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# From Ethical Leadership to Team Creativity: The Mediating Role of Shared Leadership and the Moderating Effect of Leader–Member Exchange Differentiation

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Abstract: Alongside ethical leadership's effectiveness on team creativity, the superiority of shared leadership has been emphasized in the literature. Based on role theory, social information processing theory, and allocation preferences theory, this study suggests that shared leadership functions as a critical intermediating mechanism to explain the influence of ethical leadership on team-level creativity. Moreover, the dispersion value of leader–member exchange (LMXD) moderates the influence of ethical leadership on shared leadership. To empirically test our hypotheses, this paper used multisource samples and team-level data with moderated mediation model with PLS-SEM method. This study targeted a sample of 30 leaders and 233 team members who work at HRD Korea where a team structure is utilized. The results of structural equation modeling showed that ethical leadership increased shared leadership, and ethical leadership and shared leadership both positively affected team creativity. Shared leadership functioned as a crucial mediating factor in the ethical leadership—team creativity link. Moreover, the team-level LMXD moderated ethical leadership effectiveness on creativity via shared leadership.

**Keywords:** shared leadership; ethical leadership; leader–member exchange differentiation (LMXD); team creativity



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#### 1. Introduction

In the rapidly changing modern business environment, organizations constantly seek to resolve the puzzle of the emergence of creativity to survive and grow [1,2]. To achieve goals, firms have invested significant funds to develop the creative abilities of their members because they are the main actors who substantially plan and perform innovation [3–5]. In line with this, scholars and practitioners have tried to identify various antecedents of creativity, including member characteristics and organizational contexts [6–8].

Among the preceding factors, this paper focuses on leadership by relying on the suggestion of previous works that leadership greatly influences members' creative group processes [6,8–10]. More specifically, considering the critical impacts of corporate ethics [11], we investigate the influence of ethical leadership. An ethical leader both performs personal moral behaviors and builds social relationships to facilitate ethical conduct among employees [12]. Works on ethical leadership have demonstrated that this leadership style helps enhance the quality of employee perception, attitudes, behaviors, and group-level outcomes [13–15].

Although many studies have examined the relationship between ethical leadership and creativity [15–20], research gaps remain to be addressed [21]. First, works on the ethical leadership—creativity link have reported inconclusive results in association. In other words, some studies have demonstrated that ethical leadership increases the level of creativity, but other works have indicated that the leadership was not related to creativity [15,18–20] and even decreased creativity [16,17]. For example, Feng and his colleagues [16] demonstrated

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a curvilinear relationship between ethical leadership and employee creativity to indicate that employee creativity improved as ethical leadership increased from low to moderate levels, but the employee creativity improvement was attenuated when ethical leadership increased from moderate to high levels. Similarly, Mo and Ling [17] questioned that team creativity might be overwhelmed by the zenith quantity of ethical leadership. Considering that the inconclusive issue may be originated in the lack of studies on the underlying mechanisms (e.g., mediators, moderators) in the link, empirical works investigating how and when ethical leadership influences creativity are highly needed.

Second, previous works on the ethical leadership—creativity link have mainly focused on employees' individual-level creativity. Although we acknowledge that employee creativity is the basis of the collective-level creativity of innovation, group- or collective-level creativity is more likely to be directly associated with various organizational outcomes [6,8–10]. Thus, we suggest that works that examine the influence of ethical leadership on collective-level creativity are required.

Third and most importantly, extant work on ethical leadership has underexplored the close association with other leadership styles [21]. Considering that a leader is likely to use various kinds of leadership styles simultaneously, as well as that leadership styles tend to overlap from the theoretical and empirical perspectives [22,23], scholars need to investigate the role of other styles of leadership in explaining the influence of ethical leadership. In line with the suggestion of previous work that leadership is likely to create a creative group process of members [6,8–10], attempts to consider leadership styles as an intermediating mechanism in the ethical leadership—creativity link are required.

To address the issues described above, in this paper, we investigate the mediating role of team-level shared leadership in team-level ethical leadership and team creativity. In addition, we delve into contingent and contextual factors that explain the influence of ethical leadership on share leadership.

Multisource leadership highlights the importance of shared leadership as a "dynamic and interactive influence process" [24]. The emergence of a series of formal and informal leaders [25] offers an outlet for organizations to overturn the obstacle on sustainability [26]. Increasingly, scholars have addressed the superiority of shared leadership because its influences stem from team members. Research has shown positive work outcomes such as innovation [27,28], involvement [24,27,28], extra-role behavior [29,30], and even team-level creativity and performance [31,32]. Based on the role-making perspective [33], we propose that ethical leadership may enhance the level of shared leadership, so increased shared leadership would boost the degree of creativity members and teams [27,28,34].

We also suggest that the influence of ethical leadership on shared leadership may be moderated by the group level of dispersion of the leader–member exchange (LMXD), which may influence the leadership effectiveness. Despite abundant evidence for the benefits of high-quality LMX [35], LMXD as a group-level construct shows deleterious effects on the group dynamic and explains when and how leaders' development has attenuated or even invalidated employees. Scholars have pointed out that it is important to figure out the moderating role of this dispersion or differentiation that produces adverse outcomes [36,37].

To explore the catalytic agent mechanism of shared leadership, our research examines the mediating effect of shared leadership in the ethical leadership—creativity link. Moreover, this study suggests that an important contingent factor (i.e., moderator) may expand the relationship between ethical leadership and shared leadership in an elaborate manner. In addition, this study will offer empirical findings to address confusion in the leadership and creativity literature through the team-level moderated mediation model. This paper may contribute to ethical leadership literature as follows. First, we try to resolve the inclusive results in the ethical leadership—creativity link by investigating the mediating effect of shared leadership and the moderating effect of LMXD. Second, this paper examines the influence of ethical leadership on collective-level creativity based on the argument that group- or collective-level creativity is more closely associated with various organizational

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outcomes [6,8–10]. Third and most important, this paper considers the shared leadership style as an intermediating mechanism (i.e., mediator) in explaining the influence of ethical leadership on team-level creativity.

#### 2. Theory and Hypotheses

#### 2.1. Ethical Leadership (EL) and Team Creativity (TC)

Ethical leadership has been known to enhance the level of employee creativity, which is defined as mainly being related to the intention and activity process used when trying to produce novel ideas [38]. Scholars reported that ethical leadership's individual and team perspectives are positively related to creative behavior [20].

Different from personal creativity behavior, team creativity as an agglomerate and overall phenomenon indicates that producing fancy and valuable ideas is related to a team by its members [39,40]. Scholars stated that ethical leaders are good at treating the group as a whole in a fair manner and to followers' ethical performance [41]. In these ways, ethical leadership contributes to an overall consistent team environment where employees easily perceive trust, safety, equality, and empowerment. Moreover, ethical leaders with high moral values can offer support and build effective communication, which stimulates creativity at work [14]. In the team context, through enhancing the shared objective and direction, ethical leaders lead team members to understand a set of objectives and directions. The team members will better understand the team's goals and directions and thus follow such leaders and work together because of their enhanced self-identification. Social information processing (SIP) theory [42] explains that team members use the information they receive to evaluate the risk, and leaders descend to the most primary sources delivering information used by employees to form relationships, participate in interactions, and complete work. Specifically, ethical leadership statements and behaviors provide a safe signal to team members to safely benefit from team creativity. Under the ethical leadership effect, members prefer to participate in a more secure work environment [43], which empowers members to have the freedom and autonomy to be creative. For example, Tu and his colleagues [15] showed that ethical leadership predicted three different team creativity measures in work teams under ambient stimuli route. Based on the above, this study makes its proposals.

# **Hypothesis 1 (H1).** *EL is positively related to TC.*

#### 2.2. Ethical Leadership (EL) and Shared Leadership (SL)

To date, traditional leadership views, such as vertical leadership, defined as the leadership is represent as a top-down influence and steams by an appointed leaders (i.e., the manager who is positioned hierarchically top with formal authority and responsibility) [44], are widely accepted as a source for organizational effectiveness and exploration and research direction [44,45]. Especially when shared leadership comes forth, shared leadership is a follower-centric progress [46] that occurs when members are involved in teamwork with leadership roles dispersed across the team. This new type of bottom-up leadership awakens the thinking about leadership. Issues such as the two different structures of leadership comparison [30], relationship [32,47], and integration [34] have become a topic area of academic research and business practices.

Because scholars have suggested that a dearth of research has empirically settled the evolution of shared leadership despite its theoretical importance [24,28], some studies addressed the antecedents and consequences of shared leadership. Pearce and coworkers [48] offered three-level category characteristics as the cause for shared leadership. Cox and Pearce [24] contributed to proving that vertical leadership team characteristics are positive antecedents. Zhu and Liao [25] comprehensively reviewed shared leadership development and suggested two categories: formal team leaders and team factors that contribute to forming shared leadership.

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Regardless of whether shared leadership at some point becomes the "savior" of leadership development and innovation, the situation in the organization today is changing the manner of working, which further challenges the role of traditional top-down leadership [27]. Scholars explored the traditional and shared leadership relationship to offer employee and organizational development [49–52].

This study responded to this issue by proposing that ethical leadership may facilitate shared leadership. Ethical leadership behaviors develop the general fair work environment and encourage members to take part in independent decisions, think and act ethically, and to take responsibility for work behaviors. Moreover, the ethical leadership process strives to create members capable of teamwork and benefit shared leadership.

Social learning theory [53] and role theory [33,54,55] are incorporated into the leadership and ethics literature for understanding the effective ethical leadership [34,56,57]. Through role modeling, an individual takes on a role through receiving and learning social norms and performing the behaviors expected. They then make the roles theirs by changing or crafting some features of the expected behavior. Ethical leaders seek to foster an ethical, fair, and independent climate [13,58] for teams that encourages members to exercise leadership functions and feel trusted and empowered to on take responsibility [15]. Under ethical leadership, a member is more likely to be an effective role taker because ethical leadership ensures that member's expectations of others are in line with those held by others and mentor the member's honest and mature social thinking, which is described by Biddle (1986) [33] as the two abilities of role-taking. In addition, lacking shared purposes will prevent members from shared leadership because this impedes the role-taking and making process [52]. Ethical leaders deliver the shared goals and values [58], which benefit from performing teamwork efficiently through suggesting members take on the correct roles. Team members' expectations of their role are normative under ethical leaders' effect, and they will be more likely to perceive that their ethical leaders expect them to take the role as informal leaders who are participating in teamwork and taking responsibility. Ethical leadership enhances team collaboration performance, such as collective organizational citizenship behavior [58]. With the collective team outcomes, teams can develop a friendly distributed relationship among members, and team members will perceive the right to assign specific roles in teamwork. Simultaneously, ethical leadership may serve as a backup function to guarantee employee motivation and autonomy in the teamwork process, even if some team members cannot take on the shared leadership role function. Based on the evidence, we propose the following:

# Hypothesis 2 (H2). EL is positively related to SL.

## 2.3. Shared Leadership (SL) and Team Creativity (TC)

Shared leadership has been considered an antecedent of creativity for members and teams [27,28,34]. The notion of shared leadership is that every employee can exhibit leadership because leadership revolves around how people are mobilized to do work rather than being defined by position. Because it combines the best leadership abilities of team members, shared leadership is being tested as a possible factor to meet the challenging needs of employees' capabilities development [48].

First, shared leadership can cultivate the team's overall capacity by helping with all members' knowledge and skill [34], producing more resources for creativity. Team member diversity in knowledge, experience, and information is transformed as advantageous resources and smooth operation combine to form a production and operation of creativity. Second, team creativity is more likely to appear when members mutually influence and participate in the work. By nursing team members with high confidence to practice positively and facilitate an inclusive environment, shared leadership tolerates diversity and interaction [59]. Team members will also put extra effort into creativity due to shared leadership's shared cognition [31], through collaboration and empowerment. This allows team members to feel free to produce creatively. Third, shared leadership

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contributes to the team's creative climate and supports innovation. Then, team members may strengthen internal team communication or share the information and knowledge they grasp because they perceive a well-supported team environment. Moreover, communication and knowledge sharing with team members improves creativity. Scholars found that shared leadership is beneficial to cultivating team members' creativity [60–62]. Therefore, team creativity can be expected as the product of interaction and influence of team members under the effect of shared leadership.

# **Hypothesis 3 (H3).** *SL is positively associated with TC.*

## 2.4. Mediating Role of Shared Leadership (SL) in the Ethical Leadership and Team Creativity Link

Based on the above arguments, we propose that shared leadership may mediate the relationship between ethical leadership and team-level creativity. Existing research has shown several intermediating mechanisms to explain the ethical leadership—creativity link at different levels, such as an intrinsic motivation [20], trusting relationship [21], knowledge sharing and empowerment [19], LMX [63] at the individual level, psychologically safe climate [15], and an ethical [58] and just climate [13] at the team level. This study focuses on the team-level concept that may predict and influence the creative process to extend the understanding. We further assume shared leadership as informal internal leadership sources broaden the boundary of ethical leadership effectiveness to team creativity.

According to shared leadership theory, an appropriate condition with high trust and cohesion that allows team members to share and engage in exchange activities [27]. Ethical leadership conducted by a designated team leader, has been shown to relate individual and team creativity because leaders contribute to stimulate the willingness of employees through eliminating structural barriers [64], fostering the formation of trusting and fair relationships in teamwork, and developing employees' expectations of fair exchange in contributions and resource sharing [65].

Based on SIP theory [42], the team profited from ethical leadership, and team members may collect the information revealed by ethical leaders that shape their cognition and behavior. Accordingly, the ethical leader displays moral and ethical behavioral information, and followers may digest such information and produce creative work because this team is likely to be supported and consistent. Through shared leadership, the effect of vertical leadership tends to be distributed and maximized. Shaped by shared leadership inference, team members quickly focus on creativity and sufficient work with other members who receive similar information and are more likely to generate novel ideas. In this effect of shared leadership, team members will receive the relevant information that comes from the team leader who gives the standard and team followers who have similar perceptions. Scholars also proved ethical leadership benefit on maximining employee willingness to sharing resources like job related files and procedures, experiences, and know-how [64]. Tang and Bavik (2018) [65] contributed a work shown ethical leadership positively related to employee sharing behavior.

Under role theory [54], while ethical leadership focuses on developing morals, justice, and role modeling toward shared goals and values, shared leadership centers on the ability to join members in pursuing the shared goals and values of team objectives. Moreover, while ethical leadership encourages team employees to exercise character in decision making and lets the members go through the making and taking of their roles, shared leadership focuses on how team members interact and perform the taking and making of roles by themselves. Because team members take on the role of shared leadership as informal or temporary leaders produced by their ethical leaders, shared leadership offers a new procedure for team members to make the role or craft the job creatively. In that, shared leadership indirectly links the relationship between formal ethical leadership and creativity.

The social relational mechanisms of leadership—creativity [38] can also explain the shared leadership's mediating function regarding ethical leadership's effect on creativity.

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Scholars regarded shared leadership as a relational phenomenon about reciprocal influence within a team [66]. This involves the trusted relationship and positive work relationship between a leader and members and that shared leadership can be described as when a temporary informal leader appears in teams while other members consistently recognize and sacrifice to help that informal leader because they believe that by supporting and following the informal leader, the work can be finished more efficiently [67]. Moreover, under cognitive mechanisms of leadership—creativity [38], shared leadership proposes sharing empowerment and responsibility, reducing the team members' uncertainty for work and increasing the safety of the environment, which lets team members exhibit creative action. Uncertainty is properly controlled, and a supportive environment is perceived.

To summarize, shared leadership should play a critical function in enlarging and deepening the leadership—creativity process. In addition, shared leadership is the crucial facilitator of creativity because shared leadership lessens the perceived risk of creativity and creates psychological empowerment and a supportive environment that stimulates team member sharing and proactively engages in creativity. This study proposed that shared leadership is a crucial antecedent of team creativity and an efficient pipeline to deliver the effect of ethical leadership.

#### **Hypothesis 4 (H4).** *SL mediates the relationship between EL and TC.*

# 2.5. The Moderating Effect of LMXD in the Ethical Leadership and Shared Leadership Link

In this paper, we propose that LMXD may moderate the influence of ethical leadership on shared leadership. Although we acknowledge that ethical leadership may facilitate shared leadership as aforementioned, it is naïve to argue that the relationship works in all situations and contexts. Among many contextual and contingent factors that moderate that association, we suggest the importance of LMXD.

The central proposition emphasized by leader–member exchange theory is distrusting different relationships among team members by leaders within the work units. A reciprocal exchange relationship results in a high-quality LMX and determines the exchange quantities between leader and member, specifically, the amount of physical or intellectual resources, information, efforts, and supports [68]. Nevertheless, diversity and inequality are related in ways that cannot be ignored. Additionally, higher levels such as group and organizational concepts and constructs of LMX theory must be highlighted when considering an exchange relationship because the LMX develops as a multilevel conceptualization process [69]. The concept of LMXD is a group variability in the relationship's quality [68] among the team members and leader. The moderating effect of LMXD has been explained in several frameworks of team outcomes under a myriad of theories, such as social identity, social comparison, and situation theory. Scholars agreed that the effect of LMXD is complex and affected [69,70]. This study followed Yu's research [36] and suggested using allocation preferences theory [71] to understand the harmful and healthful buffering effect of LMXD.

A small amount of research explained the contingent factor in the linkage of shared leadership. Because we used role theory to look at the ethical and shared leadership relationship, the dilemma is proposed as the conflict and distance of social interaction during the taking-making role. In addition, under SIP theory [42] when team members get involved in a differentiation relationship compared with other followers, they may receive unfair and suspicious information, obstructing shared leadership's growth in the team. We then bring LMXD in the relationship under an equality perspective and predict that high LMXD will inhibit ethical leadership's effect on shared leadership.

According to allocation preferences theory [71], the equality perspective can ensure harmony in the team environment, which prevents employees from being negatively impacted. When employees feel their own relationship with team leaders is worse or more distant than others', they may perceive unfair resource allocations [71] and conflict in the workplace [36]. In other words, when engaged in the high LMXD team, team members will maintain role conflict because the different relationships can undermine the

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principle of equality [36] that promotes harmony and coordination in the team. When low LMXD is perceived, leaders engage in relationships of relatively similar quality, resulting in proper role behavior by reducing the psychological distance between members and generating loyalty and trust in leaders and organizations through strong communication. In other words, low LMXD means less of a burden on team members in taking on roles and the better integration of relationships. LMXD affects perceptions of just climates [70]. Moreover, LMXD will affect the size of the outgroup, which is related to undesirable outcomes; low LMXD decreases the difference and fades the line between in-group and out-group because members are more likely to identify just and honest relationships in the work team. Therefore:

**Hypothesis 5 (H5).** *Team LMXD moderates the relationship between EL and SL. Specifically, low LMXD will enhance the association and entails a more substantial effect.* 

Given the shared leadership's mediating role and the moderating effect of LMXD mentioned in Hypotheses 4 and 5, the mediated mechanism between EL- > SL- > TC can be extended to a moderated mediation. This study will check whether LMXD positively or negatively influences ethical leadership's impact on team creativity, considering shared leadership functions as a mediating mechanism.

**Hypothesis 6 (H6).** LMXD will moderate the indirect effects of EL - > SL - > TC.

#### 3. Method

#### 3.1. Procedure

To meet the research design of this study, such as the working environment within the team structure, leaders and members frequently exchange in context and produce creative outcomes with ethical and shared leadership. We selected a survey introduced in HRD Korea via direct contact and an offline door-to-door survey. The survey was conducted anonymously with the consent of team leaders. The leaders from 31 qualifying teams were provided with two versions of the questionnaires; they were asked to conduct a team leader adoption questionnaire and forward a separate team member survey questionnaire with codename to their team members. The team's entire creativity performance was evaluated and rated by team leaders. Leaders' behaviors and LMXD are judged and answered by team members. The final retracted questionnaire is compiled according to the team codename corresponding to the leader and members. The descriptive statistics are reported in Table 1. The final sample included 233 team members with 30 leaders nested in 30 teams (*M*size = 8.63, *SD*size = 2.26).

#### 3.1.1. Team Creativity (TC)

After team creativity was reported by the team leader, we adapted Zhou and George's [76] scale to measure team creativity with items such as, "Members are not afraid to take risks," and, "team members tend to suggest new ways to improve the quality for the team" (Cronbach's Alpha = 0.950).

#### 3.1.2. Control Variables

In addition to minimizing the alternative explanations, this study controlled the relevant factors of team characteristics, including team size. In addition, this study considered LMX as a latent mediator to contribute to an artifact of shared variance that results in the mediating effect magnification to prevent potential confounding effects. Team size was reported as the number of team members on each team by the team leader.

#### 3.2. Aggregation and Dispersion Issues

As described above, this study adopted data from multisource assessments by both team leaders and members. This study aggregated the team level scores of ethical and

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shared leadership and computed variance to yield a dispersion of LMX at the team level. This study analyzed intraclass correlation and group mean reliability, calculated the interrater agreement index  $r_{wg(J)}$  and F tests, providing evidence that ethical leadership (ICC<sub>(1)</sub> = 0.322, ICC<sub>(2)</sub> = 0.803,  $r_{wg(J)}$  = 0.085, F value = 15.479, p < 0.001), shared leadership (ICC<sub>(1)</sub> = 0.247, ICC<sub>(2)</sub> = 0.718,  $r_{wg(J)}$  = 0.088, F value = 31.923, p < 0.001), and LMX (ICC<sub>(1)</sub> = 0.314, ICC<sub>(2)</sub> = 0.798,  $r_{wg(J)}$  = 0.087, F value = 9.970, p < 0.001) were all above the required cutoff value and indicate considerable variance. Therefore, using ethical leadership and shared leadership at the team level is acceptable. Aggregation of the team level variance for LMX is also justified.

Samula Cl	hamastoristics	Team Lead	ler (N = 30)	Team Mem	ber (N = 233)
Sample Ci	haracteristics	Frequency	Percent (%)	Frequency	Percent (%)
0 1	Male	22	73.3	144	61.8
Gender	Female	8	26.7	89	38.2
	20–30		0	59	25.3
Λ	30–40		0	120	51.6
Age	40-50	17	56.6	50	21.4
	50–60	13	43.4	4	1.7
	Clerk		0	2	0.9
D 111	Agent		0	66	28.3
Position	Section chief	1	3.3	101	43.3
	Deputy director or above	29	96.7	64	27.5
	Less than 1 year	2	6.6	6	2.6
T	1–5 years	23	76.6	209	89.9
Team working years	5–10 years	5	16.6	17	7.1
	More than 10 years		0	1	0.4
	High school diploma		0	5	2.1
T1	College diploma		0	3	1.3
Education	Bachelor	8	26.7	157	67.4
	Postgraduate or above	22	73.3	68	29.2

**Table 1.** Descriptive features of the sample.

#### 3.3. Common Method Bias

First, this study collected multisource data and adopted moderated mediation model, which is relative to the security situation to consider the common method bias (CMB). However, even data reported and adopted through different sides of the respondent and interaction effects do not inflate by CMB [77] but may remain a concern because all independent variables are collected from one source [78]. Therefore, for second, this study adopted single-factor analysis to detect the potential for bias. The highest variance for all team member reported variables was 23.913%, indicating no apparent concerns [78]. Then, this study utilized the marker variable method [79] a third time to check for removing the risks of CMB. We adopted perceived organizational competence (Fiske (2002)'s [80] 6-item scale and rated by team members, sample items as "this organization is competent",  $\alpha = 0.950$ ) as the marker variable, since it is theoretically unrelated to the other observed variables. In virtue of SmartPLS software [72], we examined the marker variable by adding to the endogenous latent variable. We then examined the correlation among latent variables. The correlation among all latent variables and marker variable was very less than 0.3. The above is evidence that there are no common methodological deviations in this study.

#### 4. Results

#### 4.1. Correlation

Tables 2 and 3 presented the correlation and reliabilities of variables. The result of correlation analysis provides the correlation with ethical and shared leadership (r = 0.498 \*\*). At the team level, ethical leadership (r = 0.484 \*\*) and shared leadership (r = 0.572 \*\*) are positively associated with team creativity.

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<b>Table 2.</b> Descriptive statistics at the indiv	dua	l level.
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	M	SD	1	2	3	4	5	6
1. Gender	0.609	0.489						
2. Position	2.979	0.768	0.150 *					
3. Team tenure (year)	2.591	2.189	0.078	0.280 **				
4. Ethical leadership	3.899	0.683	0.112	-0.018	-0.010	(0.936)		
5. Shared leadership	4.004	0.595	0.039	-0.208 **	-0.010	0.498 **	(0.970)	
6. LMX	3.699	0.666	0.116	-0.044	0.001	0.637 **	0.521 **	(0.904)

Note: N = 233 for individual level data, two-tailed test, \* p < 0.05. \*\* p < 0.01. Gender (1/0 = male/female). The rho\_A index is presented in parentheses.

**Table 3.** Descriptive statistics at the team level.

M	SD	1	2	3	4	5	6	7	8
8.633	2.227								
0.867	0.723	0.158 *							
3.967	0.159	0.235 *	-0.028						
3.158	2.810	-0.108	-0.117	0.025					
3.902	0.432	0.025	0.052	0.150 *	0.030				
4.048	0.349	-0.344**	0.039	0.208 **	0.163 *	0.705 **			
0.717	0.197	0.196 **	0.072	0.001	-0.033	-0.410**	-0.287 **		
4.087	0.390	-0.203 **	-0.134*	0.029	0.315 **	0.484 **	0.572 **	-0.246 **	(0.959)
	8.633 0.867 3.967 3.158 3.902 4.048 0.717	8.633 2.227 0.867 0.723 3.967 0.159 3.158 2.810 3.902 0.432 4.048 0.349 0.717 0.197	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * 3.158 2.810 -0.108 3.902 0.432 0.025 4.048 0.349 -0.344 ** 0.717 0.197 0.196 **	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 3.902 0.432 0.025 0.052 4.048 0.349 -0.344 ** 0.039 0.717 0.197 0.196 ** 0.072	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 0.025 3.902 0.432 0.025 0.052 0.150 * 4.048 0.349 -0.344 ** 0.039 0.208 ** 0.717 0.197 0.196 ** 0.072 0.001	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 0.025 3.902 0.432 0.025 0.052 0.150 * 0.030 4.048 0.349 -0.344 ** 0.039 0.208 ** 0.163 * 0.717 0.197 0.196 ** 0.072 0.001 -0.033	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 0.025 3.902 0.432 0.025 0.052 0.150 * 0.030 4.048 0.349 -0.344 ** 0.039 0.208 ** 0.163 * 0.705 ** 0.717 0.197 0.196 ** 0.072 0.001 -0.033 -0.410 **	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 0.025 3.902 0.432 0.025 0.052 0.150 * 0.030 4.048 0.349 -0.344 ** 0.039 0.208 ** 0.163 * 0.705 ** 0.717 0.197 0.196 ** 0.072 0.001 -0.033 -0.410 ** -0.287 **	8.633 2.227 0.867 0.723 0.158 * 3.967 0.159 0.235 * -0.028 3.158 2.810 -0.108 -0.117 0.025 3.902 0.432 0.025 0.052 0.150 * 0.030 4.048 0.349 -0.344 ** 0.039 0.208 ** 0.163 * 0.705 ** 0.717 0.197 0.196 ** 0.072 0.001 -0.033 -0.410 ** -0.287 **

Note: N = 30 for individual level data, two-tailed test, \* p < 0.05. \*\* p < 0.01. Gender (1/0 = male/female). agg. = aggregation; agg. SD = aggregation team-level variance. The rho\_A index is presented in parentheses.

#### 4.2. Confirmatory Factor Analysis

To determine the distinctiveness of critical variables, this study conducted confirmatory factor analysis through PLS-Algorithmic. The conceptual research model that included ethical leadership (10 items, AVE = 0.634, CR = 0.945), shared leadership (22 items, AVE = 0.572, CR = 0.971), LMXD (7 items, AVE = 0.625, CR = 0.921), and team creativity (12 items, AVE = 0.626, CR = 0.921) indicated that the items loaded well in factor and had acceptable fit (SRMR = 0.033, d\_ULS = 0.011, d\_G = 0.003, Chi-Square = 4.207, NFI = 0.966). Moreover, by comparing our model with other alternative models fit (see Table 4), the result supports the discriminant validity.

Table 4. Model fit indices.

Model	SRMR	d_ULS	d_G	Chi-Square	NFI
1	0.033	0.011	0.003	4.207	0.966
2	0.082	0.067	0.050	76.976	0.382
3	0.125	0.156	0.037	50.013	0.598

Note: Model 1: Four factor model: EL, SL, LMXD, TC. Model 2: Three-factor model: combined EL and SL. Model 3: Two-factor model: combined EL, SL, and LMXD.

#### 4.3. Hypothesis Testing

After validating the measurement model, SmartPLS v. 3.3.3 [72] was used to test the hypotheses. A 5000 resamples bootstrapping technique was applied to examine the significance of the path coefficients [81]. Then, for post hoc testing for the moderated mediation effect, Hayes' PROCESS Macro models [73] were utilized.

#### 4.3.1. Results 1: The Main Effect of EL

This study proposed in Hypotheses 1 and 2 that the effectiveness of ethical leadership benefits team creativity and shared leadership. Model 1 in Table 5 below indicates the conceptualization research model, and Model 2 shows the research model after controlling for team size and LMX. These effect patterns confirmed that team-level ethical leadership positively affected team creativity as reported by team leaders ( $\beta = 0.337$ , p < 0.05) and team shared leadership ( $\beta = 0.305$ , p < 0.01), supporting Hypotheses H1 and H2.

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#### 4.3.2. Results 2: The Mediating Effect of SL

To test and compare the EL- > SL- > TC mediation hypotheses, Figures 1 and 2 present the paths of PLS-SEM model 1 and model 2. After controlling, shared leadership was strongly associated with team creativity ( $\beta$  = 0.264, p < 0.05), thus H3 is supported. Team-level ethical leadership kept a significant influence on team creativity in the presence of shared leadership. Furthermore, the indirect effect from EL- > TC was statistically insignificant ( $\beta$  = 0.082, p = 0.063). The results show that LMX, as a control variable, contributes significantly to shared leadership ( $\beta$  = 0.341,  $\beta$  < 0.05) and may interfere with the impact of ethical leadership on team innovation through shared leadership (EL- >SL->TC in model 1:  $\beta$  = 0.131,  $\beta$  < 0.05). This result may be due to the high correlation between ethical leadership and LMX (see Table 2,  $\gamma$  = 0.637 \*\*). In addition, this result may be supported by the findings of research papers that have recommended high-quality LMX as a vital substitute for ethical leadership [63,82].

Table 5.	PLS output	results for	research	models
Table J.	I Lo outout	resums for	rescarcii	models.

	n d		Path (	Confidence Intervals			
Model	Path	Estimate	SD	T Statistics	p Values	0.025	0.975
Model 1	EL -> TC EL -> SL SL -> TC LMXD -> SL Moderating effect -> SL EL -> TC	0.224 0.528 0.249 -0.103 -0.167 0.131	0.102 0.069 0.099 0.074 0.080 0.058	2.200 7.614 2.520 1.393 2.106 2.245	0.028 0.000 0.012 0.164 0.035 0.025	0.023 0.388 0.053 -0.265 -0.288 0.028	0.415 0.660 0.440 0.039 0.013 0.257
Model 2	EL -> TC EL -> SL SL -> TC LMXD -> SL Moderating effect -> SL EL -> SL -> TC Co: LMX -> SL Co: LMX -> TC Co: TS -> TC	0.337 0.305 0.271 -0.058 -0.164 0.082 0.341 -0.180 -0.150	0.135 0.098 0.093 0.067 0.081 0.044 0.138 0.117 0.056	2.494 3.122 2.874 0.856 2.042 1.862 2.466 1.541 2.669	0.013 0.002 0.004 0.392 0.041 0.063 0.014 0.123 0.008	0.050 0.115 0.078 -0.190 -0.304 0.013 0.166 -0.387 -0.261	0.587 0.500 0.444 0.074 0.013 0.184 0.540 0.065 -0.039

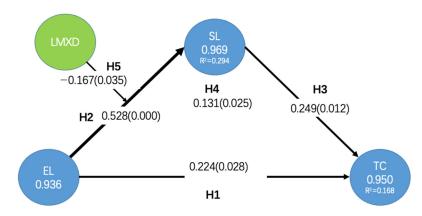


Figure 1. Conceptual research results (Model 1).

For further verification, the mediation effect was analyzed through the bootstrapping (5000 resample) method of Haye's Model 4 through PROCESS Macro [73]. The results are introduced in Table 6. In that, H4 is accepted as shared leadership plays a partial mediating role in the path of EL->TC.

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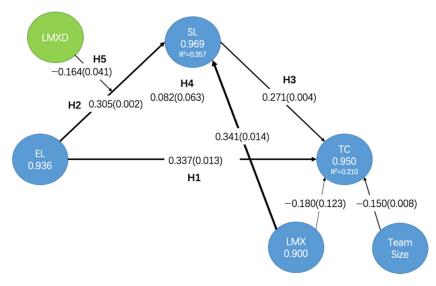


Figure 2. Research results with control variables (Model 2).

Table 6. Hay	es output	results for	the med	liating effect.
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26.1.1	n d		Model S	Summary		Confidenc	e Intervals
Model	Path	R	R-sq	F	p Values	LLCI	ULCI
Outcome: SL	EL- >SL	0.492	0.242	73.843	0.000		
Outcome: EL	EL- >TC SL- >TC	0.401	0.161	22.088	0.000		
Total Effect Model	Total EL- >TC Direct EL- >TC Indirect EL- >TC	0.333	0.111	28.776	0.000	0.199 0.066 0.031	0.430 0.325 0.233

## 4.3.3. Results 3: The Moderating Effect of LMXD

To test the hypothesized moderating role of LMXD, this study used the PLS-SEM model for EL\*LMXD- > SL to explore the moderating model (see Figures 1 and 2). We found that LMXD showed a negative result on the positive path from the team vertical from ethical to shared leadership. Based on Table 5, H5 is supported as the interaction coefficient between ethical leadership and LMXD significantly affects shared leadership ( $\beta = -0.164$ , p < 0.05). Consistent with the proposition that LMXD would negatively moderate the relationship between EL and SL. Moreover, it was discovered that the higher value of LMXD would result in an inferior relationship between EL and SL. The moderating impact of LMXD is clearly depicted in Figure 3.

This study further checked simple slope tests for low levels of LMXD and found that the regression slope for low LMXD was positive and significantly different from zero. Following the Johnson–Neyman method [83], the overall model F (3, 229) = 31.192, p = 0.000, R-squared = 0.290; Adjusted R-squared = 0.281. This region of significance includes 93.56% of the sample. Consequently, Hypothesis 5 was supported. It can be seen when high ethical leadership and low LMXD are most exciting for shared leadership.

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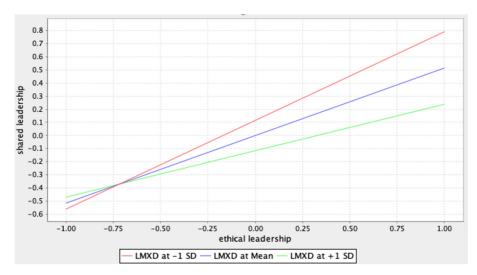


Figure 3. Moderating Effect of LMXD in the EL-SL link.

#### 4.3.4. Results 4: The Moderated Mediation Model

Taken together, we analyzed the whole effect mechanism through the moderated role of LMXD from ethical leadership to team creativity via shared leadership. The direct and indirect paths are shown in Table 7. Of interest is that for EL - > SL - > TC, the conditional indirect effect was strongest at low LMXD ( $\beta$  = 0.164, 95% CI = 0.033~0.319), and the indirect effect was more robust and significant than the direct effect. According to this finding, creativity should be most available when the team has a high formal ethical leadership and weak LMXD with the shared leadership. Moreover, with the decisive mediating role of shared leadership, the negative effect of LMXD is almost removed.

**Table 7.** Hayes output results for the moderated mediation effect.

N. 1.1	n d	1 1 ()4	Confidence	e Intervals		Model S	Summary	
Model	Path	Level of Mo —	LLCI	ULCI	R	R-sq	F	p Values
Total Effect Model	Direct EL- >TC Indirect EL- >TC	SD – 1 SD + 1	0.066 0.033 0.018	0.326 0.319 0.174	0.401	0.161	22.088	0.000

Note: Bootstraps n = 5000; Level of confidence intervals = 95%.

#### 5. Discussion

#### 5.1. Theoretical Implications

The goals of this study are ambitious in seeking to add understanding to several recent studies. First, we are attending to the team construct with the effectiveness of leadership. Even though the topic of ethical leadership and creativity has been getting attention for many years, our study developed an innovative mechanism and offered an alternative explanation for how and when ethical leadership contributes to creativity. This study may offer an example of the solution to extend the boundaries of ethical leadership [84]. We think about the role the leader wants to promote or train the employee to play, which is the key facet of ethical leadership.

When focusing on shared leadership development, from what we know, this is the most advanced study that has presented vertical ethical leadership with shared leadership at a horizontal model with the conditional effect. Our study integrated ethical leadership with shared leadership based on role theory and the SIP perspective. The findings suggested that vertical ethical leadership as an antecedent condition can stimulate shared leadership in a team. We also added the interaction effect on this influence to see when ethical leadership best stimulates shared leadership, thereby exacerbating the evidence in the statement of that vertical and shared leadership are auxiliary and complementary [30,34,49]. Moreover, because studies have investigated that shared leadership positively related to

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creativity, this study was consistent with the literature, but we additionally offered direct and indirect paths from shared leadership to team creativity.

Third, the results also extend our understanding of the literature on creativity. This study demonstrated leadership as the driving force for team creativity and that shared leadership showed a powerful mediating effect on the mechanism through ethical leadership to creativity by interplaying two leadership properties in emerging creativity. Ethical leadership contributed directly and indirectly to team creativity, while shared leadership contributed more directly than ethical leadership. With these results, we provided a case and explanation on integrating and developing leadership to sustain team innovation most effectively.

Finally, this study proposed LMXD as a team contingency factor that can diminish ethical leadership's effects on shared leadership and, consequently, creativity. The finding on the moderating effect of LMXD is beyond expectation. By following the command that research should embrace the perspective that simultaneously considers the paradox of LMXD [36,85], this study provided an interesting team-level case to discuss the phenomenon that the impact LMXD's interaction with ethical leadership has on shared leadership will be mitigated by high LMXD because of the perception of inequality under allocation preferences theory [71]. Moreover, shared leadership demonstrated the ability to digest and endure differentiation and diversity in the team environment, which was proposed previously [59].

# 5.2. Practical Implications

Accordingly, this study makes several contributions to practitioners. First, team leaders should avoid unethical behavior. We believe the concerns regarding ethical leadership will continue for several generations. Leaders and managers should involve themselves in ethical leadership behavior as early as possible. Through ethical efforts, team creativity will be developed, and the higher level suggests that positive organizational outcomes could be near at hand. What is more, ethical leadership creates equality in the organizational environment by setting role models and sharing common goals, which makes a platform upon which leadership can adapt to changing times.

Second, we suggest that team leaders encourage and empower supervisors to take the role of leadership adaptively. It is critical to set the foundation that ethical leaders leading their followers feel trusted and involved, then members may participate in decision making and have more opportunity to exercise leadership. Ethical leadership could contribute to cultivating members in the role taking-making process. Once a member takes the role and makes a role under a moral model and shared goals, optimistic individuals and team performance can be expected.

However, the evolution and sustainable development of shared leadership requires vertical leadership [34]. Scholars argued that vertical leadership should consider the different leadership resources [52], such as external stakeholders and how to integrate resources. Typically, the way to coordinate internal and external resources is the message for leaders.

Fourth, team leaders should think about ensuring that a suitable balance is maintained in their workplace relationship. The exchange between leaders and members is a dynamic across-level complex process [69]. As suggested by scholars [36], depending on the situation of perspective or behavior, the differentiation in LMXD can judge supposition or devastation. Team leaders may increase the targeted training or particularly encourage and reward behavior for excellent members after observing that shared leadership is working in a team. Similarly, scholars suggested that shared leadership will be an alternative solution to assess talented leader candidates [26]. Therefore, both ethical and shared leadership are priority matters for human resource development.

Moreover, rethinking the different results regarding leadership with creativity, we advise leaders to stand on the same front with their members to reduce the conflict perspective. Leaders and members may hold different minds on equality and equity treatment.

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More seriously, the dilemma is that leaders should judge quality and quantity creative performance accurately. We believe that it is more than just making a simple choice from a group. Instead, the key to the solution is how leaders can transform diversity into a positive force. We further suggest the leader eliminate obstacles preventing members and the team from breaking the boundaries toward a harmonious and inclusive work environment.

#### 5.3. Limitations and Suggestions for Future Studies

We identified and discussed the limitations of this study as follows. First, the limited sample size of our study may result in bias. Even though the sample quality is high and targeted for the research subject, the disadvantage of small samples should be addressed. Even if the study thoroughly tested samples and assumptions using SmartPLS [72] and PROCESS Macro [73], there might be a better explanation for the relationship between leadership and creativity if more samples and cases were obtained for multi-level or cross-level analysis.

There is another limitation regarding respondent identification. HRD Korea, as a public institute, highlights its advantages in leadership development, but compared with service work, innovation and knowledge work are less critical in perspective. Third, multisource and multiple-time data collected can effectually evade the risk of CMB. This study adopted multisource data but not time waves data collection, which lacks attention to the CMB issue.

Fourth, because we were interested in examining the mechanism between vertical ethical and shared leadership, this study adopted a self-reported scale, which checked if shared leadership was sparked by ethical leaders from the angle of team members' view. Some scholars remarked that the network approach for operationalization measurement more accurately explains the team-level leadership concept [30]. In this way, we suggest that future studies consider that shared leadership's social networks change over time. A similar potential limitation is the operationalization of LMXD. Even though the statistical indices were preferred by scholars [75], the process measurement of LMXD may be controversial. In addition, we have identified the impact of LMX on shared leadership and recommend future research digging into LMX and shared leadership mechanisms.

Furthermore, while thinking about the mediating effects of shared leadership, we suggest that future research consider other constructs that highly correlate to shared leadership as control variables to ensure the accuracy of variance and results. Moreover, we noticed that diversity as a latent factor may lead to future vertical and shared leadership relationships research. This study has advanced this by acknowledging that the relationship difference influences the ethical leadership effect. However, team creativity is relatively stable due to leveraging shared leadership, even in the case of different LMXD situations. While our findings help clarify the contradictions in the leader–member exchange, the heterogeneity of the result of LMXD remains to be investigated. Therefore, this study further commands researchers to draw upon allocation preferences theory [71] and other related approaches to assess the influence of diversity and differentiation on vertical and shared leadership interaction.

## 6. Conclusions

Team creativity is the top priority of leaders for team development. With the changing times and organizational development, research increasingly provides evidence on leadership effectiveness and creativity. For instance, scholars have suggested cultivating team creativity facing diversity. They offered the advantage of inclusive leadership [86], which fully encourages team members to participate and empowers team members to join the work process. Alternatively, shared leadership [62,87] distributes the "leader" position to team members and aims to make full use of employees' talents and actively mobilize the enthusiasm of employees. In addition, the personality traits of leaders, namely, humble [88], narcissistic [89], abusive [90], and open [91], have also attracted wide attention from scholars.

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From the recent research, it is not difficult to find that leadership remains a pivotal link to team creativity. How to promote rather than weaken creativity, combined with the context to judge the right leadership style, has become the focus of scholars. This study is consistent with the research focus mentioned above. We also take shared leadership as our entry point, providing a new perspective for understanding the relationship between well-known ethical leadership and team creativity. The results of this paper suggest that team leaders trying to create conditions where team members participate in shared leadership should consider LMXD patterns, as these may affect team creativity.

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**Institutional Review Board Statement:** Ethical review and approval were waived for this study, due to the low level of potential harm.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflict of interest.

## Appendix A. Items for Team Members

	Items	Loading
EL1	Listens to what employees have to say.	0.770
EL2	Disciplines employees who violate ethical standards.	0.821
EL3	Conducts his/her personal life in an ethical manner.	0.731
EL4	Has the best interests of employees in mind?	0.784
EL5	Makes fair and balanced decisions.	0.822
EL6	Can be trusted.	0.774
EL7	Discusses business ethics or values with employees.	0.822
EL8	Sets an example of how to do things the right way in terms of ethics.	0.841
EL9	Defines success not just by results but also the way that they are obtained.	0.807
El10	When making decisions, asks "what is the right thing to do?"	0.784
LMX1	Do you know where you stand with your leader do you usually know how satisfied your leader is with what you do?	0.710
LMX2	How well does your leader understand your job problems and needs? (How well do you understand), How well does your leader recognize your potential?	0.826
LMX3	How well does your leader recognize your potential?	0.763
LMX4	Regardless of how much formal authority he/she has built into his/her position, what are the chances that your leader would use his/her power to help you solve problems in your work?	0.783
LMX5	Again, regardless of the amount of formal authority your leader has, what are the chances that he/she would "bail you out," at his/her expense?	0.808
LMX6	I have enough confidence in my leader that I would defend and justify his/her decision if he/she were not present to do so?	0.805
LMX7	How would you characterize your working relationship with your leader?	0.839
SL1	How often do I and other team members share in planning how the work gets done?	0.746
SL2	How often do I and other team members allocate resources according to team's priorities? Setting our team's goals.	0.757
SL3	How often do I and other team members set our team's goals?	0.756
SL4	How often do I and other team members deciding how to go about our team's work?	0.794
SL5	How often do I and other team members organize tasks so that work flows more smoothly?	0.765
SL6	How often do I and other team members provide helpful input about team's work plans?	0.791
SL7	How often do I and other team members decide on best course of action when problems arise?	0.789
SL8	How often do I and other team members diagnose problems quickly?	0.799
SL9	How often do I and other team members use our team's combined expertise to solve problems?	0.813
SL10	How often do I and other team members find solutions to problems affecting team performance?	0.784
SL11	How often do I and other team members identify problems before they arise?	0.741
SL12	How often do I and other team members develop solutions to problems?	0.706
SL13	How often do I and other team members solve problems as they arise?	0.787
SL14	How often do I and other team members provide support to team members who need help?	0.697
SL15	How often do I and other team members show patience toward other team members?	0.684

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	Items	Loading
SL16	How often do I and other team members encourage other team members when they're upset?	0.719
SL17	How often do I and other team members listen to complaints and problems of team members?	0.798
SL18	How often do I and other team members foster a cohesive team atmosphere?	0.821
SL19	How often do I and other team members treat each other with courtesy?	0.672
SL20	How often do I and other team members exchange career-related advice among our team?	0.763
SL21	How often do I and other team members help to develop each other's skills?	0.736
SL22	How often do I and other team members learn skills from all other team members?	0.777
SL23	How often do I and other team members be positive role models to new members of the team?	0.762
SL24	How often do I and other team members instruct poor performers on how to improve?	0.741
SL25	How often do I and other team members help out when a team member is learning a new skill?	0.703

#### Appendix B. Items for Team Leaders

	Items	Loading
TC1	Members in my team suggest new ways to achieve goals or objectives.	0.856
TC2	Members in my team come up with new and practical ides to improve performance.	0.720
TC3	Members in my team search out new technologies, process, techniques, and/or product ideas.	0.706
TC4	Members in my team suggest new ways to increase quality.	0.780
TC5	Members in my team are good sources of creative ideas.	0.841
TC6	Members in my team are not afraid to take risks.	0.632
TC7	Members in my team promote and champions ideas to others.	0.794
TC8	M Members in my team exhibit creativity on the job when given the opportunity to.	0.896
TC9	Members in my team develop adequate plans and schedules for the implementation of new ideas.	0.753
TC10	Members in my team often have new and innovative ideas.	0.817
TC11	Members in my team come up with creative solutions to problems.	0.848
TC12	Members in my team have a fresh approach to problems.	0.774
TC13	Members in my team suggest new ways of performing work tasks.	0.825

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