Transformational Leadership and Work Engagement in Remote Working Settings: The Moderating Role of Supervisor Digital Communication Skills

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Abstract

Several studies demonstrated how work engagement positively impact on individuals and organizations, and how social variables – such as supervisor support and transformational leadership – positively impact on engagement. However, we have scant empirical evidence of these relationship in highly remote settings. During the Covid19 outbreak, many organizations have been forced to implement remote working and several employees experienced social distancing. In this convenient scenario, we studied if transformational leaders could still be effective in fostering engagement and, thus, wellbeing. A survey on these topics has been administered to the employees on an Italian information consulting company who experienced remote working during the pandemic. Through a Structural Equation Modelling on the 410 responses collected through a questionnaire, we show that transformational leadership stimulates work engagement through the mediation of perceived supervisor support in a forced remote working context. In addition, we demonstrate that high levels of perceived digital communication skills of supervisors moderate positively the relationship between perceived supervisor support and work engagement. Implications for both academics and practitioners are discussed.

Keywords: Transformational Leadership, Work Engagement, Perceived Supervisor Support, Perceived supervisor digital communication skills, E-leadership, Remote Working

1. Introduction

Several reserach (Kahn, 1990; Bakker et al., 2005; Rich et al., 2010) have demonstrated how work engagement sustain individuals' job satisfaction and positive behaviors such as adaptivity and creativity (Eldor and Harpaz, 2016; Saks, 2006), leading from one hand higher productivity and profitability and on the other hand to lower absenteeism and turnover (Harter et al., 2002). Monitoring and fostering engagement, thus, it is not merely key in enhancing the general wellbeing of employees, but also in achieving organizational goals (Tims et al., 2013; Brauchli et al., 2013; Hu et al., 2011).

Many studies have tested how social support and, more generally, social interactions impact on work engagement. One of the most investigated topics is the relationship with supervisors, stressing the importance of the feedback provided to peers (Xanthopoulou et a l. 2008) and, more generally, of proper leadership approaches (McGrath et al. 2017). In this sense, transformational leadership is one of the most investigated approach in relation to work engagement. More studies have shown that transformational leaders seem having a positive impact on work engagement, both directly (Schmitt et all., 2016; Brevaart et al, 2014) and indirectly, for instance mediating the relationship between daily job demands and engagement (Breevaart and Bakker, 2018).

Most studies, however, have investigated these relationships within traditional work settings, characterized by the physical presence of both collaborators and supervisors in the same place. Given the current situation due to Covid19, however, the workplace is shifting form a physical to a virtual space (Wang et al., 2021), changing the way we work, and we interact with each other (Becker et al., 2022). Several companies are redesigning their work model implementing forms of remote working

(Choudhury, 2020),. For example, GitLab, a software company located in more than 60 countries, has no physical office and its employees can decide to work from anywhere they prefer to. Almost every organizational step regarding the employee path (e.g., hiring, onboarding, etc.) is implemented remotely (Choudhury et al, 2020).

Even the CEOs of many important companies as Tim Cook (Apple), Heyward Donigan (Rite Aid Corp), Satya Nadella (Microsoft corp.) have affirmed that even after pandemic work will be characterized by more flexibility (Cutter on The Wall Street Journal, 23th September 2020).

In this new normal increasingly characterized by work-from-anywhere models (Choudhury et al, 2020), it arises the need of investigating if transformational leaders can support their collaborators and stimulate their engagement even in highly remote working contexts. The use of proper digital solutions (i.e., e-mail, instant messaging platforms, conference call solutions, etc.) could help leaders to communicate in a way that enable them to adopt their leadership approaches and support their collaborators.

A study on 522 remote workers conducted in China during pandemic (Wang et al., 2021) has identified four key remote work challenges: work-home interference, ineffective communication, procrastination, and loneliness. Additionally, authors have identified four virtual work characteristics that affected the experience of these challenges, which are respectively social support, job autonomy, monitoring, and workload (Wang et al., 2021). The results of this study demonstrated that social support, in particular, was correlated to lower levels of all remote working challenges, generating positive indirect impacts on the wellbeing of employees (Wang et al., 2021).

With this research , we investigate if transformational leadership may influence positively the work engagement of remote workers through perceived supervisor support. We hypothesize that supervisor support, given the proximal distance to the employees and being the principal actor of the organization with which employees interact with, could have a stronger impact on them (Eisenberger et al., 2002, 1986).

Finally, we will investigate for the first time if the relationship between perceived supervisor support and work engagement of employees may be moderate by the digital communication skills of supervisor. We believe that after pandemic remote working practices will be always more adopted by companies. For this reason, it could be helpful to understand how to increase and enhance the support offered to employees even within a remote working setting.. Past studies have already demonstrated that transformational leaders have a positive impact on perceived supervisor support and the degree of engagement of their collaborators. Within a working context digital-mediated, the support of supervisor may be influenced by the digital communication skill owned by supervisors (Dennis et al., 2008). In other words, we suppose that, within a working context mediated by digital technologies, transformational leader could be more supportive when she is more confident in communicating through digital tools.

2. Theoretical background and hypotheses

Figure 1 reports the three hypotheses and the overall model that will be empirically tested. In the reminder of the paragraph the hypotheses and the model will be justified in light of current literature.
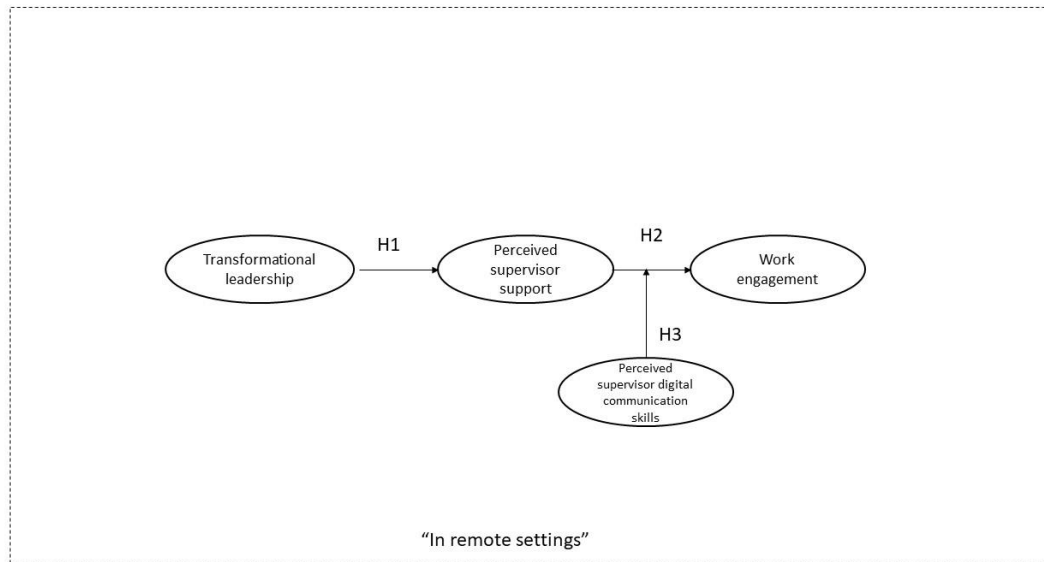
Figure 1. Model and hypotheses

2.1.Transformational leadership and perceived supervisor support

Transformational leadership is one of the most investigated and discussed leadership approaches by both organizational behavior and managerial literatures (Judge et al, 2004). In line with Bass (1985), transformational leadership is characterized by four dimensions that are respectively idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence refers to the ability of leaders of inspiring followers through their behaviors and words. Inspirational motivation concerns the degree to which the leader shares a vision that is inspiring to their followers. Leaders with inspirational motivation encourage their followers to achieve the work goals with high standards, communicating optimism and meaning regarding their task activities. Intellectual stimulation refers to the ability of the leader to propose new ways to face problems, facilitating rational solutions and teaching followers to consider difficulties as problems to be solved. Leaders that show this trait are also able to stimulate and encourage the creativity of their collaborators. Individualized consideration represents the ability of the leader to listen to follower's needs and concerns and acting as a mentor or coach (Judge et al, 2004; Bass, 1985).

Transformational leaders are used to share a goal with their collaborators that is oriented to the long term and relying on the intrinsic needs of individuals (Judge et al, 2004).

Previous studies have shown that transformational leadership increases employees' performance (Kovjanic et al., 2013) and their wellbeing related outcomes such as job satisfaction and positive emotions (Bono et al., 2007). It has been demonstrated also that transformational leadership positively impact employee proactivity, leading them to go beyond formal job requirements and taking initiative (Belschak & Den Hartog, 2010). One of the main aspects of transformational leaders is that they are able to stimulate and empower employees to think outside the box. They motivate employees in acting beyond self-serving interests, for instance stimulating them to find creative solutions to work issues and to make a positive contribution to the team (Bass, 1985). Another aspect of transformational leaders concerns their effort to improve their work context in an active way (Bass, 1985).

In the past, several studies have shown how certain leadership behaviors contribute to foster job resources, such as social support (Breevaart et al., 2014; Nielsen & Daniels, 2012), that in turn lead to positive attitudes and behaviors of individuals. Social support can refer to organization, colleague and supervisor support. In particular, supervisory support is one of the most investigated aspect in relation performance and wellbeing of employees (Saks, 2006)

Social Exchange Theory (SET) explains how reciprocity is one of the most important aspects able to define the relationship between employers and employees and why individuals answer with different levels of work engagement and or performance (Cropanzano and Mitchell, 2005; Saks, 2006).In line

with this theoretical perspective, when one person treats properly another one, she may expect favorable treatment in return, leading to positive outcomes for both parties involved (Rhoades and Eisenberger, 2002). More studies have demonstrated that transformational leaders positively influence the perceived supervisor support of employees (Liaw et al., 2010; Görgens-Ekermans et al., 2021).

Perceived supervisor support is defined as the perception of employees regarding how supervisors care about their wellbeing and value their contributions (Kottke and Sharafinski, 1988; Eisenberger et al. 2002). The relationship with a supervisor is considered as one of the main factors of employee's work environment (Van der Heijden et al., 2010). A good supervisory feedback and communication between the supervisors and subordinates may increase employees' capabilities (Blancero et al.,1996). When employees observe their supervisors as supportive, helpful, positive feedback and helping them in career development, they believe that their supervisor has concern for their feelings and needs (House, 1981).

PSS can also contribute to increase the degree of perceived organizational support because supervisors can be considered as representative actors of the organizations, who convey information from the organizations to employees directly (Eisenberger et al., 2002, 1986). In addition, employees may perceive that the evaluations from their supervisors are reported to the organization, leading them to think that receiving supervisor support is associated with receiving organizational support (Rhoades and Eisenberger, 2002).

Although this kind of relationship has been always analyzed within a traditional working context, we believe that transformational leaders are able to positively influence the perception of employees regarding the support offered by the supervisor even within a forced remote working context. For this reason, we propose the following hypothesis:

H1. Transformational leadership is positively related to perceived organizational in a remote working context.

2.2. Perceived supervisor support on work engagement

In the new normal brough by Covid outbreak many organizations are adopting forms of remote working, changing not only the way their employees work and interact with each other, but probably also the way they are engaged.

One of the most used and shared definition of work engagement has been developed by Schaufeli et al. (2002), who defined it as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption". Vigor is characterized by high levels of energy, willingness to put effort into the job, and persistence during difficulty moments. Dedication implies enthusiasm, inspiration, awareness, proud and feeling challenged by the job. Absorption is the quality of being fully concentrated and focused on the job; time passes quickly, and it is possible to have difficulties to detach themselves from work (Schaufeli et al., 2002).

Several studies have demonstrated that high levels of work engagement enhance individual performance-in role of employees (Ozyilmaz, 2019; Byrne et al., 2016; Bakker et al., 2012; Rich et al. 2010) as well as the performance extra-role, allowing companies to achieve their work goals and thus bringing advantages for both individuals and organizations (Rich et al. 2010; Zhong et al. 2016). Furthermore, it has been proved that the once an employee experiences engagement, she tends evaluating both her job (Haynie et al., 2016) as well as her own private life (Bakker et al. 2005) as more satisfying.

In line with SET, when organizations take care about the concerns and the needs of their employees, these one answer with high levels of work engagement (Rhoades and Eisenberger, 2002). Social support has been studied in relation to work engagement. Schaufeli and Bakker (2004), for instance, found that social support from colleagues and performance feedback were found to be positively associated with work engagement. Saks (2006) have analyzed the positive impact of both perceived organizational support and perceived supervisor support on work engagement.

The majority of the studies have analyzed mainly the relationship between work engagement and perceived supervisor support rather than perceived organizational support (Matthews et al., 2014; Freeney and Fellenz, 2013; James et al., 2011; Siu et al., 2010). The supervisor represents a pivotal role in the representation of an organization, thus a good relationship between supervisor and collaborators

and a good approach of leadership could involve even in a good perception of the whole company (Saks, 2006).

Researchhave shown how transformational leadership, positively affect work engagement (Schmitt et all., 2016; Brevaart et al, 2014). Even in this case, despite this kind of relationship is usually studied within traditional working context, we believe that perceived supervisor support may influence positively the degree of work engagement of employees also within a forced remote working context. For this reason, we propose the following hypothesis:

H2. Perceived organizational support is positively related to work engagement in a remote working context.

2.3. The importance of digital skills of communication of supervisor in remote working contexts

Previous studies on work engagement have always focused their attention on a traditional working context, in which employees work in the same space at the same time.

In the new normal brought by Covid19, characterized by high levels of remote work, it appears crucial to investigate whether engagement could still be affected by those antecedents previously studied in relation with it. With this research we intend investigating if social and relational variables, such as supervisor support support and transformational leadership, could still positively influence engagement within a forced remote working context, as demonstrated in the past in several empirical studies characterized by social proximity (Breevaart et al., 2014; Schmitt et all., 2016).

Currently, many digital solutions used to implement forms of remote working are helping companies and employees in working and communicating. Digital platforms such as Zoom, Slack, and Microsoft Teams allow employees to communicate in a synchronous and rich way, thus similarly to the traditional face-to-face communication. Whitin this scenario we assume that these digital solutions characterized by the richness and the synchronicity of communication permit to supervisors to express their leadership approaches. Furthermore, we assume that employees will perceive more support from the leaders who will exhibit a transformational approach even if mediated by digital technologies.

An experimental study conducted by Purvanova et al. (2009) on transformational leaders in the context of traditional teams using face-to-face communication and virtual teams using computer-mediated communication, demonstrated that the most effective leaders where those who increased their transformational leadership in virtual teams. Furthermore, research show that the effect of transformational leadership on team performance was stronger in virtual than in face-to-face teams, demonstrating that transformational leadership had a stronger effect in teams that used only computer-mediated communication, increasing the levels of team performance.

Nowadays, researchers of different fields are increasingly interested in investigating the adoption of a specific leadership approaches within a context mediated by digital technologies. One of the most used and accepted definition of e-leadership by researchers is the following: ''*a social influence process embedded in both proximal and distal contexts mediated by AIT that can produce a change in attitudes, feelings, thinking, behavior, and performance*'' (Avolio et al., 2014: 107).

The wide diffusion of technologies and their mixed use, and the resulting complexities for organizational management has generated a complex in which appears relevant to deepen the role of e-leadership. A case study conducted by Van Wart et al. (2017) has identified six e-competencies that are critical to effective e-leadership (Roman et al., 2018):

- *E-communication*: which refers to the leader' ability to communicate via digital media in a manner that is clear and organized, avoiding errors and miscommunication, and in a manner that is not excessive or detrimental to performance.
- *E-social*: which concerns the ability of a leader to create a positive work environment, improving communication and collaboration through a variety of virtual communication methods.
- *E-change*: which refers to the ability of managing change initiatives effectively through digital technologies.
- *E-team*: which refers to the ability of building, motivating, recognizing, and holding accountable teams in virtual environments.

- *E-tech*: which concerns the knowledge of a leader regarding relevant digital developments and security-related concerns;
- *E-trust*: which refers to the ability of a leader of creating a sense of trust based on fair and honesty in digital environments.

In this research we have decided to focalize our attention on the digital skills of communication of supervisor.

Some elements discussed in the literature related to this competence are clarity, avoidance of miscommunication and overload, and message delivery (Roman et al., 2018). Communication clarity is on of the most essential component for a good e-leadership (Balthazard et al, 2009; Yoo and Alvari, 2004). Nowadays, leaders have a variety of communication and collaboration tools, such as digital platforms such as Zoom and Microsoft Teams, that require specific digital skills.

These digital skills are fundamental, especially for leaders that have to deal with different issues related to remote working contexts. In this sense, we hypothesize that leaders that exhibit more digital communication skills will be more able to manifest their leadership approach and support their peers, which in turn will increase their engagement. In particular, we suggest that employees will perceive more support from their supervisor who will demonstrate to be more effective to communicate in a context mediated by digital technologies. Starting from these considerations, we propose the following hypothesis:

H3. Perceived supervisor digital communication skills moderate the relationship between perceived organizational support and work engagement in a remote working context.

3. Method

3.1. Context, participants, and procedure

Survey has been administrated from November 2020 to December 2020 within *Altea Federation,* an Italian information consulting company that implemented forced remote working practices during Covid19. During this period, all the consultants of this company experienced a forced remote relationship with their supervisors and/or collaborators.

The questionnaire was distributed with the support of HR department of the firm through an e-mail in which the aim of the research was explained, ensuring employees on the anonymity of the gathered data. The questionnaire was articulated in two parts. The first included demographic questions (e.g., age, gender, work years) and questions related to the frequency of usage of different communication channels between employees and their supervisors before and during the pandemic. As agreed with the organization, as communication channels we have included eight different ways of communicating and interacting adopted by the company such as face-to-face, video call, phone call, shared document, instant messaging, blog and forum, email, and fax. Furthermore, we also asked participants to indicate the mean frequency with which they used to interact with their supervisors before and during pandemic in order to understand whether the frequency might change in remote working setting.

The second part of the questionnaire included questions related to the constructs of transformational leadership, perceived supervisor support, perceived supervisor digital communication skills, and work engagement.

A total of 410 respondents out of 1,540 took part in the study, showing interesting response rate (27%) and representativeness of the whole population of employees. The final sample was composed by 127 women (31%) and 283 men (69%), with a mean age of 42 years (SD = 10.08). Participants worked for the organization from 5 years as mean (SD = 5.35).

3.2. Measures

Transformational leadership was measured with eight-item the scale developed by Podsakoff et al. (1990). The selected items asses the four dimensions of transformational leadership, individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence.

Sample items include the following: "my supervisor has a clear vision of where we are going." and "my supervisor inspired me to rethink the ways I do things.". Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of transformational leadership, showing extremely good internal consistency (Cronbach's alpha = 0.93).

Perceived supervisor support was measured with the four-item scale adapted from Rhoades et al. (2001). A sample item for PSS is "my supervisor cares about my opinions". Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of perceived supervisor support, showing extremely good internal consistency (Cronbach's alpha = 0.87).

Perceived supervisor digital communication skills were measured with five items developed by own. The items used are respectively "he/she is competent in communicating through digital communication channels.", "it never happens to him/her to be not able to communicate something through digital communication channels.", "he/she easily use email and the internet.", "he/she always knows in which way communicate in relation to the digital communication channel used." and "he/she knows how to adapt the message to the digital communication channels used when he/she communicates with someone via computer." Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of perceived supervisor digital communication skills, showing extremely good internal consistency (Cronbach's alpha = 0.88).

Work engagement was measured with the nine-item version of the Utrecht Work Engagement scale (UWES; Schaufeli et al.,2002). The UWES assesses the three dimensions of work engagement: vigor, dedication, and absorption. Sample items include the following: "At my work, I feel I am bursting with energy" and "When I get up in the morning, I feel like going to work.". Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of work engagement, showing extremely good internal consistency (Cronbach's alpha= 0.94).

Control variables. In line with other studies, three socio-demographic variables – age, gender and years of work in the organization – have been included in the model as control variables (Breevaart et al., 2014). Previous studies have demonstrated that age may have a direct effect on work engagement. This relationship could be observed even within remote working context (Breevaart et al., 2014).

3.3.Statistical analyses

First, descriptive statistics were used to show a general overview of the constructs considered as well as the frequency of interaction and of the communication channel used by employees (face to face, call, videocall, etc.) before and during pandemic.

Second, Structural Equation Modelling (SEM) was used to test the hypotheses and the relationships among the various constructs. SEM, which combines factor and regression analyses among one or more dependent and independent variables (Muthén & Muthén, 1998-2015), is one of the most effective techniques used by organizational researchers. All the analyses were performed in Stata 14.

Furthermore, Comparative Fix Index (CFI; Bentler, 1990), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) are reported in order to test the model fit. The CFI is considered the best approximation of the population value for a single model, with values greater than or equal to 0.90 considered indicative of good fit (Medsker et al., 1994). The SRMR is a standardized summary of the average covariance residuals. A favorable value is less than 0.10 (Kline, 1998). The RMSEA is a measure of the average standardized

residual per degree of freedom. A favorable value is less than or equal to 0.08, and values less than or equal to 0.10 are considered "fair" (Browne and Cudeck, 1989).

4. Results

4.1. Descriptive statistics

Table 1 presents means, Standard Deviations (SDs), and correlations of the studied variables. Results indicated that demographic variables (age, gender, work years) were not significantly correlated with the variables investigated in this study. Transformational leadership related positively to perceived supervisor support, perceived supervisor digital communication skills and work engagement. Results show that high levels of work engagement coincide with higher levels of transformational leadership and perceived supervisor support.

Results highlights even that perceived supervisor digital communication skills is positively related to transformational leadership and perceived supervisor support.

Table 1. Means, standard deviations, inter-correlations and internal consistencies[*]

	Mean	SD	1	2	3	4	5	6
Transformational leadership	5.37	1.15	(.93)					
Perceived supervisor support	4.75	0.87	0.6952**	(.87)				
Perceived supervisor digital communication skills	4.23	0.69	0.5133**	0.4213**	(.88)			
Work engagement	5.35	1.11	0.5620**	0.4054**	0.3567**	(.94)		
Gender	1.31	0.46	0.0864	0.0283	0.0077	0.0587		
Age	40.88	10.08	0.0099	0.0954	0.0227	0.0970	-0.1847**	
Work years	5.39	5.35	0.0439	0.0100	0.0113	0.0143	-0.0640	0.2844**

Note. ** = Significant at $p < 0.05$

Our results show that before and during the pandemic the frequency of interaction with supervisor is not significantly changed. Before the pandemic 57% of employees used to interact with their supervisor at least 2 or 3 times per week. During the pandemic, the situation has remained fairly similar with more than half employees (52%) affirming to interact with their supervisor at least 2/3 times a week (see Table 2).

Table 2. Frequency of interaction between collaborators and their supervisors before and during pandemic

Frequency of interaction	Before the pandemic		During the pandemic	
	Respondents	*Percentage*	*Respondents*	*Percentage*
Never	6	1.56%	6	1.53%
Rarely	38	9.90%	30	7.65%
1 time per month	28	7.29%	34	8.67%
2/3 times a month	47	12.24%	60	15.31%
Once a week	48	12.50%	59	15.05%
2/3 times per week	79	20.57%	89	22.70%
1 time per day	49	12.76%	31	7.91%
Many times per day	89	23.18%	83	21.17%
Total	384	100%	392	100%

Results pre-pandemic show that email, face-to-face and call are the most used communication channels by employees to interact with their supervisors (respectively with a use of 47%, 37% and 30% very frequently or systematically). As depicted in Table 3 and Table 4, videocall, blog, forum and fax have been rarely used. Email, video call and call are the communication channels mostly used by employees to interact with their supervisors during pandemic (respectively with a use of 49%, 45% and 35% very frequently or systematically). Even in this case, the use of blog, forum and fax is very uncommon.

Compared to the pre-pandemic period, results also show that the frequency of use of instant messaging and shared document grew up (respectively with a use of 32% and 30% very frequently or systematically).

Table 3. *Frequency of use of communication channels between collaborators and their supervisors before the pandemic*

Frequency	Face-to-face		Video call		Call		Shared document		Instant messaging		Blog, forum		Email		Fax	
	Resp.	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*
Never	17	4.3	129	32.9	14	3.65	49	12.4	36	9.1	256	65.0	1	0.3	297	75.2
Very rarely	39	9.9	88	22.4	33	8.4	61	15.5	47	11.9	66	16.8	16	4.1	46	11.7
Rarely	31	7.9	54	13.8	39	9.9	48	12.2	56	14.1	35	8.9	14	3.6	21	5.3
Sometimes	73	18.6	71	18.1	94	23.9	90	22.8	92	23.2	18	4.6	52	13.3	16	4.1
Frequently	87	22.1	25	6.4	95	24.1	67	17.0	73	18.4	10	2.5	123	31.4	5	1.3
Very frequently	73	18.6	19	4.9	75	19.0	45	11.4	64	16.2	6	1.5	104	26.5	5	1.3
Systematically	73	18.6	6	1.5%	44	11.2	34	8.6	28	7.1	3	0.8	82	20.9	5	1.3

Table 4. *Frequency of use of communication channels between collaborators and their supervisors during the pandemic*

Frequency	Face-to-face		Video call		Call		Shared document		Instant messaging		Blog, forum		Email		Fax	
	Resp.	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*	*Resp.*	*%*
Never	195	49.1	17	4.3	21	5.3	60	15.1	38	9.6	261	66.2	3	0.8	335	84.4
Very rarely	115	28.9	25	6.3	31	7.9	42	10.6	38	9.6	57	14.5	13	3.2	31	7.8
Rarely	41	10.3	27	6.8	28	7.1	32	8.0	34	8.6	27	6.9	25	6.3	13	3.3
Sometimes	24	6.1	64	16.1	80	20.3	62	15.6	80	20.2	21	5.3	41	10.4	8	2.0
Frequently	15	3.8	85	21.4	97	24.6	83	20.9	79	19.9	13	3.3	121	30.6	4	1.0
Very frequently	3	0.8	89	22.4	79	20.0	65	16.3	73	18.4	11	2.8	94	23.7	4	1.0
Systematically	4	1.0	90	22.7	59	14.9	54	13.6	55	13.9	4	1.0	99	25.0	2	0.5

4.2. Confirmatory factor analysis

We considered four nested models with various numbers of factors. In particular, we considered (a) a single factor model that incorporates all four constructs; (b) a two-factor model combining TL, PSS and perceived supervisor digital communication skills (factor 1); (c) a three-factor model combining PSS and perceived supervisor digital communication skills (factor 1), transformational leadership (factor 2) and work engagement (factor 3); (d) a model that considers each construct as a separate factor. The fit indexes of the models are presented in Table 5 and confirm that the four factors model is the one with the better good fit (for all the indexes). Thus, it is the best approach as the measurement part of our model. The factor loadings of all items were significant at $p < 0.01$.

Table 5. Results of the confirmatory factor analysis

Model	CFI	TLI	RAMSEA	SRMR	$\chi 2$	df	*Difference*
1 factor	0.565	0.527	0.181	0.133	4065.058	299	
2 factors	0.776	0.756	0.130	0.80	2235.877	298	1829.181*
3 factors	0.811	0.792	0.120	0.77	1932.314	296	303.563*
4 factors	0.901	0.891	0.087	0.46	1145.974	293	786.340*

Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Squared Residual; Difference = difference in chi-square between the consecutive models; * = Significant at $p < 0.01$

4.3. Path analysis

Figure 2 shows the structural model of the relationship between the various constructs. The hypothesized model showed good fit to the data ($\chi^2(341) = 1135.182$, CFI = 0.899, SRMR = 0.060 and RMSEA = 0.079).

Results indicate that transformational leadership is significantly and positively related to perceived supervisor support ($\beta = 0.81$, $p < 0.01$). The model indicates that perceived supervisor support affects significantly and positively work engagement ($\beta = 0.76$, $p < 0.01$).

Results show that perceived supervisor digital communication skills moderate significantly and positively the relationship between perceived supervisor support and work engagement ($\beta = 0.14$, $p < 0.01$).

As for the control variables, age has a significant effect on work engagement ($\beta = 0.09$, $p < 0.05$), whereas gender and work years have an insignificant one ($\beta = 0.05$, $\beta = -0.03$).
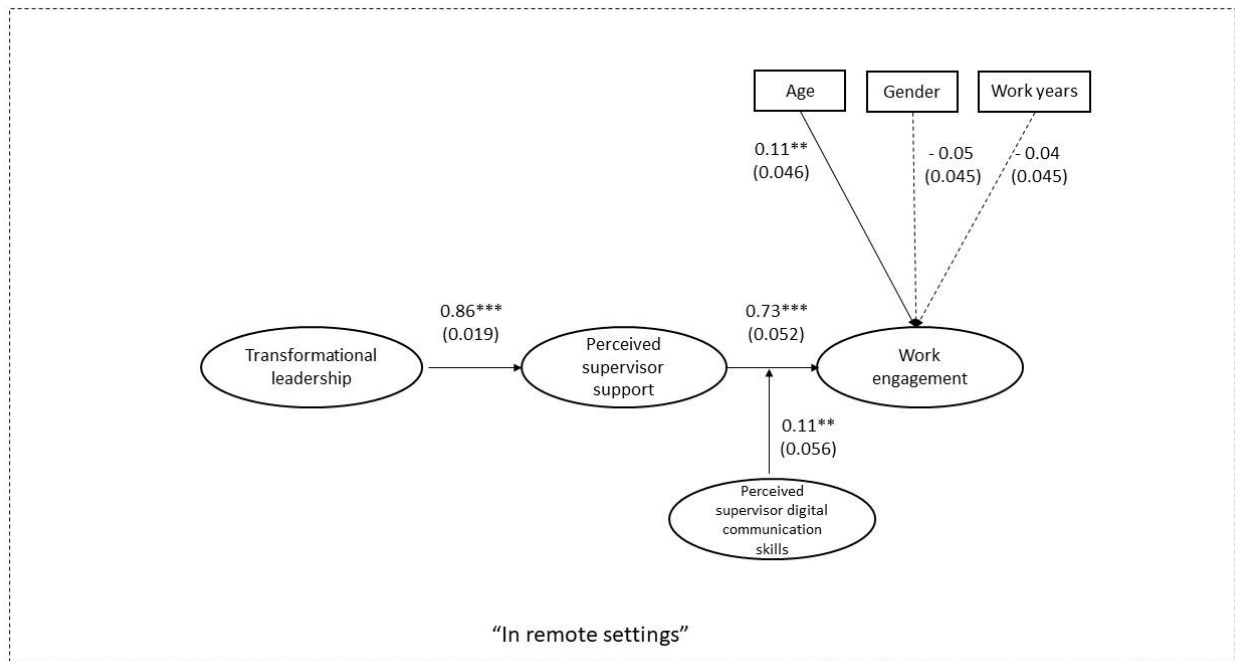
Figure 2. SEM results of the hypothesized model
*Notes: Standardized coefficients are reported, with standard errors in the parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.*

5. Discussion and conclusions

Theoretical contributions

First, and in line with previous studies (Breevaart et al., 2014; Nielsen & Daniels, 2012), our results have confirmed that transformational leadership positively impact on perceived supervisor support in a remote working context.

These results reinforce the knowledge on leadership research showing that leaders who are able to provide constructive feedback, to offer an attractive vision of future opportunities and to motivate and inspire their collaborators towards common goals are perceived as more supportive by employees.

If most of the previous studies have investigated this relationship within a traditional working context (Liaw et al., 2010; Görgens-Ekermans et al., 2021), our results demonstrate that transformational leadership approach could be effective in influencing positively the perceived supervisor support even in a context fully digital-mediated.

In this case, the effectiveness of transformational leadership approach could be facilitated thank to the adoption and use of suitable digital platforms such as Zoom, Slack, and Microsoft Teams that have allowed employees to communicate in a synchronous and rich way, hence approximately similar to the traditional face-to-face communication. We suggest that these digital solutions characterized by the richness and the synchronicity of communication have created the prerequisites necessary for supervisors in order to manifest their transformational leadership approach.

Second, this study highlights for the first time the impact of perceived supervisor support on work engagement within a forced remote working context experienced by employees during pandemic. Previous studies had already investigated this kind of relationship in a traditional working context in which employees worked and interacted in the same space at the same time (Bakker et al., 2003; Schaufeli & Bakker, 2004).

In line with SET (Cropanzano and Mitchell, 2005), when employees perceived support from their supervisors the turn back with higher levels of work engagement. The social norm of reciprocity that is established between employees and their supervisor generates the conditions that encourage employees to answer with high levels of work engagement. In other words, when one supervisor take care about the feelings, needs and concerns of their collaborators, he/she may expect more engagement and

effectiveness in return, leading to positive outcomes for individuals as well as for companies (Rhoades and Eisenberger, 2002).

Furthermore, if we would consider work engagement as a component of wellbeing, our results might suggest us that perceived supervisor support may mitigate the sense of isolation experience by employees during pandemic (Wang et al., 2021), reinforcing the engagement of employees toward their job role identity.

In fact, from a eudemonic perspective, work engagement could be considered one of the faces that describes the psychological wellbeing of employees (Grant et al., 2007). In line with this perspective, another contribution of this study concerns the positive impact of PSS on psychological wellbeing of employees in a forced remote working context.

Third, and in line with previous studies focused on the relationship between transformational leadership and work engagement (Schmitt et all., 2016; Brevaart et al, 2014; Tims et al., 2011) this research shows the positive and indirect influence of this leadership approach on the degree of engagement of employees. Always in line with previous studies, our results show the strong impact of transformational leadership on perceived supervisor support (Breevaart et al., 2014; Nielsen & Daniels, 2012) and, consequently, on employee's engagement (Bakker et al., 2003; Schaufeli & Bakker, 2004; Saks, 2006). These results reinforce the previous findings on this relationship but also offer new contributions related to the empirical context in which this relationship has been studied. Compared to the past studies, as discussed before, this research investigates the impact of transformational leadership and perceived supervisor support on work engagement in a forced remote working context during the pandemic.

As previously discussed, transformational leadership is characterized by four pillars: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. All these aspects probably require a direct interaction between leader and collaborator, which allow transformational leaders to influence, inspire, stimulate, and support their collaborators even in remote settings.

As illustrated, during pandemic period many employees have communicated with their supervisors frequently through video call and call and, thus, through tools which are able to offer a rich and synchronic communication. Compared to other communication channels, these solutions allow individuals to communicate in a way that resembles face-to-face interaction, permitting the exchange of different levels of communication that include also paraverbal language (i.e. tone and speed of voice, body language, etc.). These last considerations and the use of these communication channels could explain why, even in a forced remote working context, transformational leaders were able to positively impact on the perceived supervisor support and, consequently, on the degree of employee's engagement.

Fourth, our research has demonstrated for the first time the positive role played by the perceived digital communication skills of supervisor in moderating the relationship between perceived supervisor support and work engagement. This finding adds new knowledge on the relationship between perceived supervisor support and work engagement, contributing to expand the existing boundary conditions regarding SET. Our results demonstrate that when the relationship between supervisor and their collaborators shifts from a physical to a virtual space, individuals will perceive more support when their supervisor exhibits to be able to menage the digital tools used to communicate and collaborate. In turn, this higher supervisory support will be translated with higher levels of work engagement of their collaborators.

We suggest that those supervisors that present more digital communication skills may be also the more effective to handle a context fully digital-mediated. Furthermore, we suggest that leaders who are more able to menage remote working context are those ones who are more able to face the possible related issues and requests by employees. The ability to communicate and menage this virtual working space may lead supervisor to be more supportive in relation to their collaborators, that in turn will answer with higher levels of work engagement.

Practical contributions

This research provides some useful indications to organizations and managers to deal with the remote working challenges risen during pandemic that have negatively impact the wellbeing of employees (Wang et al., 2021).

First, the results of this study offer new knowledge on how transformational leadership may influence positively the perceived supervisor support and consequently the work engagement of employees. Specifically, it has been demonstrated the good impact of this leadership approach on work engagement within a remote working context. It is possible to hypothesize that in future these practices characterized by spatial and time flexibility could be adopted with more frequency. This research demonstrates that, even in this specific work context, transformational leadership represents a good approach to positively influence the employee's engagement, mediated by a good perception of the support received by supervisor.

This study suggest that the adoption of suitable digital solutions channels could allow employees to communicate in a more efficient and effective way, permitting leaders to stimulate, influence and support their collaborators effectively.

Second, results have demonstrated that perceived supervisor support is able to stimulate the engagement of employees. These results suggest us that if organization and supervisor show the ability to support and care about the feelings and the concerns of their employees even in a forced remote working context, it will be able to stimulate their degree of engagement. Based on how we intend work engagement we may provide some helpful considerations. If we consider engagement as the attachment towards the own job role (Kahn, 1990), offering support may help individuals do not lose their identity connected to work. Whether we consider engagement as component of psychological wellbeing, the support offered by supervisor within forced remote working can help employees to foster and guarantee a good degree of psychological wellbeing. This finding is very relevant if compared to remote working context experienced during pandemic characterized by a high sense of isolation (Wang et al., 2021). Furthermore, studies have demonstrated that organizations that present a human-oriented approach, thus inclined to promote the wellbeing of employees, are also the ones with employees with higher levels of performance (Peccei and Van De Voorde, 2019; Guest, 2017), that in turn help companies to achieve their work organizational goals.

Third, our research demonstrates that within a forced remote working context the digital communication skills of supervisor help leaders to menage a context digitally mediated, providing more support that in turn will influence the degree of work engagement of employees. In this scenario appear fundamental that leaders have to develop their digital communication skills in order to better handle a working context digitally mediated and to better provide support to their collaborators.

Summarizing, offering support, take care about feelings and concerns of employees, adopting a suitable leadership approach (in this case represented by transformational leadership approach) and developing the digitals skill of communication of supervisor are all important actions that an organization can implement in a remote working context in order to stimulate the engagement of employees, that in turn lead to positive outcomes for organizations (Rich et al. 2010; Zhong et al. 2016).

Limitations and avenues for future research

This study presents some limitations. First, the research analyzes a sample composed by only one work category (consultants). For this reason, final considerations may not be extended to the general working population. Second, the remote working experienced in Italy during the pandemic was a forced practice, which has limited the degree of freedom and flexibility of all employees. Third, it was possible to add other variables related to the communication channels and its features in the test model, in order to better understand its impact on the relationship between employees and supervisors.

For the future, it could be interesting to investigate other aspects related to e-leadership approach on perceived supervisor support and work engagement. Furthermore, it could be interesting to understand whether the relationship investigated in this research might influence other dimensions of wellbeing, such as the relational one as well as the performances of employees. Finally, it could be also interesting to investigate which features of digital technologies and communication channels may moderate the relationship between supervisor and collaborator within remote work context. This area of research could represent an interesting opportunity of study being poorly investigated.

Conclusions

This research has demonstrated how perceived supervisor support and transformational leadership approach can positively influence the engagement even within a forced remote working context. Furthermore, we demonstrate for the first time the important role played by the digital communication skills of supervisor in moderating the relationship between perceived supervisor support and work engagement. Results show that the support provided by supervisor may be positively reinforced by a good perception of his/her digital communication skills that in turn will influence positively the levels of work engagement of employees.

From one hand these findings expand the knowledge on SET and remote working context, from the other hand reinforce the past knowledge on leadership and work engagement. As discussed previously, the empirical context in which the research is carried on present different remote working challenges as isolation and procrastination that can compromise the wellbeing of employees as well as the achieving of organizational work goals. This study offers also useful guidelines that organizations and managers can adopt in order to deal with remote working challenges stimulating work engagement.

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