication outcomes. *Information & Management, 45,* 21– 30.

Pagan, V., & Reissner, S. (2013). Generating employee engagement in a public–private partnership: Management communication activities and employee experiences. *The International Journal of Human Resource Management, 24*(14), 2741-19.

Pallant, J. (2013). *SPSS Survival Manual* (4th ed.). Allen and Unwin.

Panteli, N., Yalabik, Z. Y., & Rapti, A. (2019). Fostering work engagement in geographically-dispersed and asynchronous virtual teams. *Information Technology and People, 32*(1), 2-17.

Robison, J. (2021, January 6). What disruption reveals about engaging millennial employees. *Gallup.* https://www.gallup.com/workplace/328121/disruption-reveals-engaging-millennial-employees.aspx

Rogers, P., & Lea, M. (2005). Social presence in distributed group environments: The role of social identity. *Behaviour & Information Technology*, *24*(2), 151–158. https://doi.org/10.1080/01449290410001723472

Rosenthal, R., & Rosnow, R. L. (2013). *Beginning behavioural research: A conceptual primer* (7th ed.). Pearson Education Limited.

Ruck, K. & Welch, M. (2012). Valuing internal communication; management and employee perspectives. *Public Relations Review, 38*(2), 294-302.

Schaufeli, W. B., & Bakker, A. B. (2003). *UWES Utrecht Work Engagement Scale: Test manual*. http://www.beanmanaged.com/

Schaufeli, W.B., & Bakker, A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*(3), 293-315.

Schaufeli, W.B., Salanova, M., Gonzalez-Roma, V., & Bakker, A.B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71-92.

Seppälä, P., Feldt, T., Hakanen, J., Mauno, S., Kinnunen, U., Schaufeli, W., & Tolvanen, A. (2009). The construct validity of the Utrecht work engagement scale: Multisample and longitudinal evidence. *Journal of Happiness Studies, 10*, 459- 481. https://doi.org/10.1007/s10902-008- 9100-y

Serrano, S. A., & Reichard, R. J. (2011). Leadership strategies for an engaged workforce. *Consulting Psychology Journal, 63*(3), 176-189. https://doi.org/10.1037/a0025621

Setia, M. S. (2016). Methodology series module: Cross-sectional studies. *Indian Journal of Dermatology, 61*(3), 261- 264.

Shannon, C. W. (2018). *Effective management communication strategies* [Doctoral Dissertation, Walden University]. Walden Dissertations and Doctoral Studies Collection. https://scholarworks.waldenu.edu/dissertations

Shen, H., & Kim, J.N. (2012). The authentic enterprise: Another buzz word or a true driver of quality relationships. *Journal of Public Relations Research, 24*, (4), 371-389.

Shirom, A. (2006). Explaining vigor: On the antecedents and consequences of vigor as a positive affect at work. In C. L. Cooper, & D. Nelson (Eds.), *Organizational behavior: Accentuating the positive at work* (pp. 86–100). Sage.

Smith, R. S. (2014). Collaborative bandwidth: Creating better virtual meetings. *Organization Development Journal, 32*(4), 15-35.

Smith, C. (2021, February 12). Many South Africans want to work from home, but say bosses won't let them-survey. *Fin24.* https://www.news24.com/fin24/companies/industrial/many-south-africans-want-to-work-from-home-but-say-bosses-wont-let-them-survey-20210212

Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between non-work and work. *Journal of Applied Psychology, 88*, 518-528.

Spontón, C., Mendrano, L. A., Maffei, L., Spontón, M., & Castellano, E. (2012). Validation of the Engagement Questionnaire UWES for the population of workers of Cordoba, Argentina. *Liberabit, 18*, 147–154.

Streiner, D. (1994). Figuring out factors: The use and misuse of factor analysis. *Canadian Journal of Psychiatry, 39*(3), 135-140.

Suthers, A.L. (2017). *Evaluating effective communication methods: improving internal communication* (Publication No. 3293) [Master's dissertation, East Tennessee State University]. Electronic Theses and Dissertations. https://dc.etsu.edu/etd/3293

Tabachnick, B. G., & Fidell, L. S. (2014). *Using Multivariate Statistics* (6th ed.). Pearson Education Limited.

Takeda, H. (2007, April 19). *A proposal for a model on media selection* [Conference proceedings]. 2007 ACM SIGMIS CPR conference on computer personnel doctoral consortium and research conference: The global information technology workforce, St. Louis, Missouri, USA.

Tedla, T. B. (2016). *The impact of organizational culture on corporate performance* [Doctoral dissertation, Walden University]. Walden Dissertations and Doctoral Studies Collection. https://scholarworks.waldenu.edu/dissertations

Terre Blanche, M., Durrheim, K., & Painter, D. (2006). *Research in practice: Applied methods for the social sciences*. Juta and Company Ltd.

Tims, M., Bakker, A. B., & Xanthopoulou, D. (2011). Do transformational leaders enhance their followers' daily work engagement. *Leadership Quarterly, 22,* 121–131.

Tipton, W.L. (2017). *The net generation at work: Younger employees' understanding of productive or counter-productive information across communication channels* (Publication No. 4660) [Doctoral dissertation, University of Tennessee]. TRACE: Tennessee Research and Creative Exchange. https://trace.tennessee.edu/utk_graddiss

Van Mol, C. (2016). Improving web survey efficiency: The impact of an extra reminder and reminder content on web survey response. *International Journal of Social Research Methodology, 20*(4), 317-327.

Van Wyk, R.A. (2019*). An investigation into employee engagement in a workwear distribution company* [Master's dissertation, University of Cape Town]. OpenUCT Portal.

Veenhoven, R. (2012). *Handbook of social indicators and quality of life research.* Springer Publishers.

Walther, J.B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research, 19(1),* 52 – 90.

Walther, J.B. (1996). Computer-Mediated communication: Impersonal, interpersonal and hyperpersonal interaction. *Communication Research, 23(1)*, 1 – 43.

Weems, G.H., Onwuegbuzie, A. J., & Lustig, D. (2003). Profiles of respondents who respond inconsistently to positively and negatively worded items on rating scales. *Evaluation and Research in Education, 17*(1), 45-60.

Welch, M. (2011). The evolution of the employee engagement concept: Communication implications. *Corporate Communications: An International Journal, 16*(4), 328-346.

Yildiz, S.M. (2011). Relationship between leader-member exchange and burnout in professional footballers. *Journal of Sports Sciences, 29*(14), 1493.

Zeuge, A., Oschinsky, F., Weigel, A., Schlechtinger, M., & Niehaves, B. (2020, August). *Leading virtual teams: A literature review* [Conference presentation]. New Future Work Symposium, Germany. https://www.researchgate.net/publication/343473371_Leading_Virtual_Teams_-_A_Literature_Review

Appendix A: Utrecht Work Engagement Scale (UWES-9)

The following statements are concerned with how you feel about your job. Using a 7-point Likert scale (ranging from 1 = Never to 7 = Always (Everyday)), please carefully read each statement. Please then indicate how often you experience this way regarding your job.

Never	**Almost Never**	**Rarely**	**Sometimes**	**Often**	**Very Often**	**Always**
1	2	3	4	5	6	7
	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Everyday

1. At my work, I feel bursting with energy.
2. At my job, I feel strong and vigorous.
3. I am enthusiastic about my job.
4. My job inspires me.
5. When I get up in the morning, I feel like going to work.
6. I feel happy when I am working intensely
7. I am proud of the work that I do
8. I am immersed in my work.
9. I get carried away when I'm working

Note. Utrecht Work Engagement Scale (UWES 9), short version (Shaufeli & Bakker 2003).

Appendix B: Leadership Communication Quality Scale

Below is a collection of statements regarding communications with your direct supervisor across different channels. Using the following 6-point Likert scale below (1 = Do not agree at all, 2= Disagree, 3= Slightly Disagree, 4= Slightly Agree, 5= Agree, 6 = Completely Agree), please indicate the extent to which you agree with the following statements. Please treat each statement independently from each other.

1	**2**	**3**	**4**	**5**	**6**
Do not agree at all	Disagree	Slightly Disagree	Slightly Agree	Agree	Completely Agree

Channel	**Category**	**Item**
Video conferencing (I.e. Video calls on Zoom or Microsoft Teams)	Communication Clarity	1. When I communicate with my direct supervisor via synchronous video conferencing, it applies that the working instructions are precise.
		2. When I communicate with my direct supervisor via synchronous video conferencing, it applies that the working instructions are understandable.
		3. When I communicate with my direct supervisor via synchronous video conferencing, it applies that the working instructions are comprehensible.
	Leadership Behaviour Transmission	4. When I communicate with my direct supervisor via synchronous video conferencing, it applies that I can easily comprehend when my superior is being friendly.
		5. When I communicate with my direct supervisor via synchronous video conferencing, it applies that I can easily comprehend when my superior appreciates my work.

		6. When I communicate with my direct supervisor via synchronous video conferencing, it applies that I can easily comprehend when my superior treats me respectfully.
		7. When I communicate with my direct supervisor via synchronous video conferencing, it applies that it aids in getting me motivated.
		8. When I communicate with my direct supervisor via synchronous video conferencing, it applies that my superior is able to inspire me with visions for our team or our organisation.
	**Reliability	9. When I communicate with my direct supervisor via synchronous video conferencing, it applies that my requests (e.g for meetings) are answered quickly.
		10. When I communicate with my direct supervisor via synchronous video conferencing, it applies that instructions or important information reaches me in time.
Telephone/audio-conferencing. (I.e. Zoom calls with camera off, audio-only calls.)	Communication Clarity	11. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that the working instructions are precise.
		12. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that the working instructions are understandable.
		13. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that the working instructions are comprehensible.
	Leadership Behaviour Transmission	14. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that I can easily comprehend when my superior is being friendly.

		15. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that I can easily comprehend when my superior appreciates my work.
		16. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that I can easily comprehend when my superior treats me respectfully.
		17. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that it aids in getting me motivated.
		18. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that my superior is able to inspire me with visions for our team or our organisation
	**Reliability	19. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that my requests (e.g for callbacks) are answered quickly.
		20. When I communicate with my direct supervisor via phone/audio-conferencing communications, it applies that instructions or important information reaches me in time.
Email	Communication Clarity	21. When I communicate with my direct supervisor via email, it applies that the emails of my superior contain precise working instructions.
		22. When I communicate with my direct supervisor via email, it applies that the emails of my superior contain understandable working instructions.
		23. When I communicate with my direct supervisor via email, it applies that the emails of my superior are formulated comprehensively.
	Leadership Behaviour Transmission	24. When I communicate with my direct supervisor via email, it applies that through email formulation I can easily comprehend when my superior is being friendly

		25. When I communicate with my direct supervisor via email, it applies that I can easily comprehend when my superior appreciates my work.
		26. When I communicate with my direct supervisor via email, it applies that I can easily comprehend when my superior treats me respectfully.
		27. When I communicate with my direct supervisor via email, it applies that it aids in getting me motivated.
		28. When I communicate with my direct supervisor via email, it applies that my superior is able to inspire me with visions for our team or our organisation.
	**Reliability	29. When I communicate with my direct supervisor via email, it applies that my requests are answered quickly.
		30. When I communicate with my direct supervisor via email, it applies that instructions or important information reaches me in time.
Intranet Instant Messaging (Internally tailored instant messaging platform used by your company). I.e. Microsoft Teams "chat" text.	Communication Clarity	31. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that the working instructions are precise.
		32. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that the working instructions are understandable.

		33. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that the working instructions are comprehensible.
	Leadership Behaviour Transmission	34. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that I can easily comprehend when my superior is being friendly.
		35. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that I can easily comprehend when my superior appreciates my work.
		36. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that I can easily comprehend when my superior treats me respectfully.
		37. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that it aids in getting me motivated.
		38. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that my superior is able to inspire me with visions for our team or our organisation.
	**Reliability	39. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that my requests (e.g for detail confirmations) are answered quickly.
		40. When I communicate with my direct supervisor via my company's intranet instant messaging communications, it applies that instructions or important information reach me in time.

Note. Communication Quality Scale (Bark et al., 2019). **Communication reliability is referred to as reliability in scale.

41. Finally, please select the following channel that you most prefer using to communicate with your direct supervisor:

Synchronous video conferencing channels	**Telephone/audio-conferencing channels**	**Emails**	**Intranet instant messaging platforms**
1	2	3	4

Appendix C: Descriptives

DEMOGRAPHIC INFORMATION (Please select the answer most applicable to you)	
Do you currently work remotely ?	Yes OR No
Present remote working status:	Work remotely part-time (in-office some days) OR Full-time remote working (for a period longer than a month)
Age bracket that you fall in:	18-24 OR 25-29 OR 30-40 OR 41-56 OR 57+
First Language:	English OR Afrikaans OR isiXhosa OR isiZulu OR Other
Industry Type:	• Science or Engineering Professional • Health (Medicine/ Psychology) Professional • Teaching `professional • Business, finance, or administration professional • Information and communications technology professional • Legal, social or cultural professional • Other
Job-level Ranking:	• Entry level • Intermediate or Experienced Level (higher than starting point position but not managerial level yet) • Junior (first-level) manager/supervisor • Middle-level management • Senior, Executive or Top-level management

Appendix D: Ethical Approval and Cover Letters

Ethical Approval Letter

Faculty of Commerce
Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za
@Commerce UCT **UCT Commerce Faculty Office**

08 07 2021

Casey Rautenbach

School of Management Studies

University of Cape Town

REF: REC 2021/07/005

Leader-employee interaction in the virtual workspace: The effect of leadership communication quality across work-related channels on remote employees' engagement levels.

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2022 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

2021.07.08
15:24:34 +02'00'

Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
Commerce Faculty Office
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375
Office Fax: +27 (0)21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Website: http://www.commerce.uct.ac.za/com/Ethics-in-Research

Cover Letter

Dear Participant,

This is an invitation to participate in a Master's research study which focuses on the quality of communication you have with your leaders across various electronic communication channels. I am specifically interested in how the quality of communication across these channels influences your level of engagement at work, and the impact this on your engagement. I **need only 8 to 10 minutes** of your time to **complete the survey. Your** participation could contribute to future research on the most effective electronic communication practices for remote workers in South Africa. Your participation ends once you complete the following survey. In advance thank you for taking the time to participate, it is greatly appreciated. If you are interested in participating, please read the following important points:

- This research has been **approved** by the **Commerce Faculty Ethics in Research Committee**.
- **To participate**, you **need to be a South African that is currently working remotely**: either **part-time/hybrid** (work in-office some days whilst work remotely on other days) or work remotely **full-time**.
- Participation is **voluntary** and you may withdraw at any point without consequence.
- Due to the aim of the study, you are asked to provide the researcher with some demographic information like your age and the nature of the work you do. No identifying information is requested. All **responses** will be **confidential** and will **only be used** for the purposes of **this research**. Any **published data** will be **anonymised.**

If you have any further queries regarding the study or would like to follow up on the findings, please contact the researcher and/or the researcher's supervisor using the details listed below.

Researcher: caseytayla@gmail.com

Researcher's Supervisor: suki.goodman@uct.ac.za

Appendix E: Factor Loadings and Preferences Descriptives

Table 3

Factor Loadings for the LCQV Scale After Final (Second) Round of PAF

Item	Factor Loadings	
	1	**2**
CLAR2	.91	
CLAR1	.85	
CLAR3	.73	
REL1	.43	
LEADER5		.9
LEADER4		.85
LEADER3		.54
LEADER2		.42
Eigenvalue	4.48	1.06
% of variance	55.94%	13.26%
% Cum. Variance: 69.19%		

Notes. Cum. Variance = Cumulative variance. Factor loadings under .3 were suppressed

Table 4

PAF Factor Loadings for the LCQE Scale

Item	Factor Loadings	
	1	**2**
LEADER4	.92	
LEADER1	.9	
LEADER2	.88	
LEADER5	.85	
LEADER3	.8	
REL2	.65	
REL1	.61	
CLAR1		.97
CLAR2		.88
CLAR3		.79
Eigenvalue	6.22	1.49
% of variance	62.19%	14.88%
% Cum. Variance: 77.07%		

Notes: Cum. Variance = Cumulative variance. Factor loadings under .3 were suppressed. Whilst not shown in Table 4 above, it should be noted that a deeper investigation of this bi-dimensional factor model revealed that a near emerging third factor had an eigen value of . 746. Following the third near emerging factor, an evident decrease in proceeding factors' eigen values (.39 and below). Thus, unlike the other insignificant factors (with eigen values < 1), the third factor was close to meeting Kaiser's (1960) criterion (> 1). If this criterion was

met, the addition of a distinct third factor would have reproduced Bark et al.'s (2019) proposed factor structure.

Table 5

PAF Factor Loadings for the LCQIIM Scale

Item	Factor Loadings	
	1	**2**
LEADER3	.97	
LEADER2	.85	
LEADER1	.83	
LEADER5	.83	
LEADER4	.81	
REL1		.77
REL2		.73
CLAR2		.69
CLAR3	.32	.65
CLAR1	.34	.58
Eigenvalue	6.64	1.14
% of variance	66.35%	11.44%
% Cum. Variance: 77.79%		

Notes: Cum. Variance = Cumulative variance. Factor loadings under .3 were suppressed

Table 8

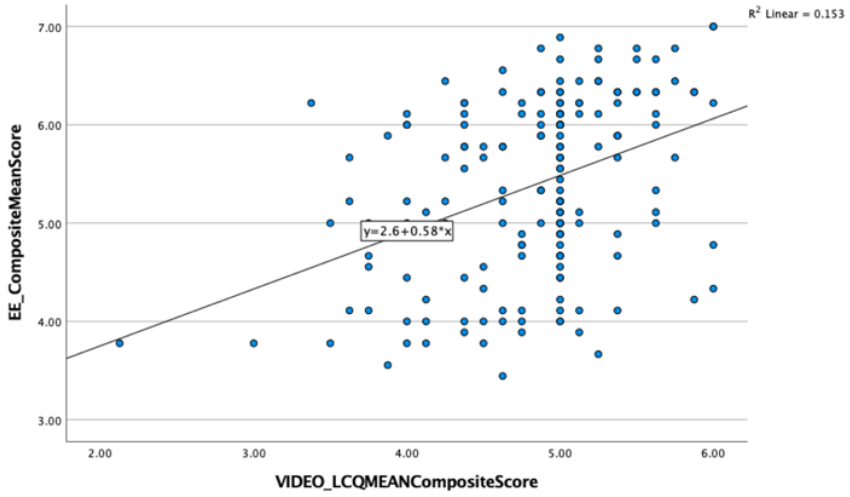
Descriptive Frequency Statistics of SA Remote Workers' Channel Preferences in the Employee-Leadership Communication Context

Channel	Frequency	Percentage
Video-conferencing Channel	64	35.8%
Telephone/Audio-conferencing Channel	37	20.7%
Email	54	30.2%
IIM	24	13.4%

Appendix F: Graphs and Figures Relating To Assumption Testing

Figure 2

Scatterplot Matrix Graph Indicating Linear Relationships Between LCQ of Video Conferencing Channels (IV) and Employee Engagement (DV)



Notes. IV = Independent variable. DV = Dependent Variable

Figure 3

Scatterplot Matrix Graph Indicating Linear Relationships Between LCQ of Audio Conferencing Channels (IV) and Employee Engagement (DV)

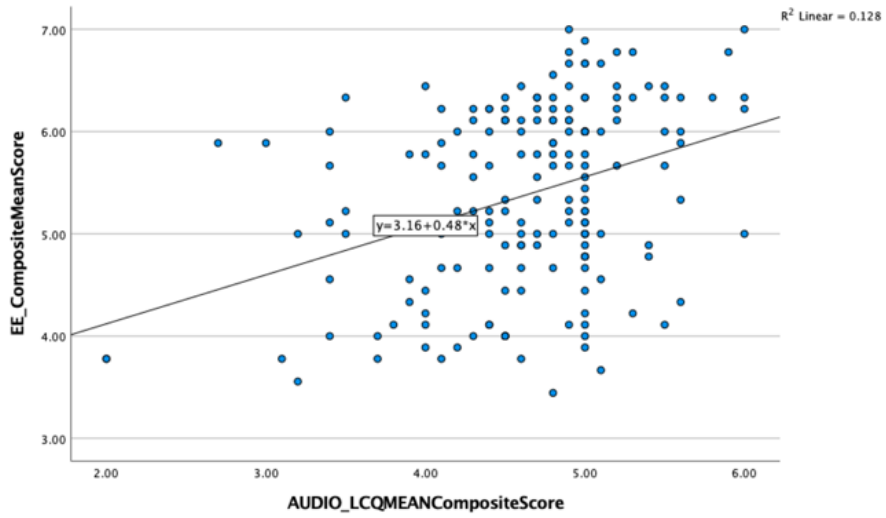


Figure 4

Scatterplot Matrix Graph Indicating Linear Relationships Between LCQ of Email (IV) and Employee Engagement (DV)

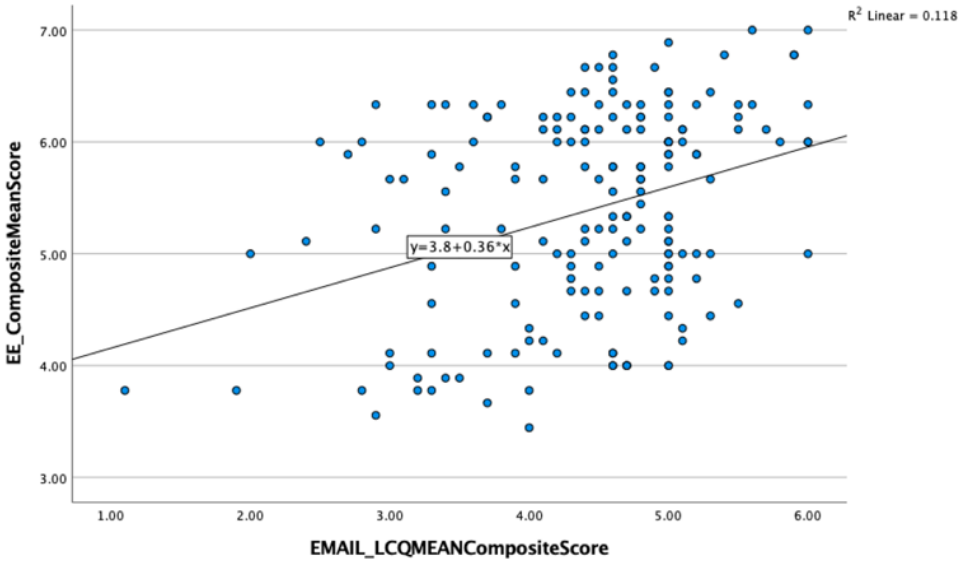


Figure 5

Scatterplot Matrix Graph Indicating Linear Relationships Between LCQ of Intranet Instant Messaging Platforms (IV) and Employee Engagement (DV)

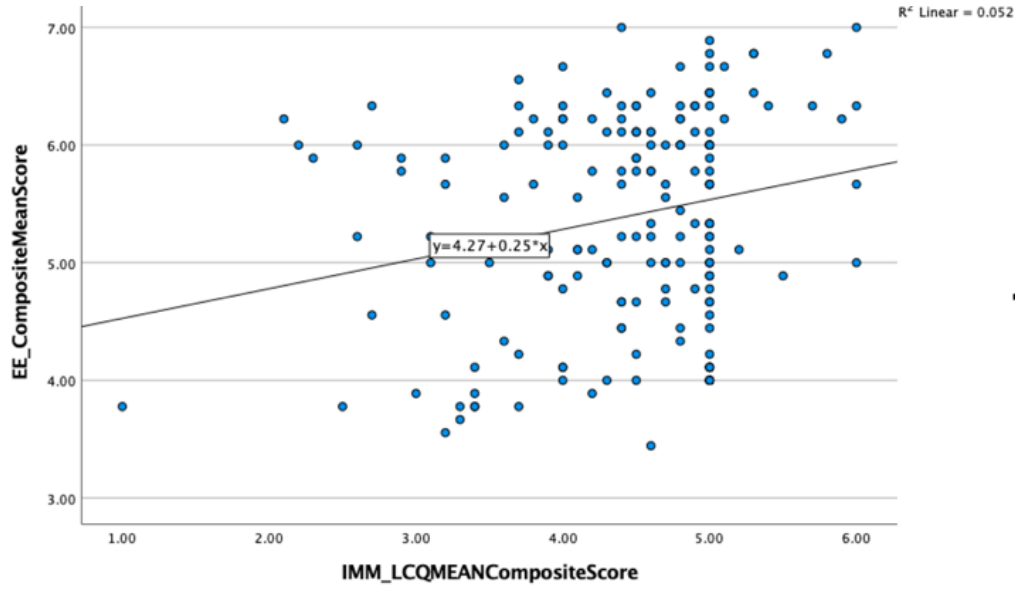


Figure 6

Scatterplot of Regression Standardised Predicted Values Against Standardised Residuals for LCQ of Video Conferencing Channels (IV) and Employee Engagement (DV)

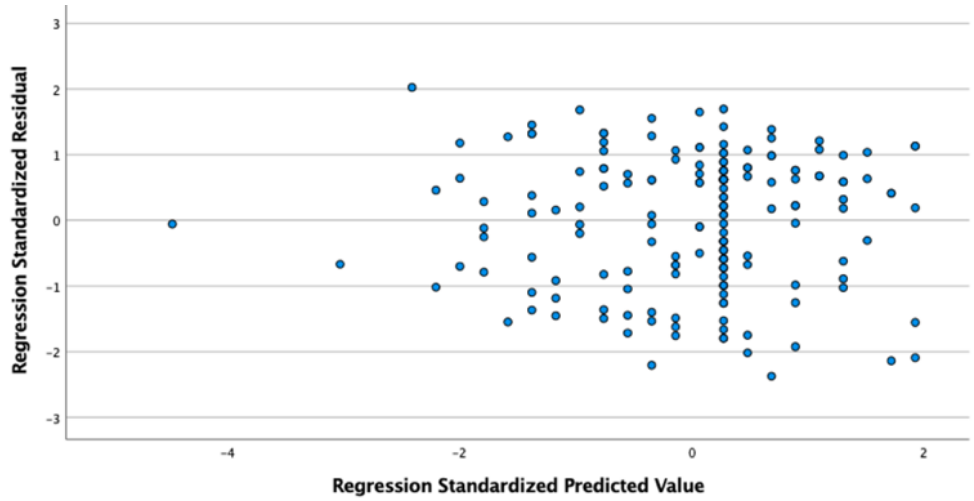


Figure 7

Scatterplot of Regression Standardised Predicted Values Against Standardised Residuals for LCQ of Audio Conferencing Channels (IV) and Employee Engagement (DV)

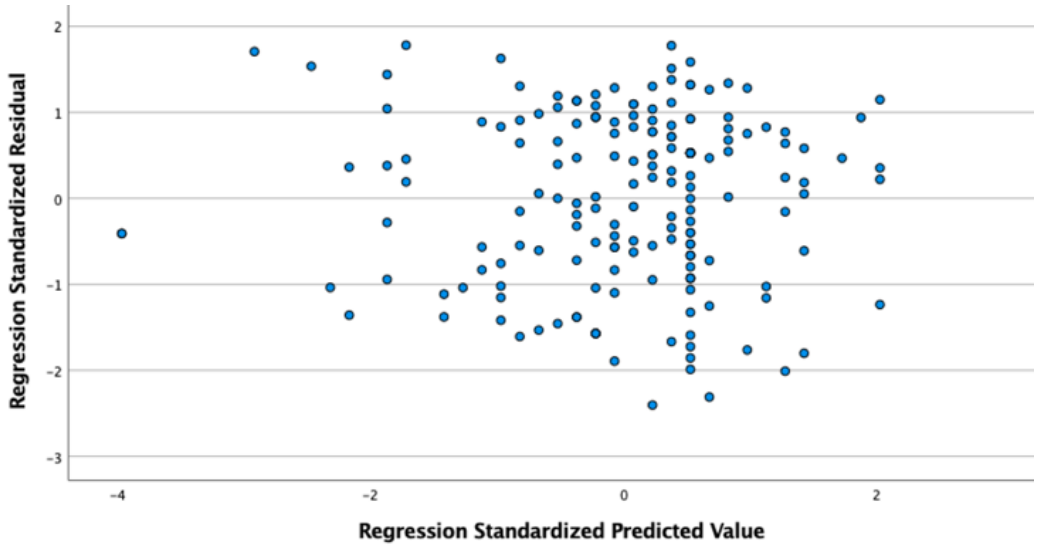


Figure 8

Scatterplot of Regression Standardised Predicted Values Against Standardised Residuals for LCQ of Email (IV) and Employee Engagement (DV)

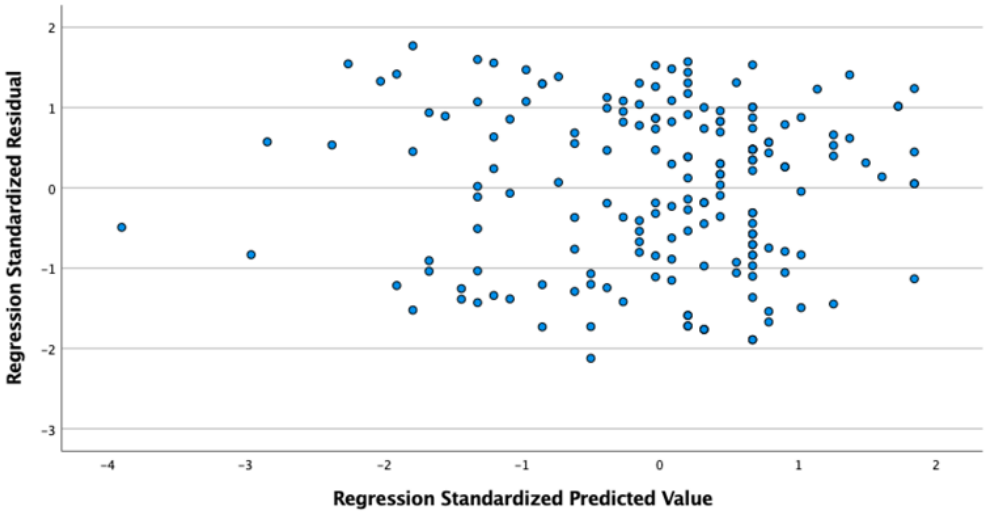


Figure 9

Scatterplot of Regression Standardised Predicted Values Against Standardised Residuals for LCQ of Intranet Instant Messaging Platforms (IV) and Employee Engagement (DV)

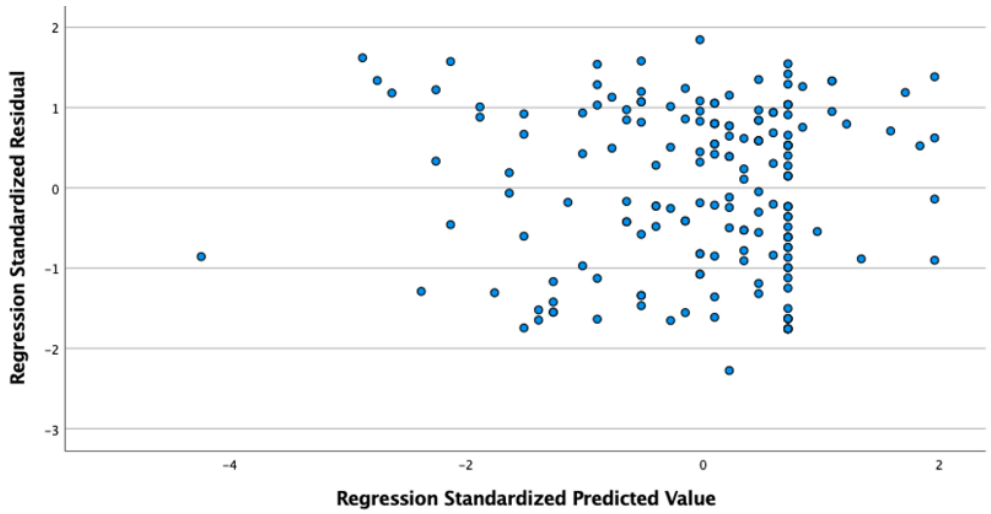


Figure 10

Scatterplot of Regression Standardised Predicted Values Against Standardised Residuals for LCQ of all Channels (IVs) Assessed and Employee Engagement (DV)

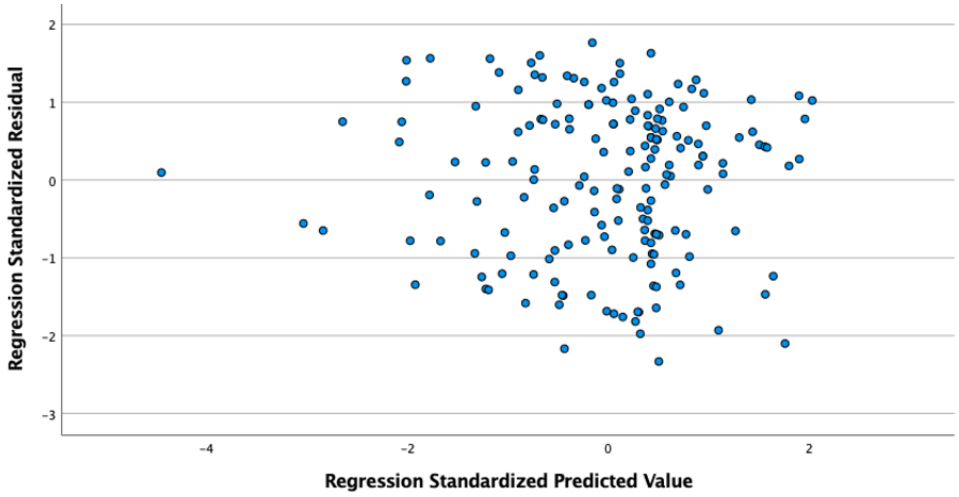


Figure 11

Normal Probability Plot (P-P) for LCQ of Video Conferencing Channels (IV) and Employee Engagement (DV)

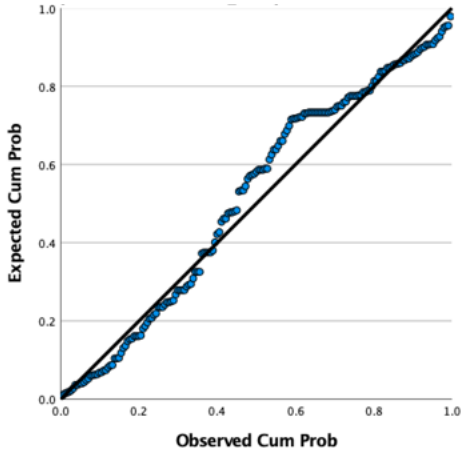


Figure 12

Histogram of the Standardised Residuals for LCQ of Video Conferencing Channels (IV) and Employee Engagement (DV)

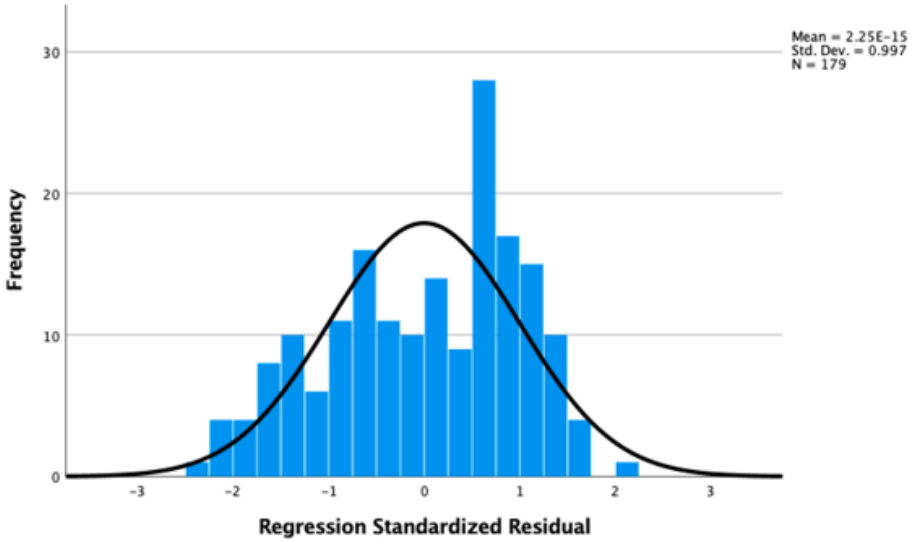


Figure 13

Normal Probability Plot (P-P) for LCQ of Audio Conferencing Channels (IV) and Employee Engagement (DV)

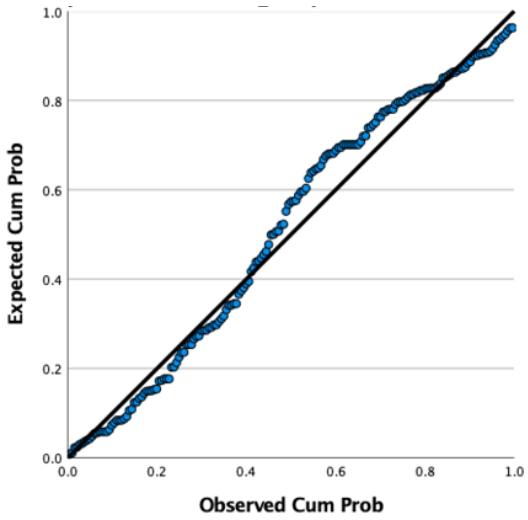


Figure 14

Histogram of the Standardised Residuals for LCQ of Audio Conferencing Channels (IV) and Employee Engagement (DV)

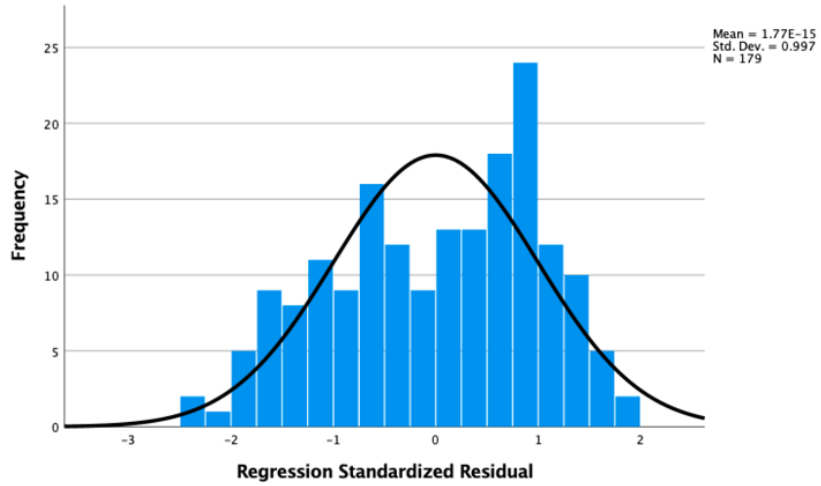


Figure 15

Normal Probability Plot (P-P) for LCQ of Email (IV) and Employee Engagement (DV)

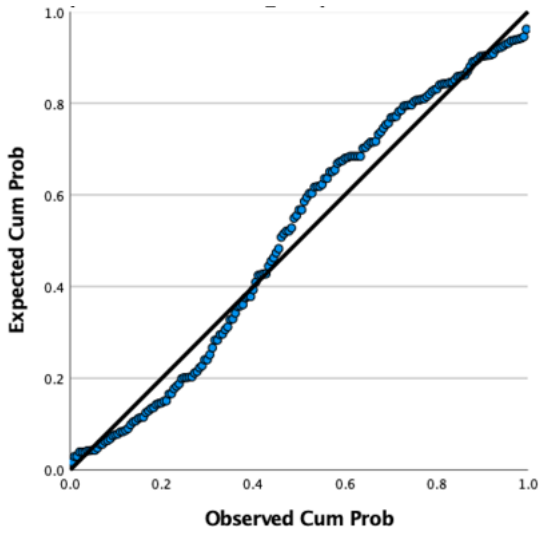


Figure 16

Histogram of the Standardised Residuals for LCQ of Email (IV) and Employee Engagement (DV)

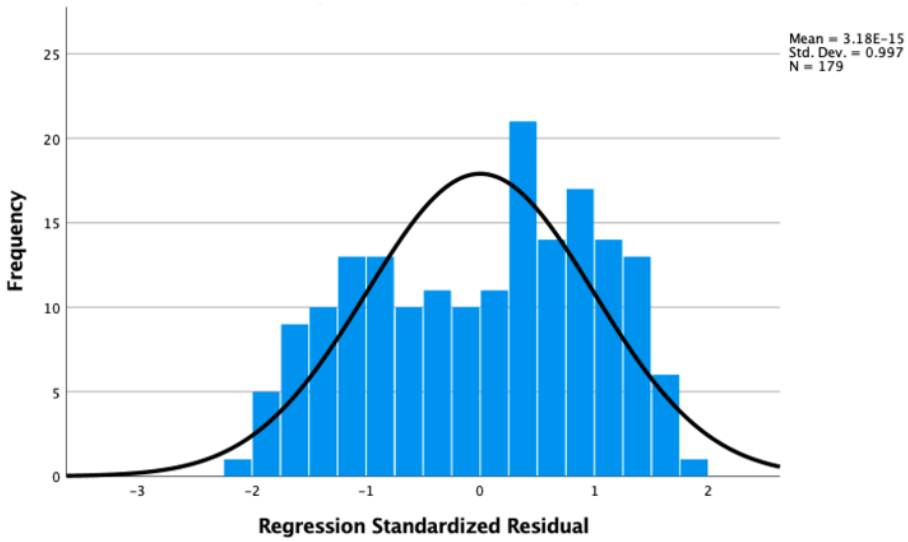


Figure 17

Normal Probability Plot (P-P) for LCQ of Intranet Instant Messaging Platforms (IV) and Employee Engagement (DV)

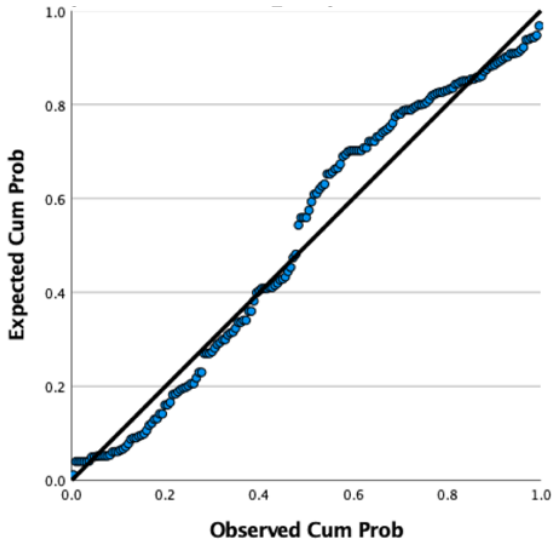


Figure 18

Histogram of the Standardised Residuals for LCQ of Intranet Instant Messaging Platforms (IV) and Employee Engagement (DV)

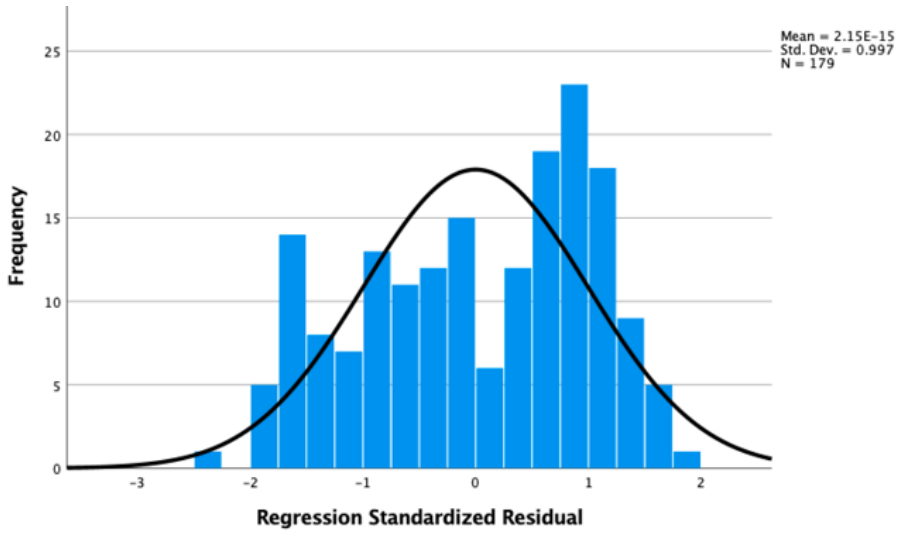
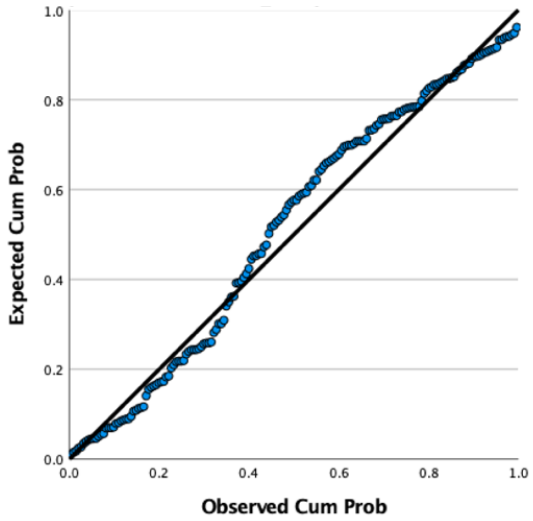


Figure 19

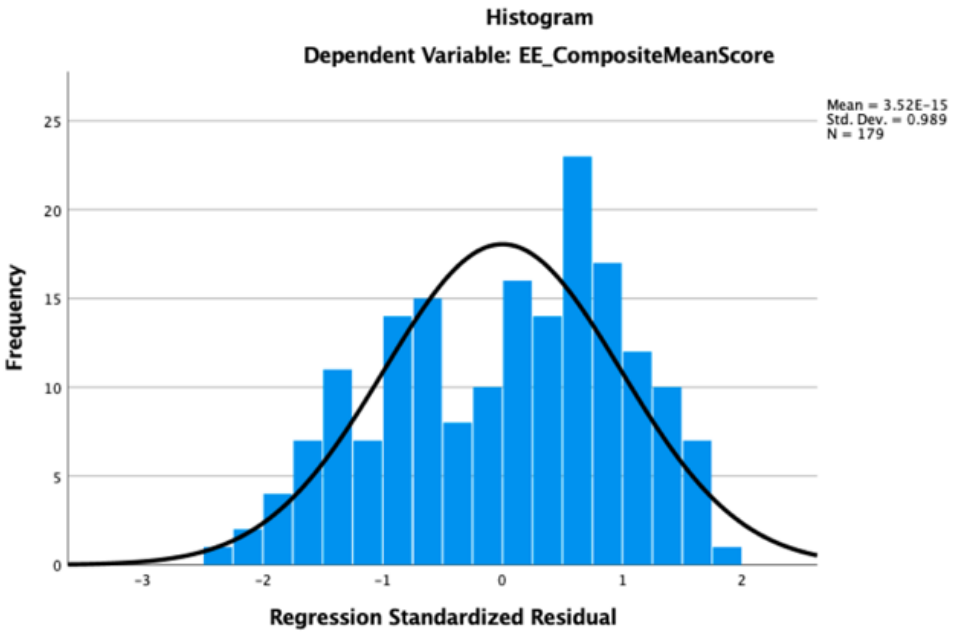
Normal Probability Plot (P-P) for Cumulative IVs and Employee Engagement (DV)



Notes. Cumulative IVs encompass the LCQ of Video-Conferencing, Audio-Conferencing, Email and Intranet Instant Messaging channels.

Figure 20

Histogram of the Standardised Residuals for Cumulative IVs and Employee Engagement (DV)



Notes. Cumulative IVs encompass the LCQ of Video-Conferencing, Audio-Conferencing, Email and Intranet Instant Messaging channels.

Appendix G: Tables and Figures Relating to ANOVA and Friedman Tests

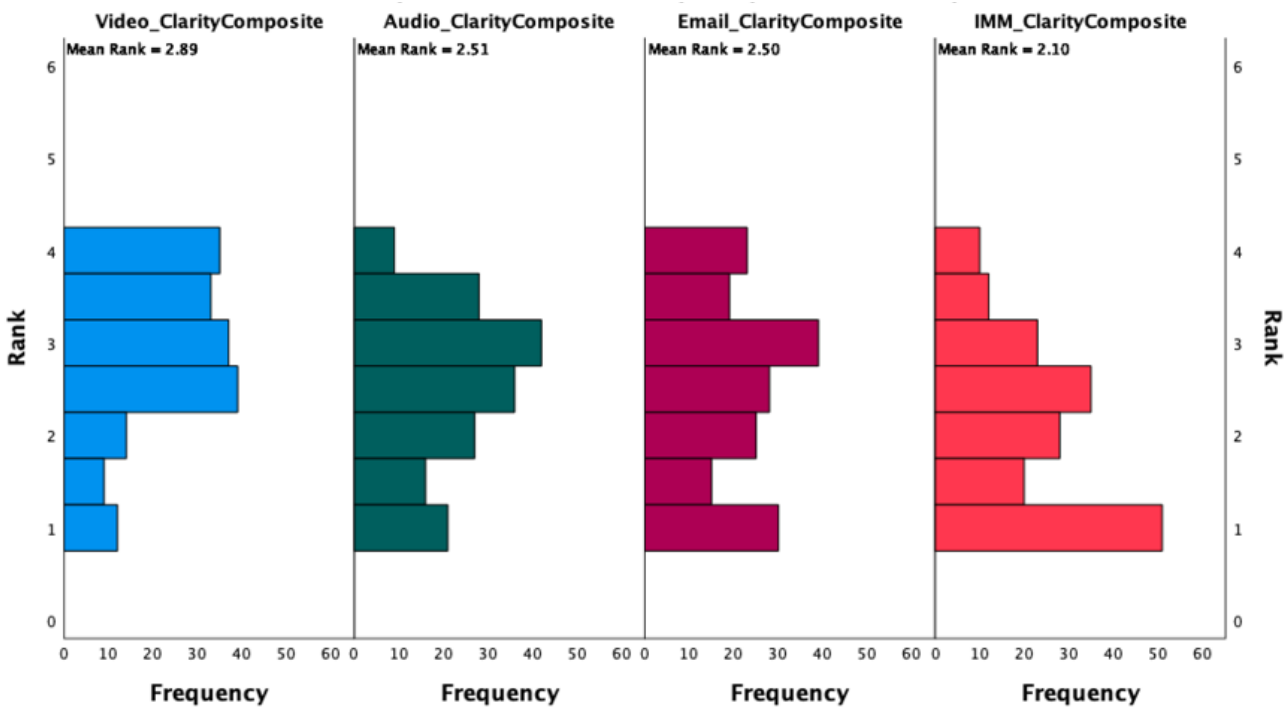
Table 10

Repeated One-way ANOVA (Within-Subjects Effects) Assessing an Age Interaction Effect on LCQ Ratings

	Correction	Sum of Squares	*df*	*M Square*	*F*	*F. Sig.*	*Mauch. W*	*Sig.*	*G.G*
LCQ	Huynh-Feldt	21.733	2.77	7.87	35.06	.000	.786	.000	.885
LCQ* Age	Huynh-Feldt	3.849	11.05	.35	1.55	.109	.786.	.000.	.885

Figure 21

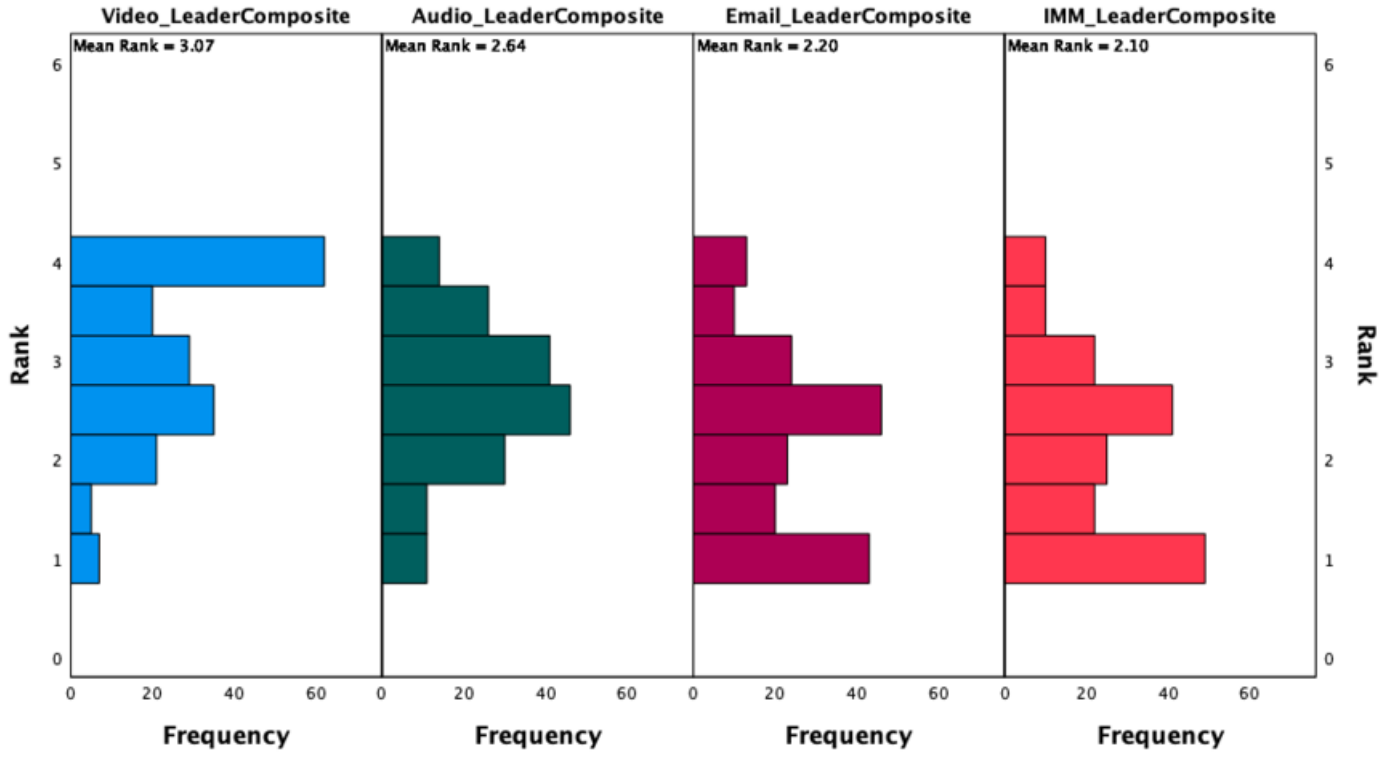
Friedman's Two-way Analysis of Variances by Ranks for Communication Clarity Across Channels



Notes. LCQ = Leadership Communication Quality

Figure 22

Friedman's Two-way Analysis of Variances by Ranks for Leadership Behaviour Transmission Across Channels



Notes. LCQ = Leadership Communication Quality