**When Members Substitute for Empowering Leaders: Contributions to Team Meaningfulness and Performance**

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**Abstract**

This study integrates the job-crafting perspective with substitute for leadership principles in order to explore how team members substitute for empowering leadership behaviors that promote team meaningfulness and performance. We propose that high levels of team interdependence and team work engagement will substitute for the contribution of empowering leadership to team performance via team meaningfulness. The results of data collected from 47 R&D and technology implementation teams in three organizations revealed that high levels of task interdependence and team work engagement attenuated the contribution of empowering leadership to team meaningfulness and indirectly to team performance. These findings draw attention to the role of team members in addition to leaders as generators of team meaningfulness.

**Introduction**

The quest for meaningfulness is central to employees who strive to make their work purposeful and to organizations that aim to amplify their outcomes (Martela and Pessi, 2018). Ample evidence from organizational and positive psychology research indicates that employees’ sense of work meaningfulness contributes positively to organizational outcomes, including job satisfaction, engagement, commitment, citizenship behaviors, and organizational performance (e.g., Rosso et al., 2010; Schnell et al., 2013; Michaelson et al., 2014). As a team phenomenon, meaningfulness refers to the "level at which team members perceive their teams' tasks as important, valuable, and worthwhile for their organizations" (Kirkman and Rosen, 1999, p. 59). The ability to create and maintain high team meaningfulness is an asset to teams and organizations as it can facilitate team performance (Kirkman et al., 2004a; Lee et al., 2018). Thus, cultivating team meaningfulness is a central aim of organizations, especially given the ongoing trend of using team-based work structures (e.g., Ilgen et al., 2005; Mathieu et al., 2017).

Nevertheless, research on cultivating meaningfulness at the team level is scarce. It refers mostly to ways in which empowering leaders foster meaningfulness as part of team psychological empowerment, by facilitation aspects of team autonomy, competence, impact, and meaningfulness (Kirkman and Rosen, 1999; ; Chen et al., 2007; Spritzer, 2008). This leadership research builds on the Job Characteristics Theory (JCT; Hackman and Oldham, 1980), which describes how leaders initiate and design job characteristics of skill variety, task identity, and task significance to enhance work meaningfulness. Even though team meaningfulness is defined as a team phenomenon involving team members’ collective perceptions of tasks as important, valuable, and worthwhile for their organizations (Kirkman and Rosen, 1999), the team literature pays little attention to the role of members in creating team meaningfulness. In this study, we address this research gap by focusing on team members’ active contributions. Specifically, we investigate when team members cultivate meaningfulness, and propose that their activities can substitute for the contribution of empowering leaders to team meaningfulness. We rely on the job crafting perspective, a bottom-up approach in which employees are active in the cultivation of meaningfulness, and that complements the top-down perspective of JCT (Berg et al., 2013). This perspective describes how employees contribute to work meaningfulness by shaping their job tasks and relationships (Wrzesniewski and Dutton, 2001), and propose that interactions and relationships with others at work (e.g., with other team members), alongside task crafting, facilitate the cognitive and relational changes individuals make in their task or relational boundaries (Wrzesniewski and Dutton, 2001; Wrzesniewski et al., 2013). Building on the job-crafting perspective, we argue that, as a team phenomenon, work meaning is actively cultivated by interpersonal team member interactions. We suggest that team members cultivate meaningfulness when team structural features provide opportunities to interact, and the emergent state of these interactions takes the form of the active and collective engagement of team members. We specifically focus on *task interdependence*, that refers to the extent to which team members depend on one another to carry out work effectively (van der Vegt and Janssen, 2003), as a structural feature that enhances interaction and motivation to be engaged (Courtright et al., 2015). We capture engagement by *team work engagement,* a shared emergent work-related state of well-being composed of team members’ desire to work together, expressions of work significance, and attention to work (Costa et al., 2014). We discuss how task interdependence enhances team work engagement and, subsequently, team meaningfulness in a way that can substitute empowering leadership behaviors that foster team meaningfulness and team performance (see Figure 1). The idea that task interdependence and team work engagement serve as a substitute for empowering leadership is in line with the substitute for leadership theory (Kerr and Jermier, 1978; Howell et al., 1986). This theory proposes that high interdependence (“closely-knit”) within work groups and high intrinsic task motivation among team members (as in a situation of a high team work engagement) enable task-relevant guidance and feedback to be given directly by the primary work group members, and that this can serve as a substitute for formal leader activities, thereby weakening the leader's influence (Kerr and Jermier, 1978; Howell and Dorfman, 1986).

By emphasizing the relational aspects of interpersonal interactions in shaping meaning, this study contributes to the leadership literature by identifying team structure and emergent states related to team members that can substitute for the contribution of empowering leaders to team meaningfulness. In doing so, we address the recent calls to explore empowering leadership substitutes (Cheong et al., 2019) and for the extension of the knowledge on factors influencing empowering leadership outcomes (Sharma and Kirkam, 2015; Lee et al., 2018). Moreover, we contribute to the literature on positive psychology in general and work meaningfulness in particular by shifting the focus on interpersonal interaction and social relationships from the individual crafting level to the team level, and indicating the conditions among team members that promote active interaction and engagement in fostering team meaningfulness.

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Insert Figure 1 about here

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**Literature Review and Hypotheses Development**

***Individual and Team Meaningfulness at Work***

Meaningfulness is a fundamental human need (Baumeister, 1991). Frankl (1992) argued that seeking meaning at work is a primary motive, and Cascio (2003) identified meaningful work as the most crucial feature of any job. Seligman (2002) similarly suggested that meaningfulness enables individuals to find purpose, significance, and importance in their jobs. Studies have shown that perceptions of work meaningfulness contribute to employees’ job satisfaction, commitment, citizenship behaviors, and organizational performance (e.g., Rosso et al., 2010; Michaelson et al., 2014). A lack of work meaning, on the other hand, can lead to apathy, disengagement, and alienation (Thomas and Velthouse, 1990). Research has traditionally explored meaningfulness as part of a job *design* approach, which focuses on how the design of tasks and relationships assigned to employees in an organization affects employees' willingness to invest time and effort to perform their job effectively (Ilgen and Hollenbeck, 1991). This stream of research is centered around work meaning due to factors within individuals, job dimensions, and the fit between the two as represented in the JCT (Hackman and Oldham, 1980; Kulik et al., 1987). This approach to job design was expanded through the concept of *job crafting*, which regards employees as active participants in shaping their jobs and redefining and reimagining their work in ways that foster meaning (Wrzesniewski and Dutton, 2001). Job crafting expands upon JCT in two ways. First, it suggests that job design involves bottom-up processes, not merely top-down processes, in which employees actively initiate job crafting to enhance meaning (Berg et al., 2013). Second, job crafting, specifically relational and cognitive crafting, emphasizes job attributes related to interpersonal interactions that enhance meaningfulness. Relational crafting involves changing interpersonal interactions in the workplace in terms of the time, manner, and the people (e.g., co-workers) with whom employees interact to execute their jobs. Cognitive crafting involves reshaping how employees perceive both the tasks and relationships with others that are part of their jobs (Wrzesniewski and Dutton, 2001; Berg et al., 2013; Wrzesniewski et al., 2013). Interpersonal interactions change self-perceptions regarding two focal points: role (i.e., “what am I doing?”) which is linked to task significance, and membership (i.e., “where do I belong?”), which is reflected in group identification and team significance (Pratt and Ashforth, 2003; Rosso et al., 2010). Wrzesniewski et al. (2003) suggested that changes in meaning through relational and cognitive crafting are a result of interpersonal sensemaking processes. In so doing, employees use the social context to shape job attitudes by sharing information about their related feelings and thoughts (Salancik and Pfeffer, 1978). We build on this research stream to delineate how meaningfulness is constructed in teams, in which interpersonal interaction is an integral part of teamwork.

Conceptually, team meaningfulness corresponds to meaningfulness on the individual level (Hackman and Oldham, 1980; Thomas and Velthouse, 1990). Team meaningfulness refers to perceiving the team’s tasks as essential and worthwhile (Kirkman and Rosen, 1999; Chen et al., 2007). Team members who experience team meaningfulness possess a strong collective commitment to their mission, work with a sense of purpose, and share a strong belief in the importance of their team cause (Kirkman and Rosen, 2000). Moreover, they regard even the most trivial parts of their jobs as integral to the team’s overall success, such that they can effectively “experience ordinary tasks in an extraordinary way” (Kirkman and Rosen, 2000, p. 50). Most research on team meaningfulness is focused on leaders contributions (e.g., Chen et al., 2007), however the job-crafting approach offers an alternative path to a process in which team members create meaningfulness (i.e., followers) (Rosso et al., 2010; Wrzesniewski et al., 2013). We, therefore, start reviewing empowering leaders' contributions to team meaningfulness and then explore team members' contributions as a substitute for empowering leadership.

***Cultivating Team Meaningfulness and Performance by Empowering Leadership***

Most research linking leadership to meaningfulness views leaders as the initiating force that shapes their employees’ experience of meaningfulness (e.g., Shamir et al., 1993; Luthans and Avolio, 2009;). The majority of this research focuses on the individual level and explores how leadership behaviors such as transformational leadership (Piccolo and Colquitt, 2006; Oh and Roh, 2019), ethical leadership (Wang and Xu, 2019), and empowering leadership (e.g., Kim et al., 2018; Lee et al., 2018; Gao and Jiang, 2019) shape followers’ jobs to foster meaningfulness. Research that explores the influence of leadership on team meaningfulness is limited and focuses mostly on how empowering leaders foster meaningfulness through team psychological empowerment. These studies show that empowering leaders enhances team empowerment (including team meaningfulness) by a participative decision-making climate, confidence in high team performance, and autonomy from bureaucratic constraints (Lorinkova et al., 2013; Fong and Snape, 2015). Although the four dimensions of team empowerment (autonomy, competence, impact, and meaningfulness) are related and can be mutually reinforcing, they are independent (Kirkman and Rosen, 1999), and empowering leaders can influence each one of these dimensions separately.

The ability of leaders to foster team meaningfulness has implications for increasing team performance. Work meaningfulness is critical psychological states for developing internal work motivation that enhances performance (Hackman and Oldham, 1980). Research supported this claim by demonstrating that when employees perceive their jobs as meaningful and their completed responsibilities as impacting others, they are more motivated to perform well (Liden et al., 2000; Wrzesniewski, 2003). In a similar vein, studies suggested that teams with higher levels of empowerment, and specifically team meaningfulness, enhance team performance (e.g., Kirkman et al., 2004; Chen et al., 2007; Yang et al., 2019). Such team empowerment increases task motivation due to team members' collective, positive assessments of their organizational tasks (Kirkman et al., 2004). Team members who share a high sense of team meaningfulness, make efforts to understand a problem from diverse points of view, use a wide variety of information sources to search for a solution, generate a significant number of alternatives, improve the quality of their work, and demonstrate high team productivity and performance (Srivastava et al., 2006; Park et al., 2017). Previous studies did not test the mediating role of team meaningfulness in the relationship between empowering leadership and team performance solely. However, they demonstrated such a relationship in conjunction with team empowerment (Lee et al., 2018). Thus, we propose that empowering leadership will foster team meaningfulness, which, in turn, will positively affect team performance.

***Hypothesis 1:*** *There is a positive indirect relationship between empowering leadership and team performance through team meaningfulness.*

***Cultivation of Team Meaningfulness by Team Members***

*Substitute for Leadership* While empowering leaders can be a central driver of team meaningfulness, the team and its members may also crucially shape work meaning (Rosso et al., 2010). Exploring the role of others than empowering leaders as sources of team meaningfulness, are in line with the substitutes for leadership theory (e.g., Kerr and Jermier, 1978; Howell and Dorfman, 1986; Howell et al., 1986; Dionne et al., 2005), which delineates how followers, task and organizational factors may substitute the effect of leaders’ behaviors on individual and team outcomes. Substitutes for leadership are characteristics that render leadership behaviors, and diminish the leaders’ ability to influence subordinate criterion variables; in effect, they replace the leader’s influence (Kerr and Jermier, 1978). These characteristics are commonly explored as moderators of the leader-outcome relationship (Dionne et al., 2005). In such a situation, although the leadership behaviors and the substitute both act in the same direction on the outcome, the interaction between them is in the opposite direction, reflecting a situation in which a high level of the substitute attenuates the relationship between the leadership behavior and the outcome (Howell et al., 1986). The study on substitutes for leadership as moderators of the relationship between empowering leadership and organizational outcomes, and specifically team meaningfulness and performance, is limited (Cheong et al., 2019). We address this gap by looking at the conditions that enable team members to actively contribute to team meaningfulness when allowed to interact in their work, in a way that can substitute for empowering leadership behaviors.

*The Role of Task Interdependence*

The opportunity to interact allows followers to engage in relational and cognitive crafting processes (Berg et al., 2013). To shape meaning, employees use interpersonal sensemaking processes, in which relational cues such as behaviors and the actions of other individuals (e.g., team members) are noticed and interpreted to make sense, construct, affirm, or disaffirm the individuals' views of their job, role, and self (Wrzesniewski et al., 2003). Thus, more interactions between team members can enhance meaningfulness by reshaping and strengthening the meaningfulness ascribed to their roles. This also affects their sense of membership, as reflected by group identification and feelings of belongingness to a valued group in the organization (Ashford and Mael, 1989; Pratt and Ashforth, 2003). Given the opportunity for interpersonal interaction in a team context, team members should, therefore, be active actors in shaping their team's meaningfulness.

A central structural feature in team work design that enhances members’ interpersonal interactions is team *task interdependence*. Task interdependence refers to the extent to which team members rely on one another to fulfill their work-related demands effectively (Courtright et al., 2015). High task interdependence, therefore, requires team members to cooperate and work interactively to accomplish their tasks (Campion et al., 1993; Stewart and Barrick, 2000; van der Vegt and Janssen, 2003). The more complex the task, and the more assistance needed from other team members, the higher the task interdependence, requiring more team coordination and communication (Barrick et al., 2007; Carter et al., 2019). A high level of task interdependence leads to open communication, cooperation, coordination, and team members’ exchange, paving the way to higher levels of agreement about the group's mission and goals (Gully et al., 2012; Duan et al., 2019). In this process, interpersonal interactions allow team members to share their mutual perspectives on work meaning and build mutual perspectives about the team's contribution to organizational success, leading to a cognitive change in task boundaries (Wrzesniewski et al., 2003; Berg et al., 2013). High levels of interdependence may also enhance relational aspects of team membership. More interactions with team members provide opportunities for relational crafting that enhance meaningfulness by strengthening members’ sense of team identity and their feelings of belongingness to the team (Ashford and Mael, 1989; Pratt and Ashforth, 2003). In sum, team members can be a source of meaning, and the opportunity to collectively shape team meaning is contingent on task interdependence level. Under low task interdependence conditions, team members interact less and the empowering team leader serves as the primary facilitator of team meaningfulness. Under high levels of task interdependence, team members’ interpersonal interactions offer members an opportunity to cultivate and shape team meaningfulness, which is likely to substitute for leadership behaviors, and thus attenuate the contribution of empowering leadership to team meaningfulness. The claim that task interdependence serves as a substitute for leadership, is in line with Kerr and Jermier’s (1978) suggestion that interdependence between team members can lead to close guidance and feedback, and replace the effect of leadership behavior. Hence, we propose that high task interdependence provides team members with the opportunity to interact, enabling them to collectively shape work meaning and acting as a substitute for empowering leadership effect on team meaningfulness, and indirectly on team performance.

***Hypothesis 2:*** *Task interdependence attenuates the positive relationship between empowering leadership and team meaningfulness, such that the higher the task interdependence, the weaker the relationship.*

***Hypothesis 3:*** *Task interdependence attenuates the indirect effect between empowering leadership and team performance through team meaningfulness such that the higher the task interdependence, the weaker the indirect effect.*

*Task Interdependence and Team Work Engagement*

Team members who operate in a high team interdependence structure are required to interact extensively and to depend on one another for mutual goal accomplishment (van der Vegt et al., 2000; van der Vegt, and Janssen, 2003). High task interdependence leads to more collaborative interactions that are meaningful and rewarding and to more engagement, allowing team members to feel valued as part of the collective (Kahn 1990; Fearon et al., 2013). Indeed, team members’ interactions, as part of social exchange relationships in the workplace, are an essential antecedent of work engagement at the individual level (Liao et al., 2013; Bakker et al., 2016). This line of thought led Costa et al. (2014) to propose that task interdependence fosters *team work engagement,* a shared emergent team state that reflects a high sense of work significance and attention to the collective work. Team work engagement is composed of three dimensions: team vigor, team dedication, and team absorption. Vigor is the willingness of the team to put effort into their work and remain resilient in the face of difficulties; dedication refers to shared involvement, identification, and the team's sense of significance of work; and absorption represents shared concentration on and attention to work (Torrente et al., 2012a; Costa et al., 2014).

Because high task interdependence requires team coordination and communication (Barrick et al., 2007; Carter et al., 2019), and since such interactions are meaningful and rewarding to team members (Kahn, 1990), we propose that recurrent interactions will be mutually reinforcing for team members, and will lead to engagement at the team level. Team members will be willing to put effort into their work (vigor), will share their work involvement, identification, and significance (dedication), and will concentrate attention on work (absorption). We therefore hypothesize:

***Hypothesis 4:*** *Task interdependence is positively related to team work engagement.*

*Team Work Engagement and Team Meaningfulness*

The underlying assumption behind job crafting is that work meaning is a result of actively engaged employees cultivating meaning in a bottom-up process of crafting tasks, cognitive and relational boundaries (Berg et al., 2013; Wrzesniewski et al., 2013). We claim that this bottom-up team activity is captured, at the team level, by the emergent state of team work engagement and that it enables the cultivation of team meaningfulness.

The team work engagement dimension of dedication is conceptualized as “shared strong involvement in work and an expression of a sense of significance, enthusiasm, inspiration, pride, and challenge while doing so”(Costa et al., 2014, p. 418). Since aspects of task identity and task significance are known to be positively related to work meaning and motivation (Salanova et al., 2005; Oldham and Hackman, 2010), high team dedication should foster team meaningfulness. Additionally, the dimensions of team vigor and absorption capture high work activation levels, which are aspects of a collective team effort, resilience, and work engrossment (Bakker, 2011). These elements are conceptually linked to relational aspects of team membership, cohesion, and identification, which in turn enhance meaningfulness (Ashford and Mael, 1989; Pratt and Ashforth, 2003). Indeed, research findings show positive relationships between engagement and crafting behaviors, such that more engaged employees change their work environment (Bakker, 2011; Hakanen et al., 2018). Thus, we suggest that highly engaged team members will actively shape and enhance team meaningfulness. Moreover, this logic is aligned with the substitutes for leadership theory, claiming that team members’ intrinsic task motivation serves as a substitute for leadership by facilitating communication guidance and feedback between members working together on the same task (Kerr and Jermier, 1978; Howell and Dorfman, 1986). Although team work engagement is defined by high intrinsic motivation of team members that engaged in their work (Schaufeli and Salanova, 2011), most studies that examined work engagement within substitute for leadership models explored it as the model outcome (e.g., Liao et al., 2013; Breevaart et al., 2016). The current study explores team engagement as a substitute for leadership, first concerning the direct relationship between empowering leadership and team meaningfulness, and then concerning the indirect relationship to team performance, through team meaningfulness. Hence, we hypothesize:

***Hypothesis 5:*** *Teamwork engagement moderates the positive relationship between empowering leadership and team meaningfulness, such that the higher the team work engagement, the weaker the relationship.*

***Hypothesis 6:*** *Team work engagement moderates the indirect effect between empowering leadership and team performance, through team meaningfulness, such that the higher the team work engagement, the weaker the indirect effect.*

**Method**

***Sample and Procedure***

Data were collected in three technology organizations in Israel. Employees (both leaders and members) who agreed to participate in this study voluntarily, filled out a web-based questionnaire delivered by e-mail. All responses were confidential.

The initial sample consisted of 391 participants (leaders and team members) from 81 R&D and technology implementationteams. Only teams that met the following criteria were included in the final sample: (a) The intra-team members' response rate was at least 50%; (b) At least two team members responded; (c) The team leader responded; and (d) The participants’ minimum tenure on the team was three months.

Forty-seven teams met all criteria and were included in the final sample. These R&D and technology implementation teams consisted of 263 participants (47 leaders and 216 members). The mean team size was 8.06 members (*SD* = 5.75, median = 6). Members' response rates ranged from 50% to 100%, with a mean of 74% (*SD* = 17.72) and a median of 71%.

Among the leaders, 89% were males, the mean age was 43.24 years (*SD* = 9.6), the mean organizational tenure was 12.87 years (*SD* = 9.94), and the mean team leadership tenure was 3.44 years (*SD* = 2.79). Among the members, 75% were males, the mean age was 38.07 years (*SD* = 9.48), the mean organizational tenure was 8.87 years (*SD* = 9.06), and the mean team membership tenure was 3.51 years (*SD* = 4.68).

***Measures***

All responses were given using a 7-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (7). Team members evaluated their leaders’ empowering leadership behaviors, team work engagement, and team meaningfulness. Leaders reported on task interdependence and team performance.

*Empowering Leadership Behaviors* were measured on Zhang and Bartol’s (2010) empowering leadership scale (based on Ahearne et al., 2005). This scale has four multi-item subscales (three items each) that focus on (a) enhancing the meaningfulness of work (α = .92; example item: “My manager helps me understand how my objectives and goals relate to that of the company”), (b) fostering participation in decision making (α = .89; example item: “My manager makes many decisions together with me”), (c) expressing confidence in high performance (α =. 85; example item: “My manager believes that I can handle demanding tasks”), and (d) providing autonomy from bureaucratic constraints (α = .80; example item: “My manager allows me to do my job my way”).

Previous studies (e.g., Zhang and Bartol, 2010) indicated that these dimensions are distinct but also, collectively, reflect the overall construct. Fit indices for the four first-order factors (the four subscales) plus the second-order factor fell within an acceptable range (χ²(50) = 167.78, *p* < .01; CFI = .94; TLI = .92; SRMR = .056), which allowed us to use the total measure of empowering leadership (α = .94).

*Task Interdependence*was measured on Barrick et al.’s (2007) four-item task interdependence scale, based on Campion et al. (1993) (example item: “Within the team I lead… team members cannot accomplish their work without information or materials from other members of their team”). The Cronbach alpha reliability was 0.89.

*Team Work Engagement* was measured using the teamwork engagement scale (Torrente et al., 2012b). This scale consists of nine items that reflect three dimensions (three items each): teamwork vigor (e.g., "While working, my team feels full of energy"; α = .90), teamwork dedication (e.g., "My team is enthusiastic about the task"; α = .87), and teamwork absorption (e.g., "While working, we forget everything else around us"; α = .87). Fit indices for the three first-order factors (the three dimensions) plus the second-order factor fell within an acceptable range (χ²(24) = 125.36, *p* < .01; CFI = .94; TLI = .90; SRMR = .047), which allowed us to use the total measure of team work engagement (α = .94).

*Team Meaningfulness* was measured using the three-item subscale of team meaningfulness taken from Kirkman et al.'s (2004) team empowerment measure (example item: “My team believes that its projects are significant”). The Cronbach alpha reliability for this scale was 0.93.

*Team Performance* was measured on the five-item team performance scale developed by Kirkman and Rosen (1999); (example item: "My team completes its tasks on time."). The Cronbach alpha reliability was 0.76.

*Control Variables*.We controlled for possible differences between the three organizations, which were all technology companies located in Israel. Additionally, since previous studies indicated that leaders’ gender and education level could impact team outcomes (e.g., Rowold, 2011), these variables were also controlled. Finally, we controlled for team size.

*Aggregation to the Team Level*. We measured empowering leadership behaviors, team work engagement, and team meaningfulness using the followers’ reports. To analyze the research model at the team level, we aggregated the mean scores of the team for these three variables. Following Bliese’s (2000) recommendation, we used both the within-group coefficient of agreement (Rwg(j)) and intraclass correlations (ICC) of ICC (1) and ICC (2) to justify the aggregation of the data to the team level. As a preliminary step, an ANOVA was used to contrast within-group variance from between-group variance.

The results revealed sufficient levels of mean Rwg(j) for empowering leadership (.88), team work engagement (.86), and team meaningfulness (.83). Intraclass correlations for empowering leadership were [ICC(1) = .10, *F*(46, 169) = 1.47, *p* < .05); ICC(2) = .32]. The results for team work engagement were [ICC(1) = .15, *F*(46, 169) = 1.80, *p* < .01, ICC(2) = .45] and for team meaningfulness were [ICC(1) = .17, *F*(46, 169) = 1.92, *p* < .01, ICC(2) = .48]. Aggregation to team level was, therefore, considered permissible.

Lastly, to ensure that empowering leadership, team work engagement, and team meaningfulness were independent factors, we applied a confirmatory factor analysis on a three-factor model (considering the second-order factor construct of empowering leadership and team work engagement). All standardized factor loadings of the latent variables on their indicators were significant (*p* < .01), ranging from 0.61 to 0.98, and fit indices provided evidence of a good fit (χ²(242) = 663.82, p<.01; CFI = .91; TLI = .90; SRMR = .068). A comparison of the three-factor model and all other combinations of two- or one-factor models with respect to their Chi score difference revealed a better fit for the three-factor model (*p* < .01).

**Results**

***Descriptive Statistics***

Table 1 presents the means and standard deviations for all the variables as well as the correlation matrix of all these variables at the team level.

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Insert Table 1 about here

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***Hypothesis Testing***

Data were analyzed at the team level using a hierarchical linear regression model and PROCESS (Hayes, 2018). Linear regression results show a positive relationship between empowering leadership and team meaningfulness ($β$= .29, *p* < .05, see Table 2, Model 2), and also between team meaningfulness and team performance ($F=2.23, p<.05;.β$ *=* .54, *p <* .01). Using 5,000 bootstrap draws (PROCESS, Model 4, Hayes, 2018) and controlling for company, team size, leaders’ gender, and leaders’ education, we found support for the indirect effect predicted in Hypothesis 1: empowering leadership had a positive indirect relation with team performance through team meaningfulness (*B* = .17, *SE* = .11, 95% CI [.01, .44]).

Hypothesis 2 predicts that task interdependence will moderate the positive relationship between empowering leadership and team meaningfulness, such that the higher the task interdependence, the weaker this relationship. To test this hypothesis, we used a hierarchical regression (both empowering leadership behaviors and task interdependence were centered to reduce multicollinearity between these variables (Preacher and Rucker, 2003). As presented in Table 2, Model 3, the results supported this prediction: task interdependence interacted with empowering leadership to influence team meaningfulness ($β$= -.32, *p* < .05).

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Insert Table 2 about here

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A simple slope analysis revealed that when task interdependence was low (-1*SD*), empowering leadership behaviors were positively related to team meaningfulness (*b* =.60, *t* = 3.60, *p* <.01); However, when task interdependence was high (+1*SD*), the relationship between empowering leadership behaviors and team meaningfulness was not significant (*b* =.01, *t* =.67, *ns*; see Figure 2). These results support Hypothesis 2.

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Insert Figure 2 about here

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To test Hypothesis 3, which refers to the indirect relationship between empowering leadership and team performance through team meaningfulness at two levels of task interdependence (1 *SD* below and 1 *SD* above the mean), we used a moderated mediation model with PROCESS (Model 7, 5,000 bootstrap resamples; Hayes, 2018), while controlling for company, team size, leaders’ gender, and leaders’ education.The results revealed a significant indirect effect when task interdependence was low (*B* = .37, *SE* = .18, 95% CI [.02,.73]), but not when task interdependence was high (*B* = .01, *SE* = .12, 95% CI [-.20,.30]). These results support Hypothesis 3.

We follow the Grant and Wrzesniewski’s (2010) methodological approach to test mediated moderation effects of Hypotheses 4 and 5. Together, these hypotheses predict that team work engagement will mediate the moderating role of task interdependence in the relationship between empowering leadership and team meaningfulness (and indirectly between empowering leadership and team performance). This approach requires that the model complies with four conditions: (a) Task interdependence has a moderating role in the relationship between empowering leadership and team meaningfulness (as we demonstrated when testing Hypothesis 3); (b) a significant (positive) relationship exists between task interdependence and team work engagement (Hypothesis 4); (c) team work engagement has a moderating role in the relationship between empowering leadership and team meaningfulness (Hypothesis 5); and (d) the moderating effect of task interdependence decreases when accounting for the interaction between empowering leadership and team work engagement.

To test Hypothesis 4, we regressed team work engagement on task interdependence while controlling for company, team size, leaders’ gender, and leaders’ education. The results revealed that task interdependence was positively related to team work engagement (*F* = 4.00, *p* <. 01; *β =* .48, *p* < .01). These results support Hypotheses 4 (and above condition (b)).

Hypothesis 5 predicts that team work engagement moderates the positive relationship between empowering leadership and team meaningfulness, such that the higher the team work engagement, the weaker this relationship. As presented in Table 2, Model 4, we used hierarchical regression to test this prediction, adding team work engagement and the interaction between empowering leadership and team work engagement to the previous model (team work engagement, task interdependence, and empowering leadership were centered). The results revealed a significant interaction between empowering leadership and team work engagement ($β$= -.47, *p* < .01). A simple slope analysis revealed that when team work engagement was low (-1 *SD*), empowering leadership was positively related to team meaningfulness (*b* = .64, *t* = 3.20, *p* < .01); However, when team work engagement was high (+ 1*SD*), the relationship between empowering leadership and team meaningfulness was not significant (*b* = -.26, *t* = 1.65, *ns*; see Figure 3). These results support Hypothesis 5 and condition (c). Furthermore, when accounting for the interaction between empowering leadership and team work engagement, the interaction between empowering leadership and task interdependence became non-significant ($β$= .10, *ns*). This result fulfilled condition (d) and strengthened the mediated moderation effect of team work engagement.

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Insert Figure 3 about here

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Lastly, to test Hypothesis 6, which concerns the indirect relationship between empowering leadership and team performance, through team meaningfulness, at two levels of team work engagement (1 *SD* below and 1 *SD* above the mean), we used a moderated mediation model with PROCESS (Model 7, 5,000 bootstrap resamples; Hayes, 2018), controlling for company, team size, leaders’ gender, leaders’ education, and task interdependence.The results revealed a significant indirect effect of empowering leadership on performance when team work engagement was low (*B* = .36, *SE* = .20, 95% CI [.08,.88]), but not when team work engagement was high (*B* = -.12, *SE* = .09, 95% CI [-.26,.08]). These results support Hypothesis 6.

**Discussion**

In light of the ongoing trend of using team-based structures in organizations (Mathieu et al., 2017), the current study draws attention to team meaningfulness as a focal team state that contributes to team performance. Most research on enhancing meaningfulness addresses the individual level, and the limited literature on cultivating team meaningfulness explores the topic only as a part of empowering leadership (Kirkman and Rosen, 1999; Kirkman et al., 2004a). We address this gap by exploring how and when team members cultivate team meaningfulness. Our results show that the direct relationship between empowering leadership and team meaningfulness, as well as the indirect relationship, through team performance, exist only when task interdependence and team work engagement are low. This supports the idea that team members contribute to team meaningfulness by substituting for the empowering leaders’ behaviors under high interdependence and team work engagement, and offers theoretical contributions to the literature on both leadership and meaningfulness in teams.

The finding that empowering leadership behaviors enhance team meaningfulness, which in turn leads to higher team performance, is in line with previous findings on the more general concept of team empowerment (Kirkman and Rosen, 1999; Kirkman et al., 2004a; Lee et al., 2018). We demonstrate, however, that team members’ task interdependence and team work engagement can substitute for the contribution to team meaningfulness traditionally provided by empowering leadership behaviors. In so doing, we specify the boundary conditions and a possible moderator for empowering leadership effectiveness. Moreover, we delineate how specific task and organizational conditions can enhance team members' work engagement and substitute for leaders’ behaviors that foster team emergent state (e.g., meaningfulness) and outcomes.

 These findings are interesting considering the leaders’ role in the team and task design. Kozlowski and Bell (2013) argued that research failing to consider task interdependence on the team phenomenon in question “has little relevance to building knowledge in the work groups and teams literature. It is a feature that should be explicitly addressed—either as a boundary condition or a moderator—in all research on work groups and teams” (p. 70). Wageman (2001) found that although research emphasizes leaders’ coaching role, interdependence can be a more critical part of leaders’ team design choices for team performance. Hence, our findings suggest that when organizations and leaders have the chance to design their team tasks in a highly interdependent fashion, doing so may create more autonomous teams that actively cultivate their meaningfulness.

The nature of the teams in our study may explain part of the strong substitute for leadership effect that we found at high levels of team interdependence and work engagement. In our research, the teams were ongoing, professional, and consisted of experienced members. These team members had worked together for extended periods (at least three months) on tasks involving long work cycles, and were expected to work together on future tasks. Compared with temporary team members, members of ongoing teams tend to be more focused on interpersonal relationships and social interactions (De Jong and Elfring, 2010) related to interdependence and collective work engagement. Moreover, team members in our study were all professionals who differ from non-professionals in their intrinsic task satisfaction and motivation (Howell and Dorfman,1986), factors that serve as strong substitutes for leadership and are reflected in members’ sense of work engagement (e.g., Wang and Lio, 2015; Yalabik et al., 2015).

This research also contributes to the work meaningfulness literature by testing the idea that the interpersonal interaction and social relationship attributes of relational and cognitive job crafting can shape team meaningfulness (Wrzesniewski and Dutton, 2001). The emerging literature on job crafting has drawn substantial attention to relational job aspects as drivers of individual job crafting and a sense of meaningfulness at work (Wrzesniewski et al., 2003, 2013). These relational aspects are especially interesting when examined in relation to teams’ structural relationships, such as when there are varying degrees of interdependence between team members or different amounts of interactions (Courtright et al., 2015). Our results support previous conceptual proposals that high interdependence is a driver of meaningful interactions (as captured by team work engagement; Costa et al., 2014), which enhances team meaningfulness. From a conceptual perspective, task interdependence as well as outcome interdependence, which is the degree to which individuals’ goals and outcomes (e.g., reward and feedback) are tied to the performance of other members (Barrick et al., 2007), are expected to enhance team meaningfulness since they are positively linked to team cohesion (Courtright, et al., 2015), which enhances team members’ sense of belongingness (Pratt and Ashforth, 2003). Outcome interdependence, along with other structural and compositional features of team design (e.g., virtuality, task scope, members' skill diversity, and authority; Mathieu et al., 2017), offers a path for future research on antecedents that may enhance or attenuate team meaningfulness.

In a broader scope, this study contributes to the positive organizational psychology field and specifically to the positive organizational behavior field. Whereas most research on positive organizational behavior was focused on the individual level (Donaldson and Ko, 2010), including in the concepts of meaningfulness and work engagement (Schnell et al., 2013), we follow the call for a broader exploration of team level concepts, that are essential for the understanding of organizational dynamics (Peñalver et al., 2019; Lomas et al., 2020). Moreover, although the contribution of leaders to positive organizational behaviors was explored (e.g., Positive Approach to Leadership; Luthans et al., 2001), this approach mainly focused on leaders’ contributions, ignoring followers contribution to the team and individual processes. Our study indicates that positive leadership in organizations is not equal to “positive leaders” in organizations, and followers' contribution to positive psychological processes (both at the team and individual levels) should be explored as part of the positive organizational leadership phenomenon.

***Managerial Implications***

Our research offers practical implications for managers looking to enhance team meaningfulness and performance. In this regard, it suggests that their leadership choices should seek to balance their coaching efforts with their teams’ task interdependence design (Wageman, 2001). Facing the managerial decision of team task design, leaders should be aware that designing their team tasks in a highly interdependent way can contribute to team meaningfulness and performance. In the long run, this can make their teams more autonomous and less dependent on leaders’ empowering leadership behaviors. By designing teams and tasks to be more interdependent, leaders may build teams with more resource interdependence, so that team members depend more on one another for access to critical resources. Alternatively, they may design the process to be highly interdependent to enhance interconnectedness by creating workflows that require coordinated action (Courtright et al., 2015). For example, a manager could design an iterative or reciprocal task workflow instead of assigning a team subtasks that must be completed by team members individually. If, however, the team task does not require high levels of interdependence (e.g., pooled, mindless, or reactive execution of work) or when the team's emergent level of interdependence is low (Wageman, 2001), leaders’ empowering leadership is essential in order to foster team meaningfulness and performance. Specifically, empowering leaders can enhance meaningfulness by designing the three core job characteristics most directly linked to meaningfulness: skill variety (i.e., variety of different activities, skills, and talents required in order to execute the work); task identity (i.e., designing the work as a whole and an identifiable piece from beginning to end); and task significance (i.e., connecting the job to its impact on other people’s lives) (Oldham and Hackman, 2010). Since the four dimensions of team empowerment can be mutually reinforcing (Kirkman and Rosen, 1999), empowering leaders can also foster team meaningfulness by enhancing team autonomy and boosting the team's sense of competence.

***Limitations and Future Research***

This study is not without limitations. First, our sample was based on technology organizations. We suggest testing our model in other team-based environments spanning different industries and sectors, such as low-tech and nonprofit organizations, for generalization. Second, although we examined two different sources in our research model (team members and leaders), and all of the teams were ongoing, this study was cross-sectional in design. Future studies should take advantage of a time-lagged or longitudinal design to examine the processes in our model. Third, our sample exhibited high male homogeneity (89% male leaders; 75% male members). Although this level of male homogeneity can be found in many technological organizations, we encourage future studies to test our model in more gender-balanced organizations.

Findings suggest several directions for future research. First, there is a need to better understand the relationship between individual meaningfulness and team meaningfulness. An examination of this relationship should also determine when it is positive and when it is negative. Second, while team leaders and members may be the primary sources of team level meaningfulness, other stakeholders may affect team meaningfulness through social interactions, such as the company’s community and its customers (Michaelson et al., 2014; Rosso et al., 2010). Exploring the effect of other team meaningfulness sources may reveal their relative importance. Third, future research should explore other types of teams (e.g., project or ad-hoc teams) to understand better how members contribute to team meaningfulness in short term teams. Fourth, future research should explore other structural and compositional features of team design (e.g., task scope, members skill diversity, authority, level of professionalism, temporary teams; Mathieu et al., 2017) as antecedents that enhance or attenuate team meaningfulness. One particular structural feature that may impact meaningfulness, and that is increasing rapidly since the COVID-19 pandemic crisis is team virtuality. Future research providing insight on ways to enhance team meaningfulness in virtual teams is the order of the day.

**Conclusions**

Meaningfulness at work emphasizes the valued contribution of employees to their teams and organizations. It also serves as an essential internal motivator for performance. Cultivating meaningfulness at the team level is becoming essential in light of the growing trend of teamwork. We show that empowering leadership contributes directly to team meaningfulness and indirectly to team performance at low, but not at high task interdependence and team work engagement, indicating that team members can substitute for empowering leadership. by acknowledging team members as sources of meaningfulness, organizations can cultivate interdependence between members to promote greater team performance.

**Data Availability Statement**:  The data that support the findings of this study are available from the corresponding author, upon reasonable request.

**Ethics Approval**.  This study was approved by the human subjects research committee of Ben-Gurion University of the Negev (#AL05122013).

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**Tables**

**Table 1.**Descriptive statistics and intercorrelations for study variables.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Company | 2.04 | 0.69 | - |  |  |  |  |  |  |  |
| 2. Team size | 8.06 | 5.78 | -.34\* | - |  |  |  |  |  |  |
| 3. Leaders’  gender  | 1.11 | 0.31 | -.02 |  .03 | - |  |  |  |  |  |
| 4. Leaders’  education | 3.15 | 0.83 | -.57\*\* |  .02 |  .27 | - |  |  |  |  |
| 5. Empowering  leadership | 5.66 | 0.62 | -.18 | -.29\* | -.21 | .17 | - |  |  |  |
| 6. Task  interdependence  | 4.65 | 1.50 | -.23 | .09 | -.10 | .09 | .11 | - |  |  |
| 7. Team work  engagement | 5.37 | 0.73 | -.07 | -.24 | -.17 | .08 | .44\*\* | .49\*\* | - |  |
| 8. Team  meaningfulness  | 5.76 | 0.73 | -.14 | -.33\* | -.16 | .21 | .43\*\* | .26\* | .65\*\* | - |
| 9. Team  performance  | 5.79 | 0.72 | -.15 |  .02 | -.13 | -.07 | .02 | .20 | .26 | .41\*\* |

|  |
| --- |
| *Note: N = 47, \*p <.05, \*\*p <.01.* *Gender: 1- Male, 2- Female. Education: 1- High school or equivalent, 2- Diploma or equivalent,**3- B.A. or equivalent, 4- M.A. or equivalent, 5- Ph.D. or equivalent.*  |
|  |

**Table 2.**Hierarchical linear regression models for team meaningfulness.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| Company  | -.17 | -.01  | .13  | -.03 |
| Team size  | -.38\* | -.25  | -.18  | -.14 |
| Leaders’ gender  | -.20 | -.11  | -.03  | .07 |
| Leaders’ education | .18 | .17  | .28 | .14 |
| Empowering leadership  |  | .29\* | .30\*  | .20† |
| Task interdependence  |  | .31\*  | .29\*  | -.07 |
| Empowering leadership Task interdependence |  |  | -.32\*  | .10 |
| Team work engagement  |  |  |  | .61\*\* |
| Empowering leadership  Team work engagement  |  |  |  | -.47\*\* |
| *F* value | 2.87\* | 3.83\*\* | 4.45\*\* | 9.27\*\* |
| *R*2 | .14 | .26 | .35 | .61 |
| Δ*R*2  |  | .12\* | .09\* | .26\*\* |

*Note: N = 47, \* p <.05, \*\* p <.01. Standardized coefficients are reported.*

Empowering Leadership

Team Meaningfulness

Team Performance

Team Interdependence

Team Work Engagement

**Figure 1.**Research model.

*b* =.60, *p* <.01

*b* =.01, *ns*

**Figure 2.**Interaction between empowering leadership behaviors and task interdependence on team meaningfulness.

**Figure 3.**Interaction between empowering leadership behaviors and team work engagement on team meaningfulness.