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Health and Work Psychology

The link between empowering leadership and employees' perceptions of the effectiveness of blended working

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Linked to technological and societal developments, including the COVID-19 pandemic, employees are increasingly being given the opportunity to blend onsite and remote working including flexibility as to when and where they work. Despite the proliferation of such blended working, there is little empirical research on how leaders in organizations can contribute to facilitating its effectiveness. In the present study, we hypothesized that an empowering leadership style would be positively associated with employees' perceptions of the effectiveness of blended working. Additionally, grounded in Self-Determination Theory, we hypothesized that the satisfaction of employees' work-related psychological needs for autonomy and for competence would mediate this relation. Results of a field study ($N = 405$ employees) using a two-wave panel design supported a cross-lagged effect of empowering leadership on employees' perceptions of the effectiveness of blended working. However, no evidence was found for the hypothesized mediated relations. Our findings could be of value to organizations as they indicate a specific leadership style that is likely to facilitate the effectiveness of blended working.

Key words: Empowering leadership style, remote working, workplace flexibility, basic psychological needs, autonomy support, self-determination theory.

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INTRODUCTION

A significant development in organizations, accelerated by the COVID-19 pandemic, is the increasing use of blended working arrangements (Eurofound, 2020; Van Yperen & Wörtler, 2017). In such arrangements, employees blend working at the employer's site and working remotely at other locations at various times (Van Yperen, Rietzschel & De Jonge, 2014). That is, blended working provides employees with flexibility as to when and where they work and, as such, it includes practices such as working from home. Research in the blended working domain has especially focused on identifying potential consequences for organizations and for employees (Van Yperen & Wörtler, 2017; Van Yperen, Wörtler & De Jonge, 2016; Wörtler, Van Yperen & Barelds, 2021). In comparison to research on the outcomes of blended working, empirical investigations on factors that can contribute to the effectiveness of blended working are scarce (see also Beauregard, Basile & Canónico, 2019). This is of concern given the proliferation of blended working arrangements, and it hinders the development of evidence-based guidelines for facilitating effective blended working.

In response, in the current research, we investigated when employees are likely to perceive blended working as effective for themselves, that is, the perception that they can do their job well when working time- and location-independently. Investigating employees' *perceptions of the effectiveness of blended working* (Van Yperen *et al.*, 2014) is important because, provided it is perceived as effective, blended working is likely to be a contextual resource that helps employees achieve work-related goals such as greater productivity (Bakker & Demerouti, 2007; Van Yperen *et al.*, 2014). Conversely, if employees do not perceive blended working to be effective for themselves, blended working will conceivably be experienced as demanding and

stressful (see also Ter Hoeven & Van Zoonen, 2015). As such, an understanding of how to facilitate employees' perceptions of the effectiveness of blended working is likely to be useful for achieving the desired positive outcomes of blended working including job satisfaction and enhanced performance and productivity (Van Yperen *et al.*, 2014).

Given that employees engaged in blended working need to be able to work fairly independently (Beauregard *et al.*, 2019), we argue and show that an empowering leadership style is linked to employees' perceptions of the effectiveness of blended working. *Empowering leadership* has been defined as “the process of influencing subordinates through power sharing, motivation support, and development support with intent to promote their experience of self-reliance, motivation, and capability to work autonomously within the boundaries of overall organizational goals and strategies” (Amundsen & Martinsen, 2014, p. 489). Since leaders can increase work performance and creativity at both the individual and the team levels by empowering employees, this form of leadership is viewed as an important contemporary style for managing employees (see the meta-analysis by Lee, Willis & Tian, 2018). In contrast to conceptually similar styles of leadership such as transformational leadership, empowering leadership is unique in transferring decision-making authority and control to employees (Sharma & Kirkman, 2015). In investigating empowering leadership, we took employees' perceptions into account because even if leaders consider their leadership style to be empowering, this does not necessarily mean that employees sense they are being empowered (Lepak, Jiang, Kehoe & Bentley, 2018).

We also aimed to identify the underlying processes that link an empowering leadership style and employees' perceptions of the effectiveness of blended working. Previous research has shown

that basic psychological needs are relevant in explaining relations between leadership practices and work performance (Chiniara & Bentein, 2016). In a similar vein, as shown in Fig. 1, we investigated whether the satisfaction of work-related basic psychological needs for autonomy and competence (Van den Broeck, Vansteenkiste, De Witte, Soenens & Lens, 2010), henceforth referred to as autonomy satisfaction and competence satisfaction, mediate the association between empowering leadership and employees' perceptions of the effectiveness of blended working. *Autonomy satisfaction* refers to having a sense of acting of one's own volition, while *competence satisfaction* refers to an affective experience of mastery over one's tasks (Van den Broeck *et al.*, 2010).

Knowledge of mediating variables could be useful in developing interventions to enhance employees' perceptions of the effectiveness of blended working in situations where leaders do not empower employees. This could occur, for instance, in situations where decision-making must be centralized in a department or where leaders are unaware of, or have not been trained in using, an empowering style of leadership. If mediation is empirically supported and empowering leadership is lacking, satisfying employees' needs for autonomy and competence in other ways (see Van den Broeck, Ferris, Chang & Rosen, 2016) could go a long way toward increasing employees' perceptions of the effectiveness of blended working. Before outlining our arguments for the anticipated mediated relations in more detail, we first discuss the focal relation between empowering leadership and employees' perceptions of the effectiveness of blended working.

EMPOWERING LEADERSHIP AND EMPLOYEES' PERCEPTIONS OF THE EFFECTIVENESS OF BLENDED WORKING

Amundsen and Martinsen's (2014) conceptualization of empowering leadership comprises the two dimensions of supporting employees' autonomy and of supporting the development of those employees' competences that are helpful for working autonomously. Given that blended working implies more autonomous working, an empowering leadership style seems likely to be a good match to the features of blended working.

Indeed, in blended working contexts, leaders may need to adopt styles of leadership that do not rely on close and direct supervision (Beauregard *et al.*, 2019). Rather than making use of direct supervision, leaders using an empowering leadership style encourage and support employees' autonomous working (Amundsen & Martinsen, 2014).

Determinants of the effectiveness of blended working at the employee level are likely to include self-motivation, the ability to be fairly self-reliant, and having effective planning and organizing skills (Beauregard *et al.*, 2019; Kubicek, Prem, Baumgartner, Uhlig & Korunka, 2021). These factors are likely to play a role because blended working arrangements lack the predefined temporal and locational work structures found in traditional working arrangements (Gerdenitsch, 2017). An empowering leadership style can help employees feel more capable of working in contexts that involve flexibility and self-organization because this leadership style involves developing employees' organizational and self-leadership skills – competences that are useful in autonomous working (Amundsen & Martinsen, 2014). As such, this style should help employees maintain their effectiveness in blended working contexts in which they are required to establish their own work structures (Gerdenitsch, 2017).

Offering support for this reasoning, empirical work has shown that empowering leadership is associated with employees' ability to shape their jobs in such a way that these align with their needs, preferences, and skills (Kim & Beehr, 2018) and with their inclination to manage themselves in working effectively (Amundsen & Martinsen, 2015). Similarly, other studies have shown that when leaders use an empowering leadership style, employees tend, regardless of the context, to perceive themselves as successful in handling tasks and meeting demands (Cheong, Spain, Yammarino & Yun, 2016). Further, the empirical findings of Lautsch, Kossek and Eaton (2009) suggest that positive outcomes, such as increased performance, among employees working remotely are more likely when leaders use autonomy-supporting rather than controlling behaviors. On this basis, we hypothesized that:

Hypothesis 1: There is a positive relation between empowering leadership and employees' perceptions of the effectiveness of blended working.

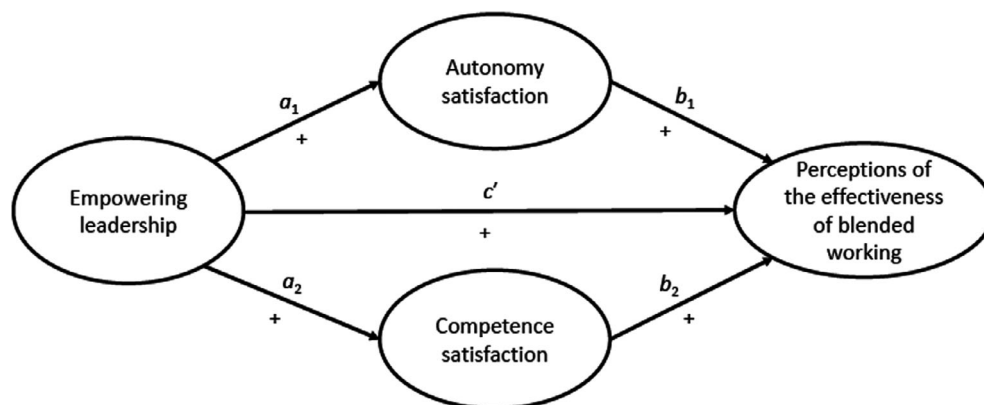


Fig. 1. Conceptual research model. Notes: The letters a and b designate constituent relations of indirect relations, while the letter c' designates a direct relation. All relations were predicted to be in a positive direction (+).

Satisfaction of autonomy and of competence needs as mediators

Self-Determination Theory asserts that humans have three basic psychological needs (Deci & Ryan, 2000). These are the needs for autonomy (i.e., feeling able to act in congruence with one's own will and volition), for competence (i.e., feeling effective in obtaining valued outcomes), and for relatedness (i.e., experiencing a sense of belonging and closeness to others). The work-related SDT model posits that contextual factors, such as leadership style, affect the satisfaction of individuals' basic psychological needs, which subsequently influences their performance and effectiveness (Deci, Olafsen & Ryan, 2017).

Research has traditionally considered all the three basic needs identified by SDT together. However, more recently, researchers have increasingly focused on the individual needs (e.g., Van Assche, van der Kaap-Deeder, Audenaert, De Schryver & Vansteenkiste, 2018). This is understandable since each basic psychological need is an independent construct and carries independent predictive utility (i.e., explains unique variance) in outcome variables (Van den Broeck *et al.*, 2016). In the present study, we considered only the needs for autonomy and for competence (see also De Gieter, Hofmans & Bakker, 2018) for two reasons. First, the empowering leadership concept has two dimensions: (1) autonomy support; and (2) development support that is aimed at enhancing employees' competences for autonomous working (Amundsen & Martinsen, 2014). As such, only the satisfaction of the psychological needs for autonomy and for competence conceptually relate to the two dimensions of empowering leadership. Second, even though perceiving empowering leadership can enhance the relationship between a leader and a subordinate (Hassan, Mahsud, Yukl & Prussia, 2013), perceiving empowering leadership seems less relevant for feeling cared for by a close other or experiencing a sense of belonging. Rather, employees may satisfy their need for relatedness at work by, for example, feeling part of a group at work or having colleagues who are also close friends (see Van den Broeck *et al.*, 2010).

Empowering leadership and the satisfaction of autonomy and competence needs. SDT posits that if employees are given control and choice in their work, rather than being exposed to evaluation and surveillance, then their sense of acting according to their own volition is enhanced (Vansteenkiste, Niemiec & Soenens, 2010). An important feature of empowering leadership is to enhance employees' autonomy while also developing their skills to properly handle the latitude they have been given in decision-making (Amundsen & Martinsen, 2014). If leaders empower their subordinates, those employees will have the authority necessary to take charge and to define their tasks (Amundsen & Martinsen, 2014). Similarly, Arneson and Ekberg (2006) note that the freedom to direct one's activities is pivotal to empowerment.

According to SDT, autonomy support is also conducive to satisfying an individual's need for competence (e.g., Guay, Boggiano & Vallerand, 2001). For example, if employees have autonomy at work, they can make choices regarding their work activities and more easily pursue those activities that they find optimally challenging, which should be conducive to their sense of competence (e.g., Van den Broeck *et al.*, 2016). In addition to

autonomy support, empowering leadership involves guidance, role modeling, and behaviors geared towards strengthening employees' goal focus, all of which should facilitate employees to achieve work goals (Amundsen & Martinsen, 2014). As such, one can expect empowering leadership to be conducive to fulfilling employees' psychological need for competence.

Satisfaction of autonomy and competence needs and employees' perceptions of the effectiveness of blended working. Satisfying autonomy and competence needs should go a long way toward ensuring that employees perform their work for the sake of the pleasure they experience from it and also experience a sense of vitality (Deci & Ryan, 2000; Ryan & Deci, 2000). Indeed, research has shown that the satisfaction of autonomy and competence needs at work is positively associated with experiencing a combination of mental vigor, dedication to work, and immersion in work-related activities (e.g., Wörtler, Van Yperen & Barelds, 2020). Thus, it seems likely that employees whose basic needs for autonomy and competence are satisfied will more adaptively deal with the almost constant connectivity to work that may come with blended working practices (Leonardi, Treem & Jackson, 2010) and adopt adaptive attitudes that facilitate effective blended working. These could include sustaining a work-oriented mindset when working outside the traditional office and not distracting oneself with work-unrelated activities (O'Neill, Hambley & Chatellier, 2014). Further, if employees have their needs for autonomy and for competence satisfied, they will be more proactive (Strauss & Parker, 2014), which is likely to be pivotal when engaging in blended working given the significant self-management required. For instance, employees may proactively seek feedback (Ashford, Blatt & Vandewalle, 2003) to optimize their work and remain effective when working remotely. On this basis, we hypothesized that:

Hypothesis 2: The positive relation between empowering leadership and employees' perceptions of the effectiveness of blended working is mediated by autonomy satisfaction and by competence satisfaction.

METHOD

Design, participants, and procedure

We conducted a survey study using a cross-lagged panel design. This design allows one to estimate the effects of predictor variables on outcome variables over time and to test for mediation (Cole & Maxwell, 2003; Selig & Little, 2012). Dutch-speaking employees were recruited as participants through a company specializing in online survey research. We asked the company to recruit 400 participants who would complete the same survey at two points in time (subsequently denoted T1 and T2) separated by a three-month gap. This length of gap was used in previous studies to reduce the risks of common method bias and of high rates of participants discontinuing their participation (e.g., Daniel & Sonnentag, 2014; Van Dierendonck & Dijkstra, 2012). To be eligible, potential participants had to be adults (18 years and older) who were employed for at least 36 h per week. Individuals who were self-employed, freelancers, or performed manual labor were excluded from potential participation. In order to reduce the likelihood of socially desirable responses (Podsakoff, MacKenzie, Lee & Podsakoff, 2003), we emphasized the importance of honest responding, and the participants were informed that there were no "right" or "wrong" answers but that the researchers were only interested in their opinions. Upon completion of the

surveys, the employees were rewarded with token points, which they could then exchange for a voucher of their choice.

At T1, 608 employees completed the survey and satisfied the quality checks concerning response time as well as survey straight-lining (i.e., providing consistent responses over a considerable sequence of survey items) and completeness, which are routinely checked by the research company.¹ At T2, participation was only open to those who indicated that they were still employed in the same job as at the previous measurement occasion.

The final sample comprised $N = 405$ employees (of whom 62% were men) who completed the survey at both T1 and T2, satisfied the eligibility criteria, and passed the quality checks. These employees' ages ranged from 21 to 70 years ($M = 44.59$, $SD = 12.47$) and their job tenure ranged from less than a year to 40 years ($M = 7.84$, $SD = 8.05$). Most of the employees were not in a leadership function (77%) and most had a university degree (70%). The employees worked in a variety of sectors, the most prevalent being the health and welfare sector (14%), the educational sector (14%), and the public administration, public service, and social insurance sector (13%).

To examine possible differences between those employees who dropped out after T1 ($n = 203$) and the final sample, we performed a binary logistic regression analysis using participation in the research at T2 as the dependent variable. The predictor variables were gender, age, job tenure, education, and leadership function plus empowering leadership, autonomy satisfaction, competence satisfaction, perceptions of the effectiveness of blended working, and perceived opportunity for blended working (see below) all measured at T1. The logistic regression analysis, $\chi^2(10) = 24.94$, $p = 0.01$, revealed that perceiving empowering leadership behaviors was negatively associated with dropping out, $b = -0.24$, $\chi^2(1) = 6.03$, $p = 0.01$. That is, for employees that did not drop out, the perceived empowering leadership was on average higher ($M = 4.91$, $SD = 1.04$) than for those who did ($M = 4.65$, $SD = 1.05$). Similarly, working in a leadership function was negatively associated with discontinued participation in the research, $b = -0.58$, $\chi^2(1) = 8.09$, $p < 0.01$. No associations between the other predictor variables and participation in the research at T2 were found (the p values associated with the other predictor variables were all greater than 0.10).

Measures

The survey was administered in Dutch. Except for the measure of empowering leadership, all the measures used were originally developed in Dutch. The items assessing empowering leadership were translated from English into Dutch by two of the authors who are both native speakers of Dutch and fluent in English. Subsequently, the translations were discussed until there was agreement on the equivalence of the meaning of each item.

Perceptions of the effectiveness of blended working. We used the six-item scale developed by Van Yperen *et al.* (2014) to measure the extent to which the participants perceived blended working to be effective for them. The participants responded to items such as "I can do my job well at several locations" using a seven-point response scale ranging from (1) *strongly disagree* to (7) *strongly agree*. The reliability of the scale (α) was 0.79 at T1 and 0.81 at T2.

Empowering leadership. We measured empowering leadership using the 18-item empowering leadership scale developed by Amundsen and Martinsen (2014). This scale comprises two subscales (12 items measuring perceived autonomy support and six items measuring perceived development support). Sample items are "My leader expresses positive attitudes related to me starting with my own defined tasks" (autonomy support) and "My leader guides me in how I can do my work in the best way" (development support). The participants used a seven-point response scale ranging from (1) *strongly disagree* to (7) *strongly agree*. The reliability of the empowering leadership scale (α) was 0.95 at both T1 and T2.

Satisfaction of autonomy and competence needs at work. Autonomy satisfaction and competence satisfaction were measured using the respective subscales of the Work-related Basic Need Satisfaction scale (W-BNS scale; Van den Broeck *et al.*, 2010). A sample item of the autonomy

satisfaction subscale ($\alpha = 0.84$ at T1 and $\alpha = 0.86$ at T2) is "The tasks I have to do at work are in line with what I really want to do". A sample item of the competence satisfaction subscale ($\alpha = 0.93$ at T1 and at T2) is "I really master my tasks at my job". Here, the participants used a five-point response scale ranging from (1) *strongly disagree* to (5) *strongly agree*.

Perceived opportunity for blended working. We included perceived opportunity for blended working, that is, an employee's perceptions that their job allows time- and location-independent working (Van Yperen *et al.*, 2016), as a control variable because it was unlikely that all employees would occupy jobs that allowed the same degree of blended working. To measure this variable, we used the six-item measure ($\alpha = 0.82$ at T1 and at T2) developed by Van Yperen *et al.* (2016). This includes items such as "The nature of my job is well-suited to location-independent working". The participants used a seven-point response scale ranging from (1) *strongly disagree* to (7) *strongly agree*.

Statistical analysis approach

The data were analyzed using structural equation modeling. Specifically, the analyses included: (1) the estimation of the measurement model and examining its time invariance across T1 and T2; and (2) the additional estimation of the parallel mediation model (i.e., the structural model) to test the hypotheses. A preparatory step involved creating item parcels to serve as indicators of the latent constructs. Item parceling involves averaging two or more items to use as an indicator of a latent variable (Little, Cunningham, Shahar & Widaman, 2002). Advantages of using parcels relate to the psychometric characteristics of the indicators and model fit. In general, a model fit tends to worsen as the number of indicators increases (Coffman & MacCallum, 2005).

Where possible, three indicators should be used for each latent variable to avoid artificially inflating the model fit (Little, 2013). Parceling should not be used if there are insufficient items to construct at least three parcels (Hau & Marsh, 2004). Defining a construct using only two indicators is not recommended because this can lead to an unidentified measurement structure and an inappropriate model solution (Little, Rhemtulla, Gibson & Schoemann, 2013). Consequently, we used item parcels for all constructs except for competence satisfaction, which was measured with a four-item scale. That is, we used the four items as indicators of this construct.

Parcel construction. For each construct (except competence satisfaction), we created three parcels, and the same parcels were used at T1 and T2. For autonomy satisfaction and for perceived opportunity for blended working, we used the balancing approach that has been recommended for unidimensional constructs (Little *et al.*, 2013). Specifically, the item with the highest item-scale correlation was paired with the item that had the lowest item-scale correlation to form the first parcel. The next parcel comprised the next highest and next lowest loading items, and so on. Given that, in longitudinal designs, the parcels should not differ between the measurement points, we used the average item-total correlation across T1 and T2 to rank the items (Little, 2013).

In terms of the empowering leadership construct, we created two parcels each of six items for the autonomy support subscale, and one parcel for the development support subscale by averaging its six items (see Amundsen & Martinsen, 2015). In creating three parcels for perceptions of the effectiveness of blended working, each parcel was formed of the average of one item representing location-independent working and one representing time-independent working (see Coffman & MacCallum, 2005; Little *et al.*, 2013).

Measurement model fit and tests of factorial invariance. Using Mplus 7.4 software (Muthén & Muthén, 1998), we first carried out a confirmatory factor analysis (CFA) to evaluate the measurement model for the study variables at T1 and at T2. This CFA served to assess whether the same loading pattern emerged at each point in time, which would indicate configural invariance. Auto-correlated residuals were estimated because item-specific variances were expected to correlate across the measurement occasions (Little, 2013). Moreover, all the latent variables were free to correlate with each other.

Subsequently, we assessed the degree of measurement invariance (Meredith, 1993) to evaluate whether the parceled indicators represented the same latent constructs at both measurement points (e.g., Little, Preacher, Selig & Card, 2007). That is, we compared the five-factor configural invariance model against ones that were more constrained: one where the loadings of the indicator variables were held equal at T1 and T2 (i.e., a weak invariance model) and another where, in addition to the loadings, the intercepts of the indicator variables were held equal at T1 and T2 (i.e., a strong invariance model). Finally, we tested whether, in addition to the loadings and the intercepts, the residual variances of each indicator variable could also be assumed equal at both T1 and T2 (i.e., a strict invariance model). We used the most parsimonious model (i.e., the model with the highest degree of factorial invariance) that was considered tenable as the basis for: (1) adding a structural model specifying associations among the latent variables; (2) computing bivariate correlations among the latent constructs; and (3) computing composite reliability scores (Werts, Linn & Jöreskog, 1974) as well as average variance extracted scores (AVE; Fornell & Larcker, 1981) for each construct. The AVE scores were used to assess construct validity (i.e., convergent and discriminant validities) at T1 and T2. To assess model fit, having observed deviations from normal distributions in the parceled indicator variables, we opted for the robust maximum likelihood estimation approach using the MLR estimator. In comparing models, we relied on the Satorra–Bentler scaled difference chi-square test (Satorra & Bentler, 2001) in combination with changes in the comparative fit index (CFI; see Meade, Johnson & Braddy, 2008).

Structural model. To test the parallel mediation model (see Fig. 1), we adopted the model specification outlined by Cole and Maxwell (2003) to adequately test for mediation in the context of a two-wave panel design (see also Newsom, 2015). We extended the model specification to include two mediators that operated in parallel (see Hayes, 2013). We further included autoregressive effects for each latent construct to minimize bias in the estimation of cross-lagged effects (Little *et al.*, 2007). When testing for a cross-lagged effect, controlling for prior levels of an outcome variable enables one to rule out that the effect might be linked to a correlation between the predictor and outcome variables at the previous measurement occasion (Selig & Little, 2012).

Consistent with an approach described by Little *et al.* (2013), the control variable perceived opportunity for blended working_{T1} was included as a predictor of all the T2 outcome variables in our research model (see Fig. 1) while also having non-directional covariance relations with all T1 variables. The empowering leadership_{T2} and perceived opportunity for blended working_{T2} variables were regressed onto their T1 counterparts. In order to test Hypothesis 1, we estimated a path c' (see Fig. 1) by regressing perceptions of the effectiveness of blended working_{T2} onto empowering leadership_{T1}. To estimate the paths a_1 and a_2 (see Fig. 1), autonomy satisfaction_{T2} and competence satisfaction_{T2} were separately regressed onto empowering leadership_{T1} (see Cole & Maxwell, 2003). To estimate the paths b_1 and b_2 (see Fig. 1), we regressed perceptions of the effectiveness of blended working_{T2} onto the autonomy satisfaction_{T1} and competence satisfaction_{T1} variables (see Cole & Maxwell, 2003). The indirect effects of empowering leadership, through autonomy satisfaction and competence satisfaction, on perceptions of the effectiveness of blended working (Hypothesis 2) were tested by first computing the products of the constituent paths (a_1b_1 and a_2b_2 respectively) and then using 95% bias-corrected bootstrap confidence intervals based on 10,000 bootstrap samples (Hayes, 2013) to test their significance. The model was fitted using maximum likelihood estimation including bootstrap standard errors for the parameter estimates.

RESULTS

Measurement invariance

The results relating to the measurement model, including the factorial time invariance testing, are shown in Table 1. The

configural invariance model, with the presumed five-factor solution, fit very well. Even though each indicator variable had rather similar loadings at each measurement point, the weak factorial invariance model had a worse fit than the five-factor configural invariance model based on the scaled chi-squared (χ^2) difference test for nested models ($p = 0.04$; see Table 1). Here, one should note that, in the context of invariance testing, this χ^2 difference test is sensitive to very minor differences (Little, 2013). As the CFI associated with the weak invariance measurement model and the CFI associated with the configural invariance model differed by less than 0.002 (see Table 1), weak invariance is tenable (Meade *et al.*, 2008). That the effect size of the model difference was small ($w = 0.07$) adds further support to this possibility (Cohen, 1992; Newsom, 2015). Furthermore, the fit of the strong invariance model was no worse than that of the weak invariance model, and the fit of the strict factorial invariance model was no worse than that of the strong factorial invariance model. Thus, overall, we were able to establish the content validity of each construct by providing evidence for the equivalence of the measurement of the constructs at T1 and T2, leading to the conclusion that the indicators represented the same latent constructs at both measurement times (Little *et al.*, 2007). Consequently, we used the measurement model that included the imposed restrictions on strict factorial invariance in our further analyses.

Table 2 presents the AVE scores, all of which were above 0.50 indicating that all the latent variables had convergent validity in the strict factorial invariance model (Bagozzi & Yi, 1988). Moreover, in the strict factorial invariance model, the square root of each latent variable's AVE score was larger than its bivariate correlation with all the other constructs at the same measurement occasion, indicating that all the latent variables had discriminant validity (Fornell & Larcker, 1981).

Descriptive statistics

Descriptive statistics for the latent variables, as well as the correlations among them, are presented in Table 2. The bivariate associations between predictor variables at T1 and outcome variables at T2 were all in the anticipated direction. However, the correlation between empowering leadership at T1 and competence satisfaction at T2 was not statistically significant. Further, the correlation between competence satisfaction and perceptions of the effectiveness of blended working was small and only statistically significant at T1.

Hypothesis testing

Based on guidelines for evaluating model fit (Hu & Bentler, 1999), the hypothesized model was a good fit to the data: $\chi^2(453, N = 405) = 687.36, p < 0.001$; RMSEA = 0.04, 90% CI [0.03, 0.04]; CFI = 0.98; SRMR = 0.06. The results related to the hypothesized paths are summarized in Fig. 2. In Hypothesis 1, we postulated a positive relation between empowering leadership and employees' perceptions of the effectiveness of blended working. The results supported Hypothesis 1 by showing a direct, cross-lagged effect of empowering leadership_{T1} on perceptions of

Table 1. Model fit indices and time invariance testing for the measurement model structure

Model no.	Model description	χ^2	df	CFI	RMSEA	SRMR	Comparison to model no.	Satorra–Bentler scaled $\Delta\chi^2$	Δdf
Test of the factor structure of the configural invariance measurement model									
1	Five-factor model	556.59***	403	0.98	0.03 [0.02, 0.04]	0.05	—	—	—
Tests of temporal invariance of the five-factor measurement model									
2	Weak invariance	578.33***	414	0.98	0.03 [0.03, 0.04]	0.06	1	20.80*	11
3	Strong invariance	592.06***	425	0.98	0.03 [0.03, 0.04]	0.06	2	13.55	11
4	Strict invariance	595.39***	441	0.98	0.03 [0.02, 0.04]	0.06	3	9.18	16

Notes: $N = 405$. All models were fitted using a robust maximum likelihood estimator (MLR). CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean squared residual. Square brackets contain the 90% confidence intervals of the RMSEA values.

* $p < 0.05$,

*** $p < 0.001$.

Table 2. Means, standard deviations, average variance extracted scores, composite reliability scores, and correlations for the study variables at T1 and T2

Variable	M	SD	AVE	1	2	3	4	5	6	7	8	9	10
1. Perceived opportunity for blended working T1	5.18	1.05	0.64	(0.84)	0.84***	0.17*	0.11	0.16*	0.17**	0.05	0.00	0.66***	0.59***
2. Perceived opportunity for blended working T2	5.22	1.01	0.62		(0.83)	0.12	0.15*	0.12	0.15*	−0.01	0.01	0.59***	0.60***
3. Empowering leadership T1	5.28	1.01	0.72			(0.88)	0.79***	0.70***	0.61***	0.21**	0.11	0.19**	0.20***
4. Empowering leadership T2	5.21	1.00	0.71				(0.88)	0.58***	0.70***	0.14*	0.19**	0.12*	0.20***
5. Autonomy satisfaction T1	3.80	0.56	0.60					(0.82)	0.86***	0.36***	0.24**	0.20***	0.12*
6. Autonomy satisfaction T2	3.77	0.59	0.62						(0.83)	0.29***	0.34***	0.14*	0.18**
7. Competence satisfaction T1	4.24	0.51	0.76							(0.93)	0.71***	0.13*	0.07
8. Competence satisfaction T2	4.26	0.53	0.77								(0.93)	0.01	0.07
9. PEBW T1	5.31	1.17	0.67									(0.85)	0.79***
10. PEBW T2	5.26	1.21	0.68										(0.86)

Notes: PEBW = perceptions of the effectiveness of blended working. $N = 405$. T1 = Time 1; T2 = Time 2. Means (M), standard deviations (SD), average variance extracted (AVE) scores, and correlation coefficient estimates pertain to the latent variables. Latent variable composite reliability scores are presented in parentheses along the diagonal.

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$.

the effectiveness of blended working_{T2}: $\gamma = 0.20$,² $SE_\gamma = 0.08$, $p = 0.02$, 95% $CI_{Boot} [0.05, 0.38]$.

In Hypothesis 2, we posited that the positive relation between empowering leadership and employees’ perceptions of the effectiveness of blended working was mediated by autonomy satisfaction and by competence satisfaction. Here, the results did not support positive indirect effects of empowering leadership on perceptions of the effectiveness of blended working mediated through autonomy satisfaction, $a_1b_1 = -0.01$, 95% $CI_{Boot} [-0.04, 0.01]$, or through competence satisfaction, $a_2b_2 = 0.00$, 95% $CI_{Boot} [-0.01, 0.00]$. Thus, Hypothesis 2 was rejected.³

DISCUSSION

There is a growing trend toward organizations offering employees blended working arrangements that provide flexibility as to when and where they carry out their work (Van Yperen & Wörtler, 2017). Focusing on the role of leadership, we aimed to increase understanding of when blended working is likely to be effective. Through a two-wave field study, we have shown that empowering leadership behaviors, which focus on supporting employees’ autonomy and on developing their competences to work autonomously (Amundsen & Martinsen, 2014), increase the likelihood that employees will perceive blended working as effective for themselves. Similarly, Lautsch *et al.* (2009) showed

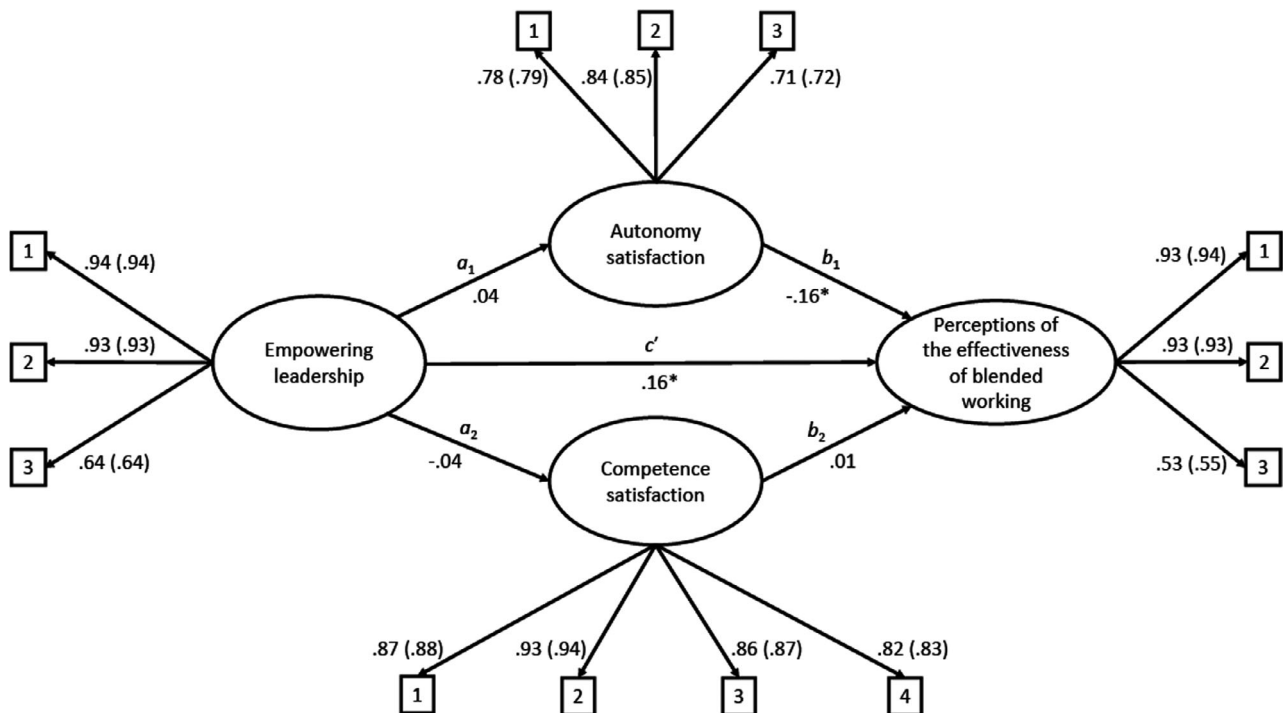


Fig. 2. Summary of the structural equation modeling results. Notes: Standardized parameter estimates are shown. Numbered rectangles represent the indicator variables of the latent constructs shown in ellipses. The loadings of the indicator variables on their corresponding construct were all significant ($p < 0.001$) at both measurement times (the loadings observed at the second measurement time [T2] are within parentheses). Autonomy satisfaction and competence satisfaction measured at T2 were both regressed on empowering leadership measured at the first measurement occasion (T1). The variable 'perceptions of the effectiveness of blended working' measured at T2 was regressed on both autonomy satisfaction and competence satisfaction measured at T1. Autoregressive effects, covariances, and the control variable 'perceived opportunity for blended working' are not shown to aid clarity. $*p < 0.05$.

that, when leaders used an information-sharing approach (i.e., autonomy-supporting behavior) to supervision, employees who worked away from the employer's site (i.e., telecommuted) tended to perform better in their job. Madlock (2012), on the other hand, observed that a task-oriented leadership style (i.e., using explicit task-oriented communication) was positively associated with outcomes including communication and job satisfaction among employees working from home using technology. It could be that, at least during the initial states of a blended working arrangement, task-directed communication is beneficial by providing some direction and structure for employees to maintain their effectiveness. Subsequently, empowering leadership, which enables, motivates, and develops employees' ability to work more independently, may be useful in facilitating positive outcomes including greater perceptions of the effectiveness of blended working.

Moreover, considering that one aim of an empowering leadership style is to develop employees' self-leadership skills (Amundsen & Martinsen, 2014), our findings also provide empirical support for the notion that being able to work independently helps employees become effective when engaged in blended working practices (Beauregard *et al.*, 2019). In terms of the empowering leadership literature, our findings are generally consistent with previous findings that this leadership style is positively associated with employee performance (Lee *et al.*, 2018). More generally, our findings also support SDT's tenet that contextual support for both autonomy and competence, as achieved through an appropriate leadership style, is conducive to individuals' effective functioning in work settings (Deci *et al.*, 2017).

Unexpectedly, the results did not support the existence of an indirect relation between empowering leadership and employees' perceptions of the effectiveness of blended working through either the satisfaction of the need for autonomy or through the satisfaction of the need to feel competent at work. The posited existence of these indirect relations was based on our theoretical reasoning that empowering leadership would satisfy autonomy and competence needs, and that these needs, when satisfied, would be antecedents of employees' perceptions of the effectiveness of blended working. We offer two potential explanations for the lack of support for these hypothesized indirect relations.

First, given that the simple bivariate association between autonomy satisfaction and perceptions of the effectiveness of blended working was positive (see Table 2) while the corresponding regression coefficient in the statistical model was negative (see Fig. 2), and such a result is theoretically unsound, it could be that these results are due to a statistical phenomenon rather than reflect a true relation. More specifically, negative suppression can occur in the context of regression-based analyses when predictor variables (here, empowering leadership and autonomy satisfaction) are positively correlated with the outcome variable (perceptions of the effectiveness of blended working) and with each other, while the regression coefficient of one of the predictor variables has a negative value (as does autonomy satisfaction in our model) (Kline, 2016).

Second, the lack of support for an indirect relation through competence satisfaction may be linked to the fact that, except for a weak correlation at T1, there was no evidence for an

association between competence satisfaction and perceptions of the effectiveness of blended working (see Table 2). It is conceivable that specific competences, rather than experiencing a general sense of competence (i.e., satisfaction of the basic psychological need for competence), are important in predicting employees' perceptions of the effectiveness of blended working. For example, Van Yperen and Wörtler (2017) suggest that having various technical, psychological, and organizational competences could be important when one is engaged in blended working practices (see also Beauregard *et al.*, 2019). Future research could therefore usefully continue to pursue our aim of identifying mechanisms that underlie the positive link between empowering leadership and employees' perceptions of the effectiveness of blended working. For example, work-related learning (Porath, Spreitzer, Gibson & Garnett, 2012) could be a potential mechanism since: (1) empowering leadership includes developing employees' skills to work autonomously; and (2) effective blended working may need to be learned through developing various skills (Van Yperen & Wörtler, 2017). Using a more focused operationalization of learning, such as acquiring knowledge and skills to build capability for autonomous working, rather than the more general operationalization of learning (see Porath *et al.*, 2012) would possibly increase the likelihood of identifying a mediated relation.

Practical implications

Our findings are relevant for organizations given Beauregard *et al.*'s (2019) observation that, when organizations adopt alternative working arrangements, they often do not adjust their approach to managing employees accordingly. This reluctance could be due to a shortage of evidence-based recommendations as to the direction in which they should develop their management style. Here, our findings offer organizations guidance as to specific behaviors that leaders could display to help employees succeed in such new ways of working. As such, our findings may help organizations reap the benefits of blended working arrangements including increased satisfaction and enhanced performance in the workforce (e.g., Vega, Anderson & Kaplan, 2015).

However, not all leaders who supervise employees engaged in blended working arrangements are trained in and/or practicing an empowering leadership style. Hardré and Reeve (2009) report on a training intervention in which they successfully aimed to develop leaders' skills in using autonomy-supporting techniques such as recognizing employees' interests and preferences, discussing problems rather than instructing employees how to handle them, and listening to employees' concerns. These techniques are consistent with the behaviors shown by leaders who adopt an empowering leadership style (Amundsen & Martinsen, 2014). Therefore, to develop empowering leaders, organizations could consider extending Hardré and Reeve's (2009) training program to also incorporate the elements of power sharing and demonstrating effective self-leadership behavior.

Strengths, limitations, and future research

The strengths of the current study include that we collected data at two time points and that we measured all the variables at each

one. This approach allowed us to examine changes in employees' perceptions of the effectiveness of blended working over a period of time and to test for mediation more rigorously than if we had only collected data at a single point (Maxwell & Cole, 2007).

Nevertheless, our study is not without limitations. First, since all our data were obtained through participant self-reporting, the associations found among the constructs could have been influenced by common method variance (Podsakoff *et al.*, 2003). However, same source data do not necessarily lead to biased associations between constructs (e.g., Fuller *et al.*, 2016). In our study, having a time interval between measuring the predictor and the criterion variables reduces the likelihood of common method bias (Podsakoff *et al.*, 2003). Another limitation is that the correlational nature of our study design does not allow a causal link to be inferred between empowering leadership and employees' perceptions of the effectiveness of blended working. In a future study, both limitations (i.e., the exclusive reliance on both self-reported and correlational data) could be overcome by carrying out a field experiment with a sample of employees all participating in blended working arrangements but under different leadership styles. It could test the effect of empowering leadership style, relative to a more controlling leadership style (e.g., Lorinkova, Pearsall & Sims, 2013), on employee effectiveness assessed by supervisor ratings of employees' performance and/or employees' objective productivity (see Baltes, Briggs, Huff, Wright & Neuman, 1999).

The observed differences between our final sample and the employees who chose to discontinue participating in the research after the first measurement occasion can also be regarded as a limitation because systematic dropout carries the possibility of introducing bias in the results (Ployhart & Vandenberg, 2010). The observed dropout seems to indicate that employees who had greater autonomy at work, either because they worked in a leadership function or because they perceived their leaders as showing empowering behaviors to a great extent, were more willing to also complete the survey at the second measurement point (T2). A possible explanation for this is that the study was described to the participants as one dealing with the effects of autonomy at work. As such, participating in our study was perhaps seen as potentially more personally relevant and intrinsically motivating to such employees.

As a final limitation, our findings only relate to employees from the Netherlands and might, therefore, not apply to employees in other countries. For instance, relative to the Netherlands, individuals from Asian countries tend to be more prone to uncertainty avoidance (i.e., have an aversion to ambiguous contexts; Hofstede, Hofstede & Minkov, 2010). Given that stimulating increased independent working through empowering leadership is likely to also increase ambiguity relative to when a more controlling leadership style is used, empowering leadership may decrease rather than increase employees' perceptions of the effectiveness of blended working in Asian countries. Supporting this reasoning, Van Yperen *et al.* (2014) found that the higher employees' aversion to ambiguity, and the stronger their preference for predictability, the less they tended to perceive blended working as personally effective. Considering the trend towards blended working in many parts of the world, future studies could investigate whether empowering leadership predicts perceptions of the

effectiveness of blended working in employees from other countries, particularly those countries that tend to be high on uncertainty avoidance.

CONCLUSIONS

Given the proliferation of blended working arrangements due to technological and societal developments, including the COVID-19 pandemic, understanding how leaders can facilitate effective blended working has become a pivotal subject for organizational research and practice. The current study has contributed to increasing this understanding by indicating that, if employees are to blend working remotely with working at the main work site, their effectiveness is likely to be enhanced if their leaders use an empowering leadership style.

CONFLICT OF INTEREST DISCLOSURE

The authors have no conflict of interest to declare.

ETHICS APPROVAL STATEMENT

The research involving human participants was reviewed and approved by an institutional ethics committee. All participants provided active informed consent.

ENDNOTES

¹ A greater number of participants than 400 was recruited at T1 because participant dropout was expected to occur between T1 and T2.

² Unstandardized value.

³ Controlling for participants' gender, age, job tenure, and education level, as well as for leadership function, did not result in meaningful changes to the results. The results reported are those based on the model without these variables.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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