

Feeling Included in a Remote Working World: The Role of Leaders' Virtual Collaboration Behaviors

Group & Organization Management

2026, Vol. 0(0) 1–39

© The Author(s) 2026

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/10596011261420481

journals.sagepub.com/home/gom



Magdalena Schertler¹ , Tarek Carls¹ ,
Martina Hartner-Tiefenthaler² , and
Stephan A. Boehm¹ 

Abstract

This study focuses on contextual factors influencing employee inclusion at work by examining how remote work shapes employees' experiences of inclusion and highlighting the role of leader behaviors. Given the unique challenges remote work presents for both employees and leaders, we investigate its potential side effects on employee inclusion. Building on sociometer theory, we argue that remote settings hinder the successful signaling of inclusionary cues, thereby introducing a barrier to perceived inclusion (i.e., belongingness and authenticity) for employees. Furthermore, we examine leaders' virtual collaboration behaviors as a potential lever for mitigating adverse effects. Employing correlated random effects models, we test our hypotheses with 500 employees of a large German company who participated in four online surveys over the course of nine months. Our results

¹Institute for International Management and Diversity Management, University of St. Gallen, St. Gallen, Switzerland

²Institute for Management Science, TU Wien, Vienna, Austria

Corresponding Author:

Magdalena Schertler, Institute for International Management and Diversity Management, University of St. Gallen, Dufourstrasse 40a, St. Gallen 9000, Switzerland.

Email: magdalena.schertler@unisg.ch

show effects of remote work on belongingness but not authenticity. We observed a negative within-person main effect between remote work intensity and belongingness. However, leaders' virtual collaboration behaviors moderate this effect, and the negative relationship only persists when leaders display a low average level of such behaviors. These findings suggest that working more remotely is not necessarily associated with lower inclusion and that a separate examination of belongingness and authenticity is necessary to fully understand workplace inclusion. Our results have strong practical implications and highlight the importance of leaders in maintaining inclusion within teams, especially in remote work settings.

Keywords

inclusion, telecommuting, leader behavior, E-leadership, quantitative methods

Received: 30 November 2024; revised: 17 October 2025; accepted: 13 January 2026

Introduction

Ensuring that employees feel included in their work group is a challenge faced by many modern organizations, especially against the backdrop of an increasingly diverse society and, thus, a diverse workforce. While many arguments support hiring diverse employees (e.g., social justice, the war for talent; [Kwon & Jang, 2022](#)), research has shown that diversity brings not only advantages but also challenges (e.g., more conflict in teams and organizations; [Kunze et al., 2011](#); [Nishii, 2013](#)). Therefore, diversity must be managed to realize the full potential of a diverse workforce, specifically by ensuring that all individuals feel included at work ([Boehm & Dwertmann, 2015](#); [Nishii, 2013](#); [Shore et al., 2018](#)). Current calls for fostering employee inclusion are further supported by evidence that higher perceived inclusion is associated with a wide range of positive work-related outcomes, such as productivity, innovation, engagement, and job satisfaction ([Chen & Tang, 2018](#); [Chung et al., 2020](#); [Dwertmann & Boehm, 2016](#); [Findler et al., 2007](#); [Jansen et al., 2014, 2016](#); [Qi et al., 2019](#)).

While these existing studies suggest that high employee inclusion is important for the well-being of employees and their organizations alike (e.g., [Chen & Tang, 2018](#)), remote working arrangements can introduce new obstacles for employees to feel included (e.g., [Gajendran et al., 2024](#); [Gajendran & Harrison, 2007](#); [Georgiadou et al., 2024](#); [Scherltner et al., 2024](#)). Remote work was exceptionally prevalent during the COVID-19 pandemic and recent

data from the United States and Europe clearly show that the majority of white-collar employees still work remotely on a regular basis and wish to continue doing so (e.g., Ahrendt et al., 2025; Aksoy et al., 2025; Gallup, 2025; Kunze & Hampel, 2025), even though prominent return-to-office mandates suggest a different trend (e.g., Robinson, 2022; Wingard, 2024). Thus, remote work is no longer a short-term fashion but is becoming a long-term working arrangement in many organizations. Scholars now call for research on inclusive organizational behavior in remote work contexts (Georgiadou et al., 2024), including how leaders should adapt their behaviors to foster inclusion in these settings (Beijer et al., 2024).

The remote work context and its inherent reduced personal contact can pose significant challenges for employee inclusion (Lauring & Jonasson, 2023). We know from the inclusion literature (Jansen et al., 2014) that social cues, such as verbal and non-verbal signals, inform individuals of a group whether they belong to the group (i.e., belongingness) and whether they can show their authentic self (i.e., authenticity). These social cues help individuals assess their inclusionary status within the group. In remote work settings, such cues are less frequent and more ambiguous than in co-located environments (Fiol & O'Connor, 2005), which may hinder employees' experience of inclusion when working remotely. Indeed, studies have shown that high intensity of remote work is associated with lower organizational belongingness (Bartel et al., 2012; Vayre & Pignault, 2014), lower relationship quality with co-workers (Gajendran & Harrison, 2007), and increased feelings of isolation and loneliness (Bartel et al., 2012; Bollestad et al., 2022; Gajendran et al., 2024; Mann & Holdsworth, 2003). These findings highlight the difficulty of maintaining strong workplace relationships in remote settings. In line with this, a recent longitudinal study found that employees who increased their amount of remote work reported lower levels of workplace inclusion six months later (Schertler et al., 2024).

Despite these challenges that working remotely can pose for employee inclusion, they might not be absolute. Rather, other factors, such as the behavior of the leader, have the potential to ensure inclusion even in remote work settings. Leader behavior has been recognized a key antecedent of workplace inclusion in general (Ashikali et al., 2021; Nishii & Leroy, 2022; Randel, 2023; Randel et al., 2016; Roberson & Perry, 2022; Shore & Chung, 2022) and is especially relevant in remote work settings where leaders are responsible for fostering inclusion among their locally dispersed employees (Byrd, 2022). At the same time, remote work introduces new challenges for leaders (Bell et al., 2023; Byrd, 2022; Henke et al., 2022; Liao, 2017; Tonidandel et al., 2022), requiring them to adapt their collaboration behaviors to virtual settings, for example, by adjusting how they communicate with

employees (Beijer et al., 2024; Nyberg et al., 2021). As such, the extent to which leaders demonstrate appropriate virtual collaboration behaviors can impact how included their employees feel and may act as a buffer of adverse remote work effects.

In this study, we investigate the role of virtual leader behavior for employee inclusion in a remote work setting. Although the critical role of leaders is well established in inclusion literature (e.g., Nishii & Leroy, 2022; Randel, 2023; Roberson & Perry, 2022; Shore & Chung, 2022), it is somewhat overlooked in the remote work literature. Given the high prevalence of remote work, it is essential to understand how leaders contribute to employee inclusion in this specific context. By focusing on virtual collaboration behavior, we examine a specific type of leader behavior that is particularly pertinent to remote work settings. Thereby, we contribute to a better understanding of how leaders can foster inclusion in this specific context, going beyond existing approaches to inclusive leadership. Furthermore, we measure leader behavior that can be directly observed by employees instead of relying on assessments of broader leadership styles, which have recently been criticized for confounding leadership with value judgements (Fischer et al., 2024). Building on Jansen and colleagues' (2014) conceptualization of inclusion, we distinguish between belongingness and authenticity and explore potential differences in how leaders' virtual collaboration behaviors relate to the two inclusion dimensions. Thus, our study is relevant not only from a theoretical perspective but also in practice, as it identifies potential challenges and opportunities for leadership development programs aiming to promote inclusive workplaces in the modern working world.

To conclude, our study offers multiple valuable contributions. First, we examine how modern work settings impact employee inclusion, a perspective that has been neglected in the inclusion field thus far even though remote work and virtuality have the potential to pose significant challenges for employee inclusion (Georgiadou et al., 2024; Luring & Jonasson, 2023; Schertler et al., 2024; Villamor et al., 2023). Second, we shed light on the leadership-inclusion relationship in this context, by investigating a specific type of leader behavior that is particularly pertinent to remote work settings rather than a broad leadership style. Third, we apply a nuanced inclusion concept by differentiating the two inclusion dimensions (belongingness and authenticity) and examining how their relationships with remote work and the role of leaders for these dimensions differ. Finally, our study responds to recent calls for methodological advances in this field by (1) separating between- from within-person effects in a large, longitudinal field sample (see Schertler et al., 2024) and (2) measuring remote work as a continuous intensity rather than a binary variable (see Gajendran et al., 2024).

Theoretical Background

Employee Inclusion and Sociometer Theory

Following [Jansen and colleagues' \(2014\)](#) conceptualization of inclusion, we argue that perceived inclusion depends on a group's willingness to include an individual rather than on the individual's self-identification with a group. The foundation for understanding inclusion as something granted by the group lies in sociometer theory ([Leary & Baumeister, 2000](#)), which assumes that employees continuously assess "the degree to which other people regard their relationships with the individual to be valuable, important, or close" ([Leary & Baumeister, 2000](#), p. 9). From an evolutionary viewpoint, social relationships are of high value for an individual's survival, possibly prompting the development of self-esteem as a sociometer in humans, enabling them to maintain the necessary degree of social inclusion.

To understand the value others place on their relationship with an individual, people need to constantly and automatically monitor their environment for social cues that provide information about their inclusionary status ([Leary & Baumeister, 2000](#)). Sociometer theory has received attention in the organizational behavior literature, mainly for examining the link between adverse workplace behavior, employee self-esteem, and performance outcomes (see [Perinelli et al., 2022](#), for a review). These studies have shown, for example, that a lack of belongingness resulting from adverse workplace behavior is associated with reduced employee performance ([Schilpzand & Huang, 2018](#)).

In their original work, [Leary and Baumeister \(2000\)](#) viewed social inclusion primarily from a belongingness perspective. More recently, [Howell et al. \(2019\)](#) proposed that sociometer theory applies not only to belongingness but also extends to other psychological needs, such as the need for autonomy. While this theoretical extension still awaits empirical testing, it aligns with the work of [Jansen et al. \(2014\)](#), who conceptualize inclusion as a two-dimensional construct: to experience inclusion in a group, individuals must simultaneously feel that they belong to the group (i.e., belongingness) and that they can show their authentic selves (i.e., authenticity). These two aspects represent separate but related dimensions of inclusion, both of which must be fulfilled for individuals to feel included ([Jansen et al., 2014](#)).

This notion aligns with other conceptualizations of inclusion that emphasize its two-dimensional nature, incorporating belongingness and the value in uniqueness as necessary components for individuals to experience inclusion ([Shore et al., 2011](#)). Furthermore, the concept of inclusion can be applied to the workplace, with employee inclusion referring to the extent to which an

employee feels included by their work group or team (e.g., Jansen et al., 2016, 2017; Martinescu et al., 2021; for reviews, see Randel, 2023; Rezai et al., 2020).

Prior studies using this conceptualization of inclusion offer substantial evidence of its beneficial relationship with key work outcomes. They have shown that employees who feel more included report greater job satisfaction (Jansen et al., 2014, 2016), experience more trust and positive mood (Jansen et al., 2014), engage in more organizational citizenship behavior (Martinescu et al., 2021), and are less frequently absent from work (Jansen et al., 2017). While both belongingness and authenticity are associated with such positive outcomes, they also explain distinct parts of the variance, as Jansen et al. (2014) demonstrated in relation to trust, mood, and job satisfaction. Rengers et al. (2019) further showed how minority employees can differ from the majority group in their experiences of belongingness and authenticity. In interviews with lesbian and gay employees, they found that despite high levels of belongingness, some individuals felt that authentic expression was not perceived as valued in the workplace.

Following this two-dimensional approach to inclusion (Jansen et al., 2014), we aim to understand how remote work settings might influence whether employees feel they belong in their team and whether they can show their authentic selves.

Inclusion in Remote Work Settings

Even though working conditions have changed drastically over the past decades, research on the consequences of contextual workplace factors on employee inclusion is still scarce. However, whether employees feel included might change with the context they work in such as the extent of remote work and virtuality they experience (Lauring & Jonasson, 2023). A recent longitudinal study showed that employees who had increased their amount of remote work felt less included six months later (Schertler et al., 2024). Notably, this negative effect was shown for both dimensions of inclusion, that is, belongingness and authenticity and is likely due to reduced opportunities for informal exchange and face-to-face communication (Schertler et al., 2024), which is limited in remote work settings (Jämsen et al., 2022; Mann & Holdsworth, 2003; Morrison-Smith & Ruiz, 2020; Vayre & Pignault, 2014), especially when employees work remotely intensively (Gajendran & Harrison, 2007). Thus, the increased social distance, more formal communication, and less opportunities for spontaneous interactions that come with virtual collaboration can hinder employees in feeling included within their work group (Lauring & Jonasson, 2023).

From a methodological perspective, [Schertler et al. \(2024\)](#) further showed the potential pitfalls of neglecting between-person differences specific to this research context. Their results uncovered a case of Simpson's paradox ([Kievit et al., 2013](#); [Simpson, 1951](#)) in the relationship between remote work and inclusion, showing a positive correlation at the between-person level but a negative within-person effect. Importantly, the positive relationship at the between-person level cannot be interpreted causally but potentially stems from differences between individuals that need to be controlled for to obtain unbiased results ([Brzykcy et al., 2024](#); [Hamaker et al., 2015](#)). In the context of remote work and inclusion, multiple between-person differences have the potential to introduce bias into the analysis. For example, a positive workplace culture can simultaneously increase the extent to which employees can work remotely and their perceived inclusion, leading to a positive between-person correlation that does not necessarily correspond to the underlying, causal mechanism between remote work and inclusion ([Schertler et al., 2024](#)). Not only contextual differences are relevant, but individual differences in personality or demographic characteristics (e.g., age) can also lead to such confounding effects that need to be controlled for ([Schertler et al., 2024](#)). Thus, our analytical approach follows the suggestions put forward by previous studies (e.g., [Brzykcy et al., 2024](#); [Schertler et al., 2024](#)) and specifically differentiates between-from within-person variance, leading to within-person effects that reflect how intrapersonal fluctuations in remote work intensity from a personal average are related to an employee's perceived inclusion.

Even though virtual communication tools are widely available and used in today's workplace, effective communication is still a major challenge within remote work settings (e.g., [Alsharo et al., 2017](#); [Connelly & Turel, 2016](#); [Henke et al., 2022](#); [Maurer et al., 2022](#); [Morrison-Smith & Ruiz, 2020](#)). Specifically, virtual communication media typically have lower media richness than face-to-face communication. Media richness, as defined by media richness theory ([Daft & Lengel, 1986](#)), consists of the following elements: (1) the possibility of direct feedback; (2) the number of transmitted cues; (3) the level of personalization; and (4) the variety in language use. Different means of communication vary greatly in their richness. In face-to-face conversations, which is typically seen as the richest form, a wide range of cues is available, including verbal and non-verbal signals from one's communication partner, allowing personalized, natural language and immediate feedback ([Daft & Lengel, 1986](#); [Ishii et al., 2019](#)). In online settings, richness varies widely ([Daft & Lengel, 1986](#); [Ishii et al., 2019](#)), as communication media are used differently by employees, ranging from written communication to video calls that also allow for non-verbal cues.

Nevertheless, even richer forms of online communication have limitations, such as the camera frame usually capturing only the upper body, the restriction of one speaker at a time, slight transmission delays, and the absence of other cues such as interpersonal distance or physical contact that are available in face-to-face meetings. Thus, while employees can now easily communicate virtually when working remotely, interactions tend to be richer in social cues and less ambiguous in face-to-face settings.

Importantly, not all tasks rely on rich communication, but the richness of the communication medium should fit the task at hand (e.g., [Bell & Kozlowski, 2002](#); [Daft & Lengel, 1986](#); [Ishii et al., 2019](#); [Kahai & Cooper, 2003](#)). Since individuals depend on social cues to assess their inclusionary status, as suggested by sociometer theory, rich communication media are needed to transmit the cues required to experience inclusion. Media richness theory also suggests that rich communication is better suited for tasks with a high level of equivocality ([Daft & Lengel, 1986](#); [Ishii et al., 2019](#)). Given that social cues are often ambiguous and prone to misinterpretation ([Davis et al., 2016](#); [Restrepo et al., 2024](#)), assessing inclusion can be seen as a highly equivocal task that requires rich communication to be achieved successfully. As a result, virtual communication may pose a barrier to inclusion in remote work settings.

Taking authenticity as an example, an employee might relate a personal story from the weekend in a team meeting, using co-workers' reactions to assess whether the group values their authentic expression. In face-to-face settings, these reactions could include friendly facial expressions and verbal cues showing interest in the story, encouraging the individual to continue sharing these personal aspects. While the employee could tell the same personal story in a virtual meeting, other team members have only limited ways to express their appreciation of the authenticity shown by their coworker. For example, only one person can speak at a time, reducing the chances for spontaneous verbal encouragement. Even if cameras are on, the camera frame limits visible non-verbal cues, and some signals, such as physical distance, cannot be conveyed at all. This makes it harder for the individual to evaluate whether co-workers value their authenticity. As such, the same situation can feel very different online compared to face-to-face. In particular, lean media that lack non-verbal cues (e.g., email or phone calls/virtual call without video) might prevent individuals from picking up the encouraging cues that affirm their inclusion in the group.

Supporting this view, research with students has shown that richer communication media are more likely to foster feelings of inclusion. For example, [Fleischmann et al. \(2019\)](#) found a positive relationship between time spent in online conferencing and perceived inclusion among students working in

virtual teams. Similarly, [Sacco and Ismail \(2014\)](#) demonstrated in a laboratory setting that face-to-face interactions satisfied students' basic social needs, including belongingness, more than instant messaging.

To conclude, because (1) experiencing inclusion relies on social cues (e.g., verbal and non-verbal feedback from colleagues) and (2) even relatively rich virtual communication is constrained (e.g., no direct eye gaze, only one speaker at a time), making it harder to convey such social cues, working more remotely than usual reduces the availability and clarity of inclusionary signals for a given employee. Accordingly, when an employee's remote-work intensity exceeds their own typical level, their perceived inclusion should decline. This leads us to following hypothesis:

H1: Remote work intensity has a negative within-person effect on inclusion. When employees' remote work intensity is above their personal average, they perceive (a) less belongingness and (b) less authenticity.

Leaders' Role for Inclusion in Remote Work Settings

There is unequivocal evidence in the literature that leaders shape how employees experience inclusion (e.g., [Buengeler et al., 2018](#); [Nishii & Leroy, 2022](#); [Randel, 2023](#)), leading to the introduction of inclusive leadership as a leadership concept ([Shore & Chung, 2022](#); [Veli Korkmaz et al., 2022](#)). Similar to other leadership styles (e.g., authentic and ethical leadership), inclusive leadership is a value-based, broad concept that can pose challenges for a valid assessment in scientific studies. [Fischer et al. \(2024\)](#) showed that such positive leadership styles conflate value-based judgment with actual leader behavior, which undermines their validity for research endeavors. To avoid this pitfall, the present study focusses on a specific type of leader behavior, virtual collaboration behavior, that (1) is pertinent to inclusion in remote work settings, and (2) can be more directly observed by employees. Another challenge for the adequate assessment of leader behavior is that employee characteristics such as gender, personality, and preferences for specific leadership styles can influence employees' assessment of their leader (e.g., [Brandt & Laiho, 2013](#); [Koch et al., 2015](#); [Martinko et al., 2011](#)). This serves as further motivation for our analytical approach that controls for these confounding factors by differentiating between-from within-person effects.

The shift to remote work poses new challenges for leaders ([Henke et al., 2022](#); [Liao, 2017](#); [Tonidandel et al., 2022](#)) and might make it more difficult for them to ensure that followers feel included. To address these challenges, leaders need to adapt their behaviors to the virtual context and support their followers in using technology effectively ([Beijer et al., 2024](#); [Bell et al., 2023](#)).

For example, [Nyberg et al. \(2021\)](#) identified the need for continuous and repeated communication as an important factor in maintaining high-quality communication in remote work. In line with this, [Gajendran and Joshi \(2011\)](#) reported that employees in virtual teams felt more included in decision-making and identified more with their workgroup when they communicated with their leader more frequently. Not only the frequency of communication, but also the way the leader communicates is relevant. Leaders need to adapt their communication behaviors to the remote work context by “establishing the technology infrastructure; setting and reinforcing norms to promote appropriate and consistent use of technology tools; and adapting followers’ use of technology, as needed, over time” ([Bell et al., 2023](#), p. 345). They can practice such behavior by effectively using technology for virtual communication themselves and engaging virtually in a responsive and supportive manner, for example by providing necessary information and giving feedback ([Hill & Bartol, 2016](#)). Given that leaders can shape how team members interact, we expect these behaviors to mitigate adverse effects of remote work by facilitating the signaling of inclusionary cues, even when employees work remotely.

The importance of relationship-oriented aspects of leadership in virtual settings (e.g., [Dulebohn & Hoch, 2017](#); [Liao, 2017](#); [Marlow et al., 2017](#)) calls for leaders to be aware of both the limitations and the advantages of communication media to ensure successful interactions with their followers. For example, [Liao \(2017\)](#) proposed in a conceptual paper on leadership in virtual teams that leaders can support trust in virtual or hybrid teams by introducing rich media for virtual collaboration and arranging face-to-face meetings on a regular basis. Furthermore, interviews conducted by [Beijer et al. \(2024\)](#) highlight that leaders need to engage in new techniques and technologies to practice inclusive leadership in remote settings. Essentially, the leader acts as a facilitator and role model who ensures the appropriate use of communication tools within the team ([Beijer et al., 2024](#); [Bell et al., 2023](#); [Daft et al., 1987](#); [Henke et al., 2022](#); [Liao, 2017](#)).

Following sociometer theory, leaders are therefore expected to create (virtual) environments that support the assessment of an individual’s inclusionary status, as social cues are comparatively reduced in online communication compared to face-to-face interaction. For example, a leader could demonstrate virtual collaboration behaviors by encouraging the use of contextual cues in meetings. Referring back to the personal story a team member shares in a meeting, the leader might introduce a rule that everyone must switch on their camera or encourage the use of reactions provided by the communication tool (e.g., thumbs-up) to allow for more inclusionary cues to be signaled, thereby alleviating the limitations of remote settings. Thus, we

expect that leaders' virtual collaboration behaviors buffer the negative relationship between remote work and inclusion, leading to the following hypothesis:

H2: Leaders' virtual collaboration behavior moderates the negative within-person relationship between remote work and inclusion. When leaders show more virtual collaboration behavior, their employees show no negative within-person relationship between remote work and (a) belongingness as well as (b) authenticity.

Methods

Sample and Procedure

In total, 500 white-collar employees of a large German manufacturing company were surveyed four times over a period of nine months as part of a larger research project. Germany is an ideal setting for this study, as it represents one of the largest economies globally, with a high share of employees who work remotely on a regular basis (Ahrendt et al., 2025; International Monetary Fund, 2025). Throughout the data collection period, a long-established, company-wide policy was in place granting white-collar employees (i.e., employees for who remote work is generally possible) a large degree of autonomy regarding the extent and intensity of their remote work. All employees who participated in the study were eligible for remote work (most participants worked between 70% and 80% remotely).

Employees were invited to the study via the company's intranet and participated on a voluntary basis. The survey was completed as part of regular work duties during normal working hours, and participants were not additionally compensated for their participation. The survey was administered by an external IT service provider not affiliated with the company, and data handling was performed by a third-party trustee in accordance with data protection regulations.

The study was presented to the responsible ethics committee and was found to be exempt from formal review and approval. Participants received detailed information about the study before giving their informed consent to continue. The survey contained the same set of questions at each of the four time points. Furthermore, participants were asked whether they held a leadership position themselves, and only employees without leadership responsibilities were retained in the sample.

Repeated measurements were necessary to test the hypotheses using correlated random effects (CRE) models (see *Analytical Strategy*). Therefore,

employees who opted in to participate in this study were invited to answer an online survey four times over the course of nine months. The time interval between surveys was consistently three months. A three-month interval was chosen to allow meaningful changes in the study variables to occur since our analytical strategy relies on intrapersonal fluctuations.

The initial sample comprised 577 employees without leadership responsibility who completed at least one survey. Only participants with at least two repeated measurements were retained, resulting in the exclusion of 77 employees who failed to provide two measurements of all relevant variables. Consequently, the final sample comprised 500 participants, of whom 328 (65.6%) identified as male and 172 (34.4%) as female. A total of 493 participants responded to the first survey, 458 to the second, 380 to the third, and 336 to the fourth. The mean age was 41.20 years ($SD = 9.07$), and the average organizational tenure was 13.81 years ($SD = 9.07$). These statistics are based on the first available measurement per participant. For sample statistics by measurement time see [Appendix A](#), and for results of an attrition analysis, see [Appendix B](#).

The employees in the final sample included 477 German citizens (95%), 20 individuals with citizenship from another EU country (4%), and 3 individuals with non-EU citizenship (1%).

Measures

Remote Work. The intensity of remote work was measured following [Schertler et al. \(2024\)](#) by asking participants to indicate their share of remote work using the following question: “*What percentage of an average working week in the last four weeks did you work remotely during normal working hours (e.g., at home, on the road, etc.)?*” Participants responded using a percentage scale ranging from 0 to 100. Decomposition of between- and within-person variance showed sufficient within-person variation of remote work over time (between-person variance: $ICC1 = 80.22\%$; within-person variance: $1-ICC1 = 19.78\%$, $SD_{within-person} = 11.48$).

Leader Virtual Collaboration Behaviors. Seven items based on [Hill and Bartol \(2016\)](#) were used to assess leaders’ virtual collaboration behaviors as perceived by employees. A German version of the items was obtained through a forward-backward translation process (see [Schaffer & Riordan, 2003](#)). Since the original scale was designed to measure virtual collaboration in general, the item wording was adapted to refer specifically to their formal leader. For example, the original item “*Uses technology effectively to communicate virtually with team members*” ([Hill & Bartol, 2016](#), p. 198) was modified to

“My direct supervisor uses technology effectively to communicate virtually with team members.” Responses were recorded on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The scale showed high internal consistency across all four measurement points ($\alpha T1 = .90$, $\alpha T2 = .90$, $\alpha T3 = .92$, $\alpha T4 = .93$). Please refer to the [Appendix C](#) for the results from the exploratory factor analysis (EFA) conducted for this scale. Leader virtual collaboration behavior showed sufficient within-person variation over time (between-person variance: $ICC1 = 69.83\%$; within-person variance: $1-ICC1 = 30.17\%$, $SD_{within-person} = 0.35$).

Belongingness. Four items from the belongingness subscale of the Perceived Group Inclusion Scale by [Jansen et al. \(2014\)](#) were used to assess employees’ perceived belongingness at work. These items measure the extent to which employees feel that their team signals they are part of the group. Responses were provided on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). An example item is *“My team gives me the feeling that I am part of this team.”* The scale demonstrated high internal consistency at all four measurement points ($\alpha T1 = .90$, $\alpha T2 = .90$, $\alpha T3 = .92$, $\alpha T4 = .92$). A significant share of variance of belongingness was found to be on the within-person level, aligning with our within-person focused analytical approach (between-person variance: $ICC1 = 65.74\%$; within-person variance: $1-ICC1 = 34.26\%$, $SD_{within-person} = 0.40$).

Authenticity. Four items from the authenticity subscale of the Perceived Group Inclusion Scale ([Jansen et al., 2014](#)) were used to measure employees’ perceived opportunity for authenticity at work. These items capture the degree to which employees feel their team allows and encourages their authentic expression. Responses were collected on a five-point Likert scale from 1 (“strongly disagree”) to 5 (“strongly agree”). An example item is *“My team allows me to be authentic.”* The scale showed high internal consistency across all four measurement points ($\alpha T1 = .89$, $\alpha T2 = .90$, $\alpha T3 = .90$, $\alpha T4 = .91$). For authenticity, a significant share of variance was found to be on the within-person level (between-person variance: $ICC1 = 60.88\%$; within-person variance: $1-ICC1 = 39.12\%$, $SD_{within-person} = 0.45$).

Analytical Strategy

Prior to conducting the main analysis, we evaluated the longitudinal measurement model for leader virtual collaboration behavior (seven items), belongingness (four items), and authenticity (four items) across the four measurement points using confirmatory factor analysis (CFA). The single item

measure for remote work was treated as observed and thus not included. CFA was conducted in R with lavaan (version 0.6-19), utilizing robust maximum likelihood estimation. The results of the CFA showed adequate model fit ($CFI = 0.91$, $TLI = 0.90$, $RMSEA = 0.05$, $SRMR = 0.08$), supporting our chosen measurement model. Constraining factor loadings ($CFI = 0.91$, $TLI = 0.90$, $RMSEA = 0.05$, $SRMR = 0.08$) and intercepts ($CFI = 0.91$, $TLI = 0.90$, $RMSEA = 0.05$, $SRMR = 0.08$) over time lead to minimal changes in model fit, indicating scalar measurement invariance over time.

The longitudinal structure of the data allowed for an advanced statistical approach, specifically the use of CRE models (Antonakis et al., 2010, 2021; Hoffman & Stawski, 2009; Wooldridge, 2010). This analysis allows for the estimation of cleaner within-person effects by controlling for between-person differences in the average level of the predictor variables through the use of person-specific cluster means (i.e., Mundlak devices; Mundlak, 1978; Yang, 2022). The resulting within-person effects reflect the effect of an individual's deviations at single observations from their own mean levels of the predictor across all observations and are thus independent of stable differences between individuals (e.g., gender, personality, preferences; Hamaker et al., 2015; Usami, 2021).

To assess whether it was necessary to use CRE models rather than simpler random effects models in our sample, we tested the random effects assumption by comparing fixed and random effects models, as recommended by Antonakis et al. (2021). To meet the random effects assumption, the random intercept (i.e., the cluster, level 2 effect) needs to be uncorrelated with the level 1 predictors (Antonakis et al., 2021). The significant results of the Hausman test indicated that the random effects assumption was not met for either belongingness ($\chi^2 = 29.85$, $df = 3$, $p < .001$) or authenticity ($\chi^2 = 23.44$, $df = 3$, $p < .001$), thereby supporting the use of CRE models in our analyses. The models were estimated using the R package lme4 (version 1.1-35.2) with maximum likelihood estimation.

Parametric bootstrapping with 1,000 replications was applied to obtain accurate standard errors and confidence intervals for the fixed effects. Observations with missing values were omitted from the analysis. For our model, we used the scale averages of leader virtual collaboration behavior, belongingness, and authenticity respectively. Remote work was included as a single-indicator measure. To facilitate the interpretability of interaction effects, all variables were grand-mean-centered prior to analysis. Separate models were estimated for the two dimensions of inclusion, using belongingness and authenticity as outcome variables, respectively. In these analyses, repeated measurements (level 1) were nested within individual participants (level 2).

To test our hypotheses, we estimated within- and between-person components of every effect in the model. Accordingly, person-specific deviations of remote work intensity, leader virtual collaboration behavior, and their interaction were introduced as level 1 predictors, capturing the within-person variance. In addition, person-specific cluster means for remote work, leader virtual collaboration behaviors, and their interaction were included as level 2 predictors, capturing the between-person components (Antonakis et al., 2021; Hoffman & Stawski, 2009). These between-person components capture time-invariant unobserved heterogeneity in the model, thus controlling for intraindividual differences. The means were calculated by averaging each participant's repeated measures of the respective predictor variables over time. Finally, the two between-within cross-level interactions were added to the model (Schunck, 2013).

To ensure our results are not driven by confounders, we also ran our models with a set of control variables. We used age (mean-centered), tenure (mean-centered), and gender to control for demographic features. To control for time-varying elements of leadership which might bias our results, we included leader-member exchange (LMX; Liden et al., 1993). The use of control variables did not alter our results. We provide the results with plots and tables in the supplementary material (see the OSF repository: https://osf.io/gmynt/overview?view_only=3af6a6794832407f9afe261a52c89167).

Results

For an overview of the descriptive statistics of the focal study variables and pairwise correlation coefficients, see Table 1.

Hypothesis Testing

For a general overview of the estimated coefficients, please refer to Table 2 and Table 3. Hypothesis 1a stated that remote work and belongingness have a negative within-person relationship. The CRE model yielded a significant negative relationship ($B = -0.03$, $SE = 0.01$, $p = .027$), providing evidence in support of Hypothesis 1a.

Hypothesis 1b stated that remote work and authenticity have a negative within-person relationship. In contrast to Hypothesis 1a, we did not observe a significant within-person relationship between remote work and authenticity ($B = -0.01$, $SE = 0.02$, $p = .692$); therefore, Hypothesis 1b is not supported.

We performed likelihood ratio tests to assess whether introducing the interaction terms significantly improved model fit. The test comparing Model 1 (dependent variable: belongingness, no interaction term) and Model 2

Table 1. Means, Standard Deviations, and Pairwise Pearson Correlations of the Study Variables at the Four Times of Data Collection (T1-T4)

Variable	M	SD	r														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Remote work																	
1. RW T1	83.64	26.54															
2. RW T2	85.36	24.54	.83**														
3. RW T3	86.04	24.04	.78**	.83**													
4. RW T4	80.10	26.79	.76**	.77**	.82**												
Leader virtual collaboration behavior																	
5. LVC T1	4.19	0.63	.20**	.22**	.17**	.16**											
6. LVC T2	4.11	0.61	.16**	.18**	.12*	.12*	.71**										
7. LVC T3	4.09	0.64	.15**	.17**	.11*	.15*	.69**	.75**									
8. LVC T4	4.06	0.70	.11*	.16**	.15**	.14*	.65**	.70**	.76**								
Belongingness																	
9. BEL T1	4.01	0.69	.06	.08	.02	.04	.54**	.39**	.43**	.46**							
10. BEL T2	4.00	0.66	.09	.08	.06	.05	.37**	.44**	.43**	.44**	.65**						
11. BEL T3	4.00	0.71	.08	.04	.02	.05	.37**	.39**	.53**	.44**	.61**	.68**					
12. BEL T4	3.99	0.71	.08	.11	.15**	.09	.39**	.35**	.44**	.50**	.62**	.68**	.75**				
Authenticity																	
13. AUTH T1	3.99	0.74	.07	.07	.07	.06	.50**	.38**	.38**	.45**	.65**	.49**	.47**	.56**			
14. AUTH T2	4.02	0.72	.05	.04	.02	.01	.34**	.44**	.48**	.42**	.48**	.68**	.62**	.61**	.54**		
15. AUTH T3	4.05	0.68	.09	.07	.06	.07	.41**	.43**	.57**	.47**	.51**	.54**	.68**	.64**	.59**	.66**	
16. AUTH T4	4.01	0.72	.10	.11*	.10	.09	.40**	.37**	.46**	.53**	.56**	.54**	.63**	.79**	.64**	.63**	.70**

Note. RW = remote work intensity (%); LVC = leader virtual collaboration behavior (1-5); BEL = belongingness (1-5); AUTH = authenticity (1-5), each measured at T1, T2, T3, T4.

* $p < .05$.

** $p < .01$.

Table 2. Correlated Random Effects Modeling Results (Belongingness)

Dependent variable: Belongingness								
Variable	Model 1			Model 2				
	B	SE	95% CI	p-value	B	SE	95% CI	p-value
Intercept	−0.010	0.032	[−0.07 to 0.05]	.749	−0.025	0.033	[−0.09 to 0.04]	.452
Between-subject effects								
RW (between)	−0.013	0.033	[−0.08 to 0.05]	.702	0.013	0.034	[−0.05 to 0.09]	.707
LVC (between)	0.493***	0.033	[0.43 – 0.55]	<.001	0.503***	0.033	[0.44 to 0.57]	<.001
Within-subject effects								
RW (within)	−0.028*	0.014	[−0.06 to 0]	.040	−0.030*	0.014	[−0.06 to 0]	.027
LVC (within)	0.151***	0.014	[0.12 to 0.18]	<.001	0.153***	0.014	[0.12 to 0.18]	<.001
Interactions								
RW* LVC (between)					0.072*	0.028	[0.01 to 0.13]	.011
RW* LVC (within)					−0.008	0.016	[−0.04 to 0.02]	.612
RW (between)* LVC (within)					−0.007	0.014	[−0.04 to 0.02]	.635
RW (within)* LVC (between)					0.043**	0.015	[0.01 to 0.07]	.005
Model metrics								
Observations	1667				1667			
Clusters	500				500			
AIC	3665.16				3683.75			
BIC	3703.07				3743.3			
LogLik	−1825.58				−1830.88			
Conditional R2	0.691				0.692			
Marginal R2	0.265				0.272			

Note. RW = remote work extent. LVC = leader virtual collaboration behavior. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. LogLik = Log. Likelihood. Conditional R2 = proportion of variance explained by fixed effects and cluster-level random intercepts. Marginal R2 = proportion of variance explained by fixed effects only.

*p < .05.

***p < .01.

***p < .001.

Table 3. Correlated Random Effects Modeling Results (Authenticity)

Dependent variable: Authenticity								
Variable	Model 3			Model 4				
	B	SE	95% CI	p-value	B	SE	95% CI	p-value
Intercept	−0.007	0.032	[−0.07 to 0.05]	.813	−0.018	0.032	[−0.08 to 0.04]	.563
Between-subject effects								
RW (between)	−0.025	0.032	[−0.09 to 0.04]	.437	−0.005	0.033	[−0.07 to 0.07]	.873
LVC (between)	0.484 ^{***}	0.032	[0.42 to 0.54]	<.001	0.492 ^{***}	0.032	[0.43 to 0.55]	<.001
Within-subject effects								
RW (within)	−0.005	0.015	[−0.03 to 0.02]	.757	−0.006	0.015	[−0.04 to 0.02]	.692
LVC (within)	0.149 ^{***}	0.015	[0.12 to 0.18]	<.001	0.150 ^{***}	0.015	[0.12 to 0.18]	<.001
Interactions								
RW* LVC (between)					0.056*	0.027	[0 to 0.11]	.043
RW* LVC (within)					−0.003	0.017	[−0.04 to 0.03]	.866
RW (between)* LVC (within)					−0.007	0.015	[−0.04 to 0.02]	.640
RW (within)* LVC (between)					0.027	0.017	[−0.01 to 0.06]	.106
Model metrics								
Observations	1667				1667			
Clusters	500				500			
AIC	3815.55				3841.33			
BIC	3853.47				3900.88			
LogLik	−1900.78				−1909.67			
Conditional R2	0.639				0.639			
Marginal R2	0.254				0.257			

Note. RW = remote work intensity, LVC = leader virtual collaboration behavior. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion. LogLik = Log. Likelihood. Conditional R2 = proportion of variance explained by fixed effects and cluster-level random intercepts. Marginal R2 = proportion of variance explained by fixed effects only.

**p* < .05.
****p* < .01.
*****p* < .001.

(dependent variable belongingness, interaction terms included) yielded a significant result ($\chi^2 = 14.41, p = .006$). In contrast, the likelihood ratio test comparing Model 3 (dependent variable authenticity, no interaction term) and Model 4 (dependent variable authenticity, interaction terms included) did not yield a significant effect ($\chi^2 = 6.80, p = .147$). Therefore, adding an interaction term between remote work and leader virtual collaboration behaviors improved model fit for belongingness but not for authenticity.

As described in the methods section, our model splits up the interaction term into within-, between-, and cross-level components. As we investigate the within-person effect of remote work on inclusion, we focus on the interactions of within-person leader virtual collaboration behavior and between-person leader virtual collaboration behavior on the within-person relationship of remote work and inclusion. Hypothesis 2 states that leader virtual collaboration behavior buffers the assumed negative within-person relationship of remote work with (a) belongingness and (b) authenticity. The within-within interaction term in both models yielded insignificant results (for belongingness: $B = -0.008, SE = 0.016, p = .612$; for authenticity: $B = -0.003, SE = 0.017, p = .866$).

However, we observed a significant cross-level interaction term of within-person remote work and between-person leader virtual collaboration behavior ($B = 0.043, SE = 0.015, p = .005$), supporting Hypothesis 2a. We tested the lower and upper bounds of significance by applying the Johnson–Neyman technique. The effect of remote work on belongingness was negative and significant for values below 0.08 standard deviations above the mean. For authenticity, we did not find a significant moderation effect of between-person leader virtual collaboration behavior on the within-person effect of remote work ($B = 0.027, SE = 0.017, p = .106$). Therefore, Hypothesis 2b is not supported. Consult [Figure 1](#) for a visual representation of the moderation effects on belongingness and [Figure 2](#) for a visual representation of the moderation effects on authenticity.

Discussion

With this study, we set out to understand how employee inclusion can be ensured in modern remote work settings, where direct face-to-face communication processes are less likely. A recent study ([Schertler et al., 2024](#)) showed that high remote work intensity relates to lower inclusion over time despite a positive between-person-level relationship. In line with this research, we used longitudinal data and surveyed employees four times over the course of nine months. This approach provided the necessary data basis to employ robust statistical methods, namely, CRE models, that separating between-from

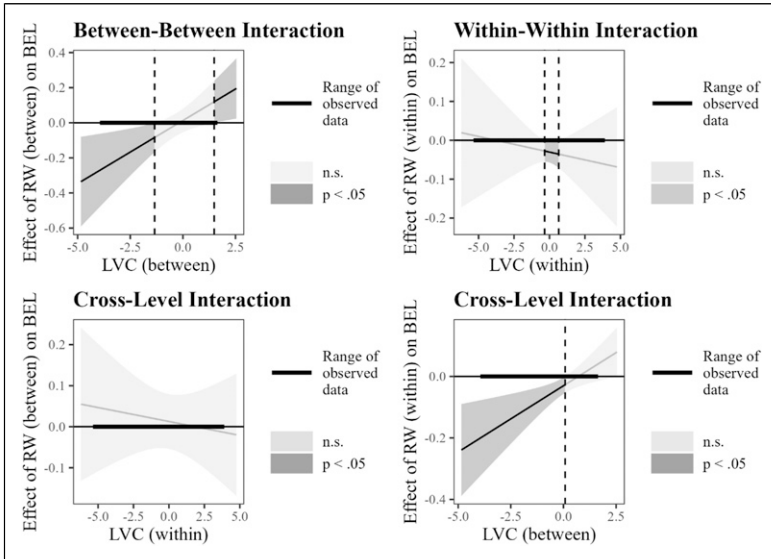


Figure 1. Johnson-Neyman plot of the moderation effect of leader virtual collaboration behaviors on the relationship between remote work and belongingness. Values on the x-axis denote standard deviations of the moderator in relation to the individual, person-specific mean

within-person relationships (Antonakis et al., 2021; Hoffman & Stawski, 2009). Although our study showed, in line with expectations, a significant negative within-person effect of remote work on belongingness, the hypothesized effect for authenticity was not found, thereby supporting Hypothesis 1a but not 1b.

Furthermore, we investigated whether this negative effect could be mitigated by leaders' virtual collaboration behaviors, as leaders act as facilitators (e.g., Behrendt et al., 2017; Bell et al., 2023; Liao, 2017) and role models (e.g., Hunter et al., 2013; Yaffe & Kark, 2011) for employee behaviors. The analyses revealed a significant moderating effect of the average, time-stable level of leader virtual collaboration behavior regarding belongingness, but not authenticity, thereby supporting Hypothesis 2a but not 2b. For belongingness, the negative within-person effect of remote work only persisted when leaders in general showed low levels of virtual collaboration behavior. In leaders with high average levels of virtual collaboration behavior, increased remote work intensity was no longer associated with reduced belongingness. At the same time, we did not find the within-person deviations of leader virtual

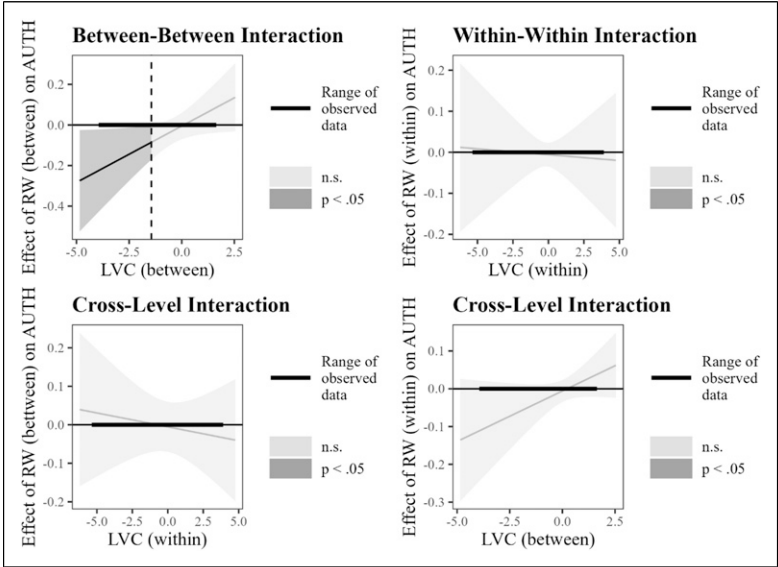


Figure 2. Johnson-Neyman plot of the moderation effect of leader virtual collaboration behaviors on the relationship between remote work and authenticity. Values on the x-axis denote standard deviations of the moderator in relation to the individual, person-specific mean

collaboration behavior to be relevant for the moderation effect. That is, the moderation is driven by the overall level of leaders’ virtual collaboration behavior, while within-person deviations from the individual mean do not moderate the within-person effect of remote work on inclusion. Together, our findings offer valuable insights for theory and practice on employee inclusion and how leader behaviors can mitigate the negative effects of remote work intensity.

Theoretical Implications

In line with prior literature (Schertler et al., 2024), our results support the notion that remote work settings hinder the perception of belongingness, which is likely due to reduced communication richness in such settings. Our results regarding belongingness are also in line with research on closely related concepts that show that remote work is associated with greater perceived isolation and loneliness (Bartel et al., 2012; Bollestad et al., 2022; Gajendran et al., 2024; Mann & Holdsworth, 2003). Consistent with recent

studies that highlight the need for context-specific investigations of inclusion and leadership (Beijer et al., 2024; Georgiadou et al., 2024), we contribute to the literature by shedding light on the role of leaders' behavior in mitigating the negative effect of high remote work intensity on employees' sense of belongingness. In cases where leaders generally exert high levels of virtual collaboration behaviors, thereby supporting the signaling of inclusionary social cues, remote work was no longer negatively associated with belongingness. This suggests that signaling belongingness cues is also possible in remote work settings but conditional on the appropriate use of technology and communication by the leader (see Hill & Bartol, 2016). Thus, our findings point to the pivotal role leaders play in overcoming challenges posed by remote work. Our results also demonstrate that leaders need to show such behaviors consistently to a high degree to successfully counteract adverse remote work effects.

This study further contributes by showing that in remote work contexts, different mechanisms may be at play for the two sub-dimensions of employee inclusion: belongingness and authenticity. Regarding authenticity, our results were contrary to our expectations and showed no negative relationship between remote work and authenticity and no moderating influence of leaders' virtual collaboration behaviors. On the one hand, these results might suggest that individuals do not rely on continuous signaling to assess whether they can be authentic within a group, compared to how they assess belongingness. Thus, our findings could indicate a potential need to refine the theoretical foundation of Jansen and colleagues' (2014) inclusion concept. On the other hand, remote work may increase the overlap between home and work identities (see Ebrahimi et al., 2020; Zhang et al., 2020), as it is often conducted from home, where an employee might feel more room for authentic expression. Recent work by Hardin et al. (2025) showed that remote work not only poses challenges for relationship-building but also offers new opportunities to learn about co-workers in more spontaneous and non-work-related ways (e.g., by glimpsing into their private living space or learning about their family and pets). Their findings further showed that these experiences led employees to perceive their remote-working colleagues as more authentic. Although their study focused on the authentic expression of employees as perceived by co-workers rather than the opportunity for authenticity relevant to inclusion, their findings still highlight the potential of remote work settings to offer more room for authenticity and autonomy.

These positive aspects, offering more opportunities for authenticity in remote work settings, might offset the loss of other social cues due to reduced communication richness. This reasoning aligns with a recent meta-analysis by Gajendran and colleagues (2024), whose dual pathway model shows that

higher remote work intensity is associated with both increased isolation and increased perceived autonomy. Depending on the outcome, either one pathway dominates or the two paths cancel each other out (Gajendran et al., 2024). Given that the authenticity dimension in the inclusion concept relates to individuals' need for identity-related autonomy (Jansen et al., 2014), it is plausible that increased perceived autonomy counteracts the isolation effect of remote work when authenticity is the outcome, resulting in the null effect observed in our study. Within the framework of Gajendran and colleagues' (2024) model, it seems likely that the mechanism proposed in this paper, namely, that the signaling of social cues is impeded in remote work settings, mainly contributes to the isolation effect of remote work, while other mechanisms may still offset these negative effects. Thus, further research is needed to complete the picture of perceived inclusion in remote work settings, especially with regard to authenticity.

Concerning authenticity, we show a limit to the role of leader virtual collaboration behavior, as neither the general level nor the within-person fluctuations of this leader behavior moderated the remote work-authenticity relationship. This indicates that fostering authenticity in remote settings may require levers beyond virtual collaboration behavior of the leader.

To conclude, we offer a novel perspective on the leadership–inclusion relationship by building on the inclusion concept of Jansen and colleagues (2014) in the remote work context and combining it with media richness theory (Daft & Lengel, 1986). Our study highlights the crucial role of leaders in creating remote environments that support the signaling of inclusionary cues. Moreover, our findings reveal differences in the perception of belongingness and authenticity, pointing to promising directions for future research.

Practical Implications

Given the relevance of inclusion in today's diverse workplaces and the fact that remote work has become an integral part of working life for many employees, our findings carry highly relevant practical implications. On the one hand, organizations and their employees should be aware of the challenges that come with remote work, specifically relating to employees' feelings of belonging to a team. On the other hand, our findings highlight that leaders can address these challenges by demonstrating appropriate virtual collaboration behaviors. Here, organizations and leaders are called upon to create work environments that actively encourage the signaling of inclusionary cues. In remote work settings, the use of rich communication media is, therefore, essential for maintaining employee inclusion. Organizations should

foster the use of these tools by providing access to the necessary technology and by training their leaders to use them appropriately, which has been recognized as important for the future of remote working (Henke et al., 2022).

Furthermore, leaders should be aware of their pivotal role as facilitators of inclusive work environments and act accordingly, for example, by introducing and modeling rules for virtual communication (see Bell et al., 2023). Overall, leaders are confronted with a range of challenges when leading virtually, extending beyond the topic of employee inclusion (e.g., managing employee performance and motivation; Bell et al., 2023; Henke et al., 2022). To complicate matters, solutions to one problem may lead to issues in another area. For example, a camera-on policy in virtual meetings might maximize the inclusionary cues sent and, in turn, promote feelings of inclusion among employees. At the same time, research has shown that such policies can contribute to fatigue and emotional exhaustion (Johnson & Mabry, 2022; Shockley et al., 2021). Therefore, leaders are required to navigate the advantages and disadvantages of virtual communication technologies (Henke et al., 2022).

Acknowledging these complex challenges and responding to them is highly relevant for organizations in the modern working world and should inspire further research to provide organizations and leaders with evidence-based recommendations for practice.

Limitations and Future Research

Even though our study has many strengths, such as longitudinal data collection, field data with high external validity, and a focus on a specific type of leader behavior, important limitations remain that further point to promising avenues for future research.

First, studying a phenomenon within a single company provides some advantages; for example, it allows us to rule out many sources of endogeneity stemming from differences between companies. However, this approach limits the generalizability of our results to the broader workforce. Notably, the average level of remote work, the percentage of men, and the level of appropriate leader virtual collaboration were high in the sample at hand. The company in this study likely represents a case where remote work management is already well-developed. This further supports the robustness of the study findings, as the current sample essentially constitutes an extreme case for testing the hypotheses. Nonetheless, the results should be replicated in other contexts with greater variance, preferably using representative sampling, to validate their generalizability. Replicating the study in contexts with less favorable remote work management might even uncover additional negative

effects of remote work that were not observable in this study context. Furthermore, the male-dominated sample might explain the lack of significance in our authenticity results, as [Schertler et al. \(2024\)](#) showed that a negative effect of remote work on authenticity is only prevalent among women but not among men. Additionally, even though our modeling approach reduced endogeneity concerns, we cannot claim that the observed relationships are causal, as the direction of the effects cannot be determined with the models used.

Second, we chose to measure the leader collaboration behaviors in this study as perceived by individual employees. Thus, rather than examining leaders' intentions ([Jacobsen & Bøgh Andersen, 2015](#)), we focused on how followers interpret their leaders' behaviors and, therefore, opted to use followers' reports (instead of leaders'). Notwithstanding this, other operationalizations of leader behavior that do not rely on employee perceptions could provide valuable insights. Future research could analyze the actual virtual communication used by leaders to measure specific types of virtual leader behavior more objectively, for example by making use of digital communication data to assess the frequency and content of virtual communication. Furthermore, a comparison of intended leader behaviors with those perceived by employees could enhance the understanding of which behaviors are experienced as most appropriate by team members. Such an in-depth analysis of which virtual collaboration behaviors by the leader are most relevant for experiencing inclusion as a team member is of high practical relevance and is needed to provide specific recommendations for organizations and leaders.

Third, other aspects of leadership could prove relevant for ensuring inclusion in remote work settings. In this study, we focused on leader virtual collaboration behaviors, which are not specifically aimed at inclusion but have been found to be highly relevant in remote contexts ([Hill & Bartol, 2016](#)). In recent years, inclusive leadership has gained considerable research attention as one leadership style that specifically fosters feelings of belongingness and value in uniqueness among employees (e.g., [Nishii & Leroy, 2022](#); [Randel, 2023](#); [Randel et al., 2016](#); [Shore & Chung, 2022](#); [Veli Korkmaz et al., 2022](#)). However, research still lacks clarity regarding which specific leadership behaviors are particularly relevant. In our research, we showed that leaders' virtual collaboration behaviors matter. As remote work provides a new context in which leaders exert influence, future research could explore how inclusive leadership can be translated into virtual contexts and meet the demands of hybrid teams.

Furthermore, we focused on leaders in formal leadership positions. However, other team members may exert leadership without holding a formal role (e.g., shared leadership, informal leadership based on seniority) and could also contribute to establishing remote settings conducive to signaling

inclusion. Thus, the role of informal leaders presents a viable question for future research.

Finally, even though we examined leader behaviors as one important moderator of the relationship between remote work and inclusion, other moderators are likely and should be explored (e.g., personality; Parra et al., 2022; Van Yperen et al., 2014; team-level diversity; De Jong et al., 2021). In the context of diversity and inclusion, a focus on marginalized groups in the workplace is warranted, as prior research suggests that remote work and virtuality can serve as a double-edged sword for the inclusion of these groups (e.g., people with disabilities; Klinksiek et al., 2023; and women; Schertler et al., 2024; Villamor et al., 2023).

Conclusion

This study explored the role of leader behaviors in perceived inclusion among employees working remotely. Inclusion was conceptualized as a two-faceted construct, incorporating the dimensions of belongingness and authenticity. Findings from our longitudinal field study showed that remote work intensity and belongingness are negatively related only when leaders demonstrate lower levels of appropriate virtual collaboration behaviors. For the second inclusion dimension, authenticity, no negative relationship with remote work intensity, and no moderating effect of leaders' virtual collaboration behaviors were observed. Overall, the study results highlight that remote work can pose challenges to employee belongingness and that leaders can act as facilitators of a work environment that supports the experience of inclusion in remote settings. Our study offers valuable ground for future research and helpful guidance for practitioners, underscoring the importance of equipping leaders with the tools and training needed to lead effectively in remote work environments.

ORCID iDs

Magdalena Schertler  <https://orcid.org/0000-0002-8430-6482>

Tarek Carls  <https://orcid.org/0000-0003-0919-9899>

Martina Hartner-Tiefenthaler  <https://orcid.org/0000-0003-1597-3975>

Stephan A. Boehm  <https://orcid.org/0000-0001-9220-7241>

Ethical Considerations

This study was conducted in line with the Declaration of Helsinki (revised 1983). It did not meet any of the criteria that would necessitate an ethics review, as prescribed by the University of St. Gallen and the Swiss National Science Foundation (SNF). Therefore,

in accordance with the local legislation and institutional requirements, ethical review and approval were not required for this study.

Consent to Participate

All participants were provided with information on the study content, procedure, and data processing prior to participation. They were further informed that participation was voluntary and that non-participation or discontinuing the study at any point would not result in any disadvantages for them. Participants received this information and provided their informed consent by agreeing to the consent statement at the beginning of each online survey.

Author Contributions

Magdalena Schertler: Conceptualization, Formal analysis, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing. **Tarek Carls:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Visualization, Writing – review & editing. **Martina Hartner-Tiefenthaler:** Conceptualization, Funding acquisition, Methodology, Resources, Supervision, Writing – review & editing. **Stephan A. Boehm:** Conceptualization, Funding acquisition, Methodology, Resources, Supervision, Writing – review & editing.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and publication of this article: this work is part of a research project that is supported by joint funding from the Swiss National Science Foundation (SNF) (grant number 207664) and the Austrian Science Fund (FWF) (grant number I 6036).

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

All research data associated with this submission is available but not publicly accessible, due to the proprietary nature of the data and our legal agreement with the company partner where the data was collected. The R scripts for data analysis and the supplementary materials referenced in the manuscript are available at the following OSF repository: https://osf.io/gmynr/overview?view_only=3af6a6794832407f9afe261a52c89167.

References

- Ahrendt, D., Sándor, E., Chédorge-Farnier, D., & Schulte-Brochterbeck, L. (2025). Quality of life in the EU in 2024: Results from the living and working in the EU

- e-survey. <https://www.eurofound.europa.eu/en/resources/data-story/2025/quality-life-eu-2024-results-living-and-working-eu-e-survey#group-section-Key-findings-yesMIRmYWa>
- Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2025). Working from home in 2025: Five key facts. <https://siepr.stanford.edu/publications/essay/working-home-2025-five-key-facts>
- Alsharo, M., Gregg, D., & Ramirez, R. (2017). Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management*, 54(4), 479–490. <https://doi.org/10.1016/j.im.2016.10.005>
- Antonakis, J., Bastardo, N., & Rönkkö, M. (2021). On ignoring the random effects assumption in multilevel models: Review, critique, and recommendations. *Organizational Research Methods*, 24(2), 443–483. <https://doi.org/10.1177/1094428119877457>
- Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, 21(6), 1086–1120. <https://doi.org/10.1016/j.leaqua.2010.10.010>
- Ashikali, T., Groeneveld, S., & Kuipers, B. (2021). The role of inclusive leadership in supporting an inclusive climate in diverse public sector teams. *Review of Public Personnel Administration*, 41(3), 497–519. <https://doi.org/10.1177/0734371X19899722>
- Bartel, C. A., Wrzesniewski, A., & Wiesenfeld, B. M. (2012). Knowing where you stand: Physical isolation, perceived respect, and organizational identification among virtual employees. *Organization Science*, 23(3), 743–757. <https://doi.org/10.1287/orsc.1110.0661>
- Behrendt, P., Matz, S., & Göritz, A. S. (2017). An integrative model of leadership behavior. *The Leadership Quarterly*, 28(1), 229–244. <https://doi.org/10.1016/j.leaqua.2016.08.002>
- Beijer, S. E., Knappert, L., & Stephenson, K. A. (2024). “It doesn’t make sense to stick with old patterns”: How leaders adapt their behavior to foster inclusion in a disruptive context. *Journal of Organizational Behavior*, 45(9), 1315–1343. <https://doi.org/10.1002/job.2766>
- Bell, B. S., & Kozlowski, S. W. J. (2002). A typology of virtual teams: Implications for effective leadership. *Group & Organization Management*, 27(1), 14–49. <https://doi.org/10.1177/1059601102027001003>
- Bell, B. S., McAlpine, K. L., & Hill, N. S. (2023). Leading virtually. *Annual Review of Organizational Psychology and Organizational Behavior*, 10, 339–362. <https://doi.org/10.1146/annurev-orgpsych-120920-050115>
- Boehm, S. A., & Dwertmann, D. J. G. (2015). Forging a single-edged sword: Facilitating positive age and disability diversity effects in the workplace through leadership, positive climates, and HR practices. *Work, Aging and Retirement*, 1(1), 41–63. <https://doi.org/10.1093/workar/wau008>

- Bollestad, V., Amland, J.-S., & Olsen, E. (2022). The pros and cons of remote work in relation to bullying, loneliness and work engagement: A representative study among Norwegian workers during COVID-19. *Frontiers in Psychology*, 13, 1016368. <https://doi.org/10.3389/fpsyg.2022.1016368>
- Brandt, T., & Laiho, M. (2013). Gender and personality in transformational leadership context: An examination of leader and subordinate perspectives. *The Leadership & Organization Development Journal*, 34(1), 44–66. <https://doi.org/10.1108/01437731311289965>
- Brzykcy, A. Z., Rönkkö, M., Boehm, S. A., & Goetz, T. M. (2024). Work–family conflict and strain: Revisiting theory, direction of causality, and longitudinal dynamism. *Journal of Applied Psychology*, 109(12), 1833–1860. <https://doi.org/10.1037/apl0001204>
- Buengeler, C., Leroy, H., & De Stobbeleir, K. (2018). How leaders shape the impact of HR's diversity practices on employee inclusion. *Human Resource Management Review*, 28(3), 289–303. <https://doi.org/10.1016/j.hrmr.2018.02.005>
- Byrd, M. Y. (2022). Creating a culture of inclusion and belongingness in remote work environments that sustains meaningful work. *Human Resource Development International*, 25(2), 145–162. <https://doi.org/10.1080/13678868.2022.2047252>
- Chen, C., & Tang, N. (2018). Does perceived inclusion matter in the workplace? *Journal of Managerial Psychology*, 33(1), 43–57. <https://doi.org/10.1108/JMP-02-2017-0078>
- Chung, B. G., Ehrhart, K. H., Shore, L. M., Randel, A. E., Dean, M. A., & Kedharnath, U. (2020). Work group inclusion: Test of a scale and model. *Group & Organization Management*, 45(1), 75–102. <https://doi.org/10.1177/1059601119839858>
- Connelly, C. E., & Turel, O. (2016). Effects of team emotional authenticity on virtual team performance. *Frontiers in Psychology*, 7, 1336. <https://doi.org/10.3389/fpsyg.2016.01336>
- Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554–571. <https://doi.org/10.1287/mnsc.32.5.554>
- Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly*, 11(3), 355–365. <https://doi.org/10.2307/248682>
- Davis, F. C., Neta, M., Kim, M. J., Moran, J. M., & Whalen, P. J. (2016). Interpreting ambiguous social cues in unpredictable contexts. *Social Cognitive and Affective Neuroscience*, 11(5), 775–782. <https://doi.org/10.1093/scan/nsw003>
- De Jong, B., Gillespie, N., Williamson, I., & Gill, C. (2021). Trust consensus within culturally diverse teams: A multistudy investigation. *Journal of Management*, 47(8), 2135–2168. <https://doi.org/10.1177/0149206320943658>

- Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations. *Human Resource Management Review*, 27(4), 569–574. <https://doi.org/10.1016/j.hrmr.2016.12.004>
- Dwertmann, D. J. G., & Boehm, S. A. (2016). Status matters: The asymmetric effects of supervisor-subordinate disability incongruence and climate for inclusion. *Academy of Management Journal*, 59(1), 44–64. <https://doi.org/10.5465/amj.2014.0093>
- Ebrahimi, M., Kouchaki, M., & Patrick, V. M. (2020). Juggling work and home selves: Low identity integration feels less authentic and increases unethicity. *Organizational Behavior and Human Decision Processes*, 158, 101–111. <https://doi.org/10.1016/j.obhdp.2019.02.005>
- Findler, L., Wind, L. H., & Barak, M. E. M. (2007). The challenge of workforce management in a global society: Modeling the relationship between diversity, inclusion, organizational culture, and employee well-being, job satisfaction and organizational commitment. *Administration in Social Work*, 31(3), 63–94. https://doi.org/10.1300/J147v31n03_05
- Fiol, C. M., & O'Connor, E. J. (2005). Identification in face-to-face, hybrid, and pure virtual teams: Untangling the contradictions. *Organization Science*, 16(1), 19–32. <https://doi.org/10.1287/orsc.1040.0101>
- Fischer, T., Dietz, J., & Antonakis, J. (2024). A fatal flaw: Positive leadership style research creates causal illusions. *The Leadership Quarterly*, 35(3), 101771. <https://doi.org/10.1016/j.leaqua.2023.101771>
- Fleischmann, A. C., Aritz, J., & Cardon, P. (2019). Language proficiency and media richness in global virtual teams: Impacts on satisfaction, inclusion, and task accomplishment. *ACM Transactions on Social Computing*, 2(4), 1–18. <https://doi.org/10.1145/3363564>
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, 92(6), 1524–1541. <https://doi.org/10.1037/0021-9010.92.6.1524>
- Gajendran, R. S., & Joshi, A. (2011). Inclusion and identification in virtual teams: When does leader-member virtual communication matter? *Academy of Management Proceedings*, 2011(1), 1–6. <https://doi.org/10.5465/ambpp.2011.65870600>
- Gajendran, R. S., Ponnappalli, A. R., Wang, C., & Javalagi, A. A. (2024). A dual pathway model of remote work intensity: A meta-analysis of its simultaneous positive and negative effects. *Personnel Psychology*, 77(4), 1351–1386. <https://doi.org/10.1111/peps.12641>
- Gallup. (2025). Hybrid work. <https://www.gallup.com/401384/indicator-hybrid-work.aspx>

- Georgiadou, A., Özbilgin, M., & Özkazanç-Pan, B. (2024). Working from everywhere: The future of work and inclusive organizational behavior (IOB). *Journal of Organizational Behavior*, 45(9), 1307–1314. <https://doi.org/10.1002/job.2840>
- Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods*, 20(1), 102–116. <https://doi.org/10.1037/a0038889>
- Hardin, A. E., Schinoff, B. S., Byron, K., & Balven, R. M. (2025). A window into coworkers' worlds: The relational outcomes of learning vivid, unintentional, and nonwork-related information about coworkers. *Academy of Management Journal*, 68(2), 267–296. <https://doi.org/10.5465/amj.2022.0683>
- Henke, J. B., Jones, S. K., & O'Neill, T. A. (2022). Skills and abilities to thrive in remote work: What have we learned. *Frontiers in Psychology*, 13, 893895. <https://doi.org/10.3389/fpsyg.2022.893895>
- Hill, N. S., & Bartol, K. M. (2016). Empowering leadership and effective collaboration in geographically dispersed teams. *Personnel Psychology*, 69(1), 159–198. <https://doi.org/10.1111/peps.12108>
- Hoffman, L., & Stawski, R. S. (2009). Persons as contexts: Evaluating between-person and within-person effects in longitudinal analysis. *Research in Human Development*, 6(2-3), 97–120. <https://doi.org/10.1080/15427600902911189>
- Howell, J. L., Sosa, N., & Osborn, H. J. (2019). Self-esteem as a monitor of fundamental psychological need satisfaction. *Social and Personality Psychology Compass*, 13(8), e12492. <https://doi.org/10.1111/spc3.12492>
- Hunter, E. M., Neubert, M. J., Perry, S. J., Witt, L. A., Penney, L. M., & Weinberger, E. (2013). Servant leaders inspire servant followers: Antecedents and outcomes for employees and the organization. *The Leadership Quarterly*, 24(2), 316–331. <https://doi.org/10.1016/j.leaqua.2012.12.001>
- International Monetary Fund. (2025). Download world economic outlook database: April 2025. <https://www.imf.org/en/Publications/WEO/weo-database/2025/April/weo-report>
- Ishii, K., Lyons, M. M., & Carr, S. A. (2019). Revisiting media richness theory for today and future. *Human Behavior and Emerging Technologies*, 1, 124–131. <https://doi.org/10.1002/hbe2.138>
- Jacobsen, C. B., & Bøgh Andersen, L. (2015). Is leadership in the eye of the beholder? A study of intended and perceived leadership practices and organizational performance. *Public Administration Review*, 75(6), 829–841. <https://doi.org/10.1111/puar.12380>
- Jämsen, R., Sivunen, A., & Blomqvist, K. (2022). Employees' perceptions of relational communication in full-time remote work in the public sector. *Computers in Human Behavior*, 132, 107240. <https://doi.org/10.1016/j.chb.2022.107240>
- Jansen, W. S., Vos, M. W., Otten, S., Podsiadlowski, A., & Van Der Zee, K. I. (2016). Colorblind or colorful? How diversity approaches affect cultural majority and

- minority employees. *Journal of Applied Social Psychology*, 46(2), 81–93. <https://doi.org/10.1111/jasp.12332>
- Jansen, W. S., Otten, S., & Van Der Zee, K. I. (2017). Being different at work: How gender dissimilarity relates to social inclusion and absenteeism. *Group Processes & Intergroup Relations*, 20(6), 879–893. <https://doi.org/10.1177/1368430215625783>
- Jansen, W. S., Otten, S., Van Der Zee, K. I., & Jans, L. (2014). Inclusion: Conceptualization and measurement. *European Journal of Social Psychology*, 44(4), 370–385. <https://doi.org/10.1002/ejsp.2011>
- Johnson, B. J., & Mabry, J. B. (2022). Remote work video meetings: Workers' emotional exhaustion and practices for greater well-being. *German Journal of Human Resource Management: Zeitschrift für Personalforschung*, 36(3), 380–408. <https://doi.org/10.1177/23970022221094532>
- Kahai, S. S., & Cooper, R. B. (2003). Exploring the core concepts of media richness theory: The impact of cue multiplicity and feedback immediacy on decision quality. *Journal of Management Information Systems*, 20(1), 263–299. <https://doi.org/10.1080/07421222.2003.11045754>
- Kievit, R. A., Frankenhuys, W. E., Waldorp, L. J., & Borsboom, D. (2013). Simpson's paradox in psychological science: A practical guide. *Frontiers in Psychology*, 4, 513. <https://doi.org/10.3389/fpsyg.2013.00513>
- Klinksiek, I. D., Jammaers, E., & Taskin, L. (2023). A framework for disability in the new ways of working. *Human Resource Management Review*, 33(2), 100954. <https://doi.org/10.1016/j.hrmr.2023.100954>
- Koch, A. J., D'Mello, S. D., & Sackett, P. R. (2015). A meta-analysis of gender stereotypes and bias in experimental simulations of employment decision making. *Journal of Applied Psychology*, 100(1), 128–161. <https://doi.org/10.1037/a0036734>
- Kunze, F., Boehm, S. A., & Bruch, H. (2011). Age diversity, age discrimination climate and performance consequences—A cross organizational study. *Journal of Organizational Behavior*, 32(2), 264–290. <https://doi.org/10.1002/job.698>
- Kunze, F., & Hampel, K. (2025). Zwischen Präsenzpflcht und Homeoffice-Euphorie: Stand des mobilen Arbeitens fünf Jahre nach Beginn der Corona-Pandemie: Konstanzer Homeoffice Studie Ergebnisreport April 2025. <https://nbn-resolving.de/urn:nbn:de:bsz:352-2-rrsuie9779vv4>
- Kwon, K., & Jang, S. (2022). There is no good war for talent: A critical review of the literature on talent management. *Employee Relations: The International Journal*, 44(1), 94–120. <https://doi.org/10.1108/ER-08-2020-0374>
- Lauring, J., & Jonasson, C. (2023). How is work group inclusiveness influenced by working virtually? *Human Resource Management Review*, 33(2), 100930. <https://doi.org/10.1016/j.hrmr.2022.100930>
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, 32, 1–62.

- Liao, C. (2017). Leadership in virtual teams: A multilevel perspective. *Human Resource Management Review*, 27(4), 648–659. <https://doi.org/10.1016/j.hrmr.2016.12.010>
- Liden, R. C., Wayne, S. J., & Stilwell, D. (1993). A longitudinal study on the early development of leader-member exchanges. *Journal of Applied Psychology*, 78(4), 662–674. <https://doi.org/10.1037/0021-9010.78.4.662>
- Mann, S., & Holdsworth, L. (2003). The psychological impact of teleworking: Stress, emotions and health. *New Technology, Work and Employment*, 18(3), 196–211. <https://doi.org/10.1111/1468-005X.00121>
- Marlow, S. L., Lacerenza, C. N., & 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>
- Martinescu, E., Jansen, W., & Beersma, B. (2021). Negative gossip decreases targets' organizational citizenship behavior by decreasing social inclusion: A multi-method approach. *Group & Organization Management*, 46(3), 463–497. <https://doi.org/10.1177/1059601120986876>
- Martinko, M. J., Harvey, P., Sikora, D., & Douglas, S. C. (2011). Perceptions of abusive supervision: The role of subordinates' attribution styles. *The Leadership Quarterly*, 22(4), 751–764. <https://doi.org/10.1016/j.leaqua.2011.05.013>
- Maurer, M., Bach, N., & Oertel, S. (2022). Forced to go virtual: Working-from-home arrangements and their effect on team communication during COVID-19 lockdown. *German Journal of Human Resource Management*, 36(3), 1–32. <https://doi.org/10.1177/23970022221083698>
- Morrison-Smith, S., & Ruiz, J. (2020). Challenges and barriers in virtual teams: A literature review. *SN Applied Sciences*, 2(6), 1096. <https://doi.org/10.1007/s42452-020-2801-5>
- Mundlak, Y. (1978). On the pooling of time series and cross section data. *Econometrica*, 46(1), 69. <https://doi.org/10.2307/1913646>
- Nishii, L. H. (2013). The benefits of climate for inclusion for gender-diverse groups. *Academy of Management Journal*, 56(6), 1754–1774. <https://doi.org/10.5465/amj.2009.0823>
- Nishii, L. H., & Leroy, H. (2022). A multi-level framework of inclusive leadership in organizations. *Group & Organization Management*, 47(4), 683–722. <https://doi.org/10.1177/10596011221111505>
- Nyberg, A. J., Shaw, J. D., & Zhu, J. (2021). The people still make the (remote work-) place: Lessons from a pandemic. *Journal of Management*, 47(8), 1967–1976. <https://doi.org/10.1177/01492063211023563>
- Parra, C. M., Gupta, M., & Cadden, T. (2022). Towards an understanding of remote work exhaustion: A study on the effects of individuals' big five personality traits. *Journal of Business Research*, 150, 653–662. <https://doi.org/10.1016/j.jbusres.2022.06.009>

- Perinelli, E., Alessandri, G., Cepale, G., & Fraccaroli, F. (2022). The sociometer theory at work: Exploring the organizational interpersonal roots of self-esteem. *Applied Psychology, 71*(1), 76–102. <https://doi.org/10.1111/apps.12312>
- Qi, L., Liu, B., Wei, X., & Hu, Y. (2019). Impact of inclusive leadership on employee innovative behavior: Perceived organizational support as a mediator. *PLoS One, 14*(2), e0212091. <https://doi.org/10.1371/journal.pone.0212091>
- Randel, A. E. (2023). Inclusion in the workplace: A review and research agenda. *Group & Organization Management, 50*(1), 10596011231175578. <https://doi.org/10.1177/10596011231175578>
- Randel, A. E., Dean, M. A., Ehrhart, K. H., Chung, B., & Shore, L. (2016). Leader inclusiveness, psychological diversity climate, and helping behaviors. *Journal of Managerial Psychology, 31*(1), 216–234. <https://doi.org/10.1108/JMP-04-2013-0123>
- Rengers, J. M., Heyse, L., Otten, S., & Wittek, R. P. M. (2019). “It’s not always possible to live your life openly or honestly in the same way” – workplace inclusion of lesbian and gay humanitarian aid workers in doctors without borders. *Frontiers in Psychology, 10*, 320. <https://doi.org/10.3389/fpsyg.2019.00320>
- Restrepo, A., Smith, K. E., Silver, E. M., & Norman, G. (2024). Ambiguity potentiates effects of loneliness on feelings of rejection. *Cognition & Emotion, 39*(3), 1–11. <https://doi.org/10.1080/02699931.2024.2385006>
- Rezai, M., Kolne, K., Bui, S., & Lindsay, S. (2020). Measures of workplace inclusion: A systematic review using the COSMIN methodology. *Journal of Occupational Rehabilitation, 30*(3), 420–454. <https://doi.org/10.1007/s10926-020-09872-4>
- Roberson, Q., & Perry, J. L. (2022). Inclusive leadership in thought and action: A thematic analysis. *Group & Organization Management, 47*(4), 755–778. <https://doi.org/10.1177/10596011211013161>
- Robinson, B. (2022). Why critics say Elon Musk’s return-to-office ultimatum is dangerous. *Forbes*. <https://www.forbes.com/sites/bryanrobinson/2022/06/03/why-critics-say-elon-musks-recent-return-to-office-ultimatum-is-dangerous/>
- Sacco, D. F., & Ismail, M. M. (2014). Social belongingness satisfaction as a function of interaction medium: Face-to-face interactions facilitate greater social belonging and interaction enjoyment compared to instant messaging. *Computers in Human Behavior, 36*, 359–364. <https://doi.org/10.1016/j.chb.2014.04.004>
- Schaffer, B. S., & Riordan, C. M. (2003). A review of cross-cultural methodologies for organizational research: A best-practices approach. *Organizational Research Methods, 6*(2), 169–215. <https://doi.org/10.1177/1094428103251542>
- Schertler, M., Glumann, N. V., & Boehm, S. A. (2024). How two megatrends affect each other: Studying the interplay of remote work and workplace inclusion with a random intercept cross-lagged panel model. *Academy of Management Discoveries, 10*(3), 351–374. <https://doi.org/10.5465/amd.2022.0133>
- Schilpzand, P., & Huang, L. (2018). When and how experienced incivility dissuades proactive performance: An integration of sociometer and self-identity orientation

- perspectives. *Journal of Applied Psychology*, 103(8), 828–841. <https://doi.org/10.1037/apl0000303>
- Schunck, R. (2013). Within and between estimates in random-effects models: Advantages and drawbacks of correlated random effects and hybrid models. *STATA Journal*, 13(1), 65–76. <https://doi.org/10.1177/1536867x1301300105>
- Shockley, K. M., Allen, T. D., Dodd, H., & Waiwood, A. M. (2021). Remote worker communication during COVID-19: The role of quantity, quality, and supervisor expectation-setting. *Journal of Applied Psychology*, 106(10), 1466–1482. <https://doi.org/10.1037/apl0000970>
- Shore, L. M., & Chung, B. G. (2022). Inclusive leadership: How leaders sustain or discourage work group inclusion. *Group & Organization Management*, 47(4), 723–754. <https://doi.org/10.1177/1059601121999580>
- Shore, L. M., Cleveland, J. N., & Sanchez, D. (2018). Inclusive workplaces: A review and model. *Human Resource Management Review*, 28(2), 176–189. <https://doi.org/10.1016/j.hrmr.2017.07.003>
- Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., & Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management*, 37(4), 1262–1289. <https://doi.org/10.1177/0149206310385943>
- Simpson, E. H. (1951). The interpretation of interaction in contingency tables. *Journal of the Royal Statistical Society: Series B*, 13(2), 238–241. <https://doi.org/10.1111/j.2517-6161.1951.tb00088.x>
- Tonidandel, S., Summerville, K. M., Gentry, W. A., & Young, S. F. (2022). Using structural topic modeling to gain insight into challenges faced by leaders. *The Leadership Quarterly*, 33(5), 101576. <https://doi.org/10.1016/j.leaqua.2021.101576>
- Usami, S. (2021). On the differences between general cross-lagged panel model and random-intercept cross-lagged panel model: Interpretation of cross-lagged parameters and model choice. *Structural Equation Modeling*, 28(3), 331–344. <https://doi.org/10.1080/10705511.2020.1821690>
- Van Yperen, N. W., Rietzschel, E. F., & Jonge, K. M. M. D. (2014). Blended working: For whom it may (not) work. *PLoS One*, 9(7), e102921. <https://doi.org/10.1371/journal.pone.0102921>
- Vayre, E., & Pignault, A. (2014). A systemic approach to interpersonal relationships and activities among French teleworkers. *New Technology, Work and Employment*, 29(2), 177–192. <https://doi.org/10.1111/ntwe.12032>
- Veli Korkmaz, A., Van Engen, M. L., Knappert, L., & Schalk, R. (2022). About and beyond leading uniqueness and belongingness: A systematic review of inclusive leadership research. *Human Resource Management Review*, 32(4), 100894. <https://doi.org/10.1016/j.hrmr.2022.100894>

- Villamor, I., Hill, N. S., Kossek, E. E., & Foley, K. O. (2023). Virtuality at work: A doubled-edged sword for women's career equality? *The Academy of Management Annals*, 17(1), 113–140. <https://doi.org/10.5465/annals.2020.0384>
- Wingard, J. (2024). Amazon killed remote work. Is RTO the new normal? *Forbes*. <https://www.forbes.com/sites/jasonwingard/2024/09/27/amazon-killed-remote-work-is-rto-the-new-normal/>
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2. ed). MIT Press.
- Yaffe, T., & Kark, R. (2011). Leading by example: The case of leader OCB. *Journal of Applied Psychology*, 96(4), 806–826. <https://doi.org/10.1037/a0022464>
- Yang, Y. (2022). A correlated random effects approach to the estimation of models with multiple fixed effects. *Economics Letters*, 213, 110408. <https://doi.org/10.1016/j.econlet.2022.110408>
- Zhang, H., Chen, C., Schlegel, R., & Chen, K. (2020). Spillover of authenticity from work to home: The mediating role of affect. *European Journal of Social Psychology*, 50(5), 1065–1072. <https://doi.org/10.1002/ejsp.2658>

Author Biographies

Magdalena Schertler is a doctoral candidate in management at the Institute for International and Diversity Management at the University of St.Gallen, Switzerland. Her research focuses on workplace inclusion in flexible work settings.

Tarek Carls is a PhD candidate at the Institute for International and Diversity Management at the University of St.Gallen, Switzerland. He obtained an MSc in Psychology from the University of Regensburg and was a visiting researcher at the Center for Work, Health, and Well-being at Harvard School of Public Health. His work focuses on remote work, inclusion, and mental health at the workplace.

Martina Hartner-Tiefenthaler is a Senior Scientist at the Institute of Management Science at TU Wien, Austria. Her research is predominantly in the context of hybrid work and teams.

Stephan A. Boehm is an Associate Professor of Management and Director of the Institute for International Management and Diversity Management at the University of St. Gallen, Switzerland. His research focuses on age- and disability-diversity, inclusion, leadership as well as the health implications of work flexibilization and digitalization.

Appendix A

Table A. Sample Description for the Four Times of Data Collection (T1-T4)

Time	N	Age			Tenure			Gender			
		M	SD	Range	M	SD	Range	Men		Women	
								N	%	N	%
T1	493	41.20	9.10	19-64	13.70	9.00	0-44	325	65.9%	168	34.1%
T2	458	41.00	9.00	19-64	13.70	8.90	0-44	304	66.4%	154	33.6%
T3	380	40.90	9.00	19-64	13.80	8.90	0-44	247	65.0%	133	35.0%
T4	336	41.20	8.80	19-64	13.90	8.90	0-43	214	63.7%	122	36.3%

Note. T1-T4 refer to the respective time points. M = Mean. SD = Standard Deviation.

Appendix B

We conducted an attrition analysis to test whether individuals who participated more than once and thus were included in the sample (“stayers”) differed in relevant variables from individuals that participated only once (“dropouts”). The results showed small to medium differences between dropouts and stayers in baseline belongingness and sex distribution and no differences in age, tenure, remote work, leader virtual collaboration behavior, and authenticity. [Table B](#) gives an overview of the results for the continuous variables age, tenure, remote work, virtual leader behavior, belongingness, and authenticity. The significant difference in baseline belongingness indicates that dropouts reported lower belongingness compared to stayers. Regarding gender, the analysis showed that men were

Table B. Results of the Attrition Analysis, Comparing Stayers to Dropouts

	Stayers		Dropouts		p (t-test)	SMD
	M	SD	M	SD		
Age	41.20	9.07	43.50	9.78	.060	0.25
Tenure	13.80	9.07	15.00	10.80	.345	0.13
RW	83.60	26.40	77.10	30.70	.082	−0.24
LVC	4.19	0.63	4.10	0.72	.321	−0.14
BEL	4.01	0.69	3.81	0.71	.020	−0.29
AUTH	4.00	0.74	3.84	0.90	.148	−0.21

Note. SMD = standardized mean differences; RW = remote work intensity (%); LVC = leader virtual collaboration behavior (1-5); BEL = belongingness (1-5); AUTH = authenticity.

overrepresented in the dropout group (stayers male: 65.6%, dropouts male: 80.5%; $p(\chi^2) = .013$; $SMD = 0.341$). Given that the observed differences are small to medium in effect size, and that we controlled for interindividual differences in our models, the observed differences between stayers and dropouts are unlikely to confound our study findings.

Appendix C

Based on Hill and Bartol (2016), we used seven items to measure leader virtual collaboration behaviors in this study. To validate the adapted version of this scale, we inspected scree plots and conducted an exploratory factor analysis (EFA) using principal axis factoring with varimax rotation for all four measurements (T1-T4). Given that (1) the scree plots showed a sharp decline followed by a flattening trend after the first factor and (2) only one factor showed an eigenvalue greater than 1 (see Figure C), a one-factor solution was specified in the EFAs. The results from the EFAs showed that all items strongly loaded on one factor at each measurement, with factor loadings ranging between .65 and .86. Communalities ranged between .42 and .73, indicating that a substantial portion of variance in each item was explained by the factor. The single-factor solution explained between 57% and 66% of the total variance. See Table C for all factor loadings, communalities, eigenvalues and proportion variances obtained in the analyses.

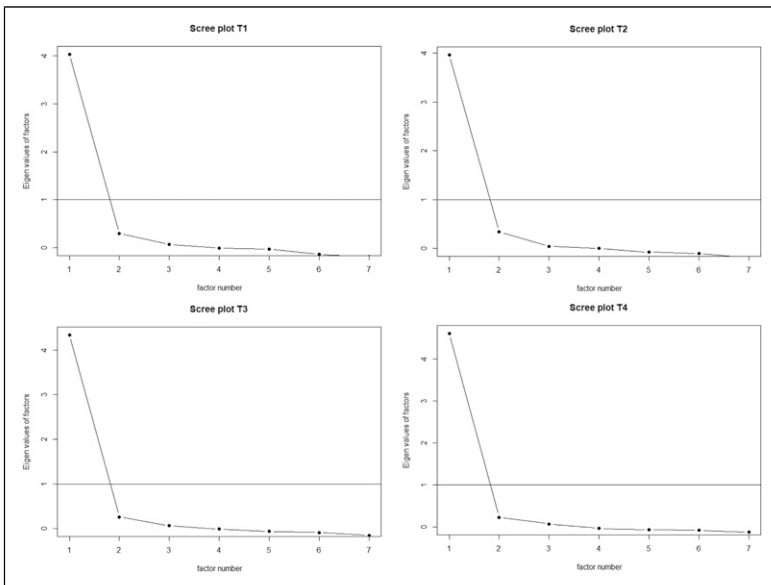


Figure C. Scree plots for the scale used to measure leader virtual collaboration behaviors at all four times of measurement (T1-T4)

Table C. Results of the EFAs, Testing the Single-Factor Solution, at all Four Times of Measurement (T1-T4)

Item	T1		T2		T3		T4	
	Factor loading	h^2	Factor loading	h^2	Factor loading	h^2	Factor loading	h^2
Item 1	0.68	0.46	0.65	0.42	0.71	0.50	0.80	0.63
Item 2	0.79	0.62	0.78	0.61	0.86	0.73	0.85	0.72
Item 3	0.82	0.67	0.82	0.67	0.83	0.69	0.84	0.71
Item 4	0.75	0.56	0.70	0.49	0.76	0.58	0.74	0.55
Item 5	0.74	0.54	0.72	0.52	0.80	0.64	0.80	0.64
Item 6	0.80	0.64	0.82	0.68	0.80	0.65	0.83	0.69
Item 7	0.73	0.54	0.76	0.57	0.74	0.55	0.82	0.67
Factor eigenvalue	4.03		3.97		4.34		4.61	
Explained variance	0.58		0.57		0.62		0.66	

Note. h^2 = communality.