

LEADERSHIP INFLUENCE ON THE RELATIONSHIP  
BETWEEN COMMUNICATION SATISFACTION AND  
JOB SATISFACTION IN CMC ENVIRONMENTS

DOCTORAL DISSERTATION SUMMARY

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## **Introduction**

The growth of computer-mediated communication (CMC) in today's organizations, as a consequence of the expansion of the technology market worldwide, has influenced the communication process channels and the possible effects of the interaction among job satisfaction, communication satisfaction and leadership; Therefore, the purpose of this research is to observe how transactional, transformational, and level 5 leadership styles influence the relationship between communication satisfaction and job satisfaction in organizational environments impacted by internet-based communication.

## **Hypotheses**

Regarding the relationship between leadership and job satisfaction, a study conducted in a sample of 200 nurses and medical assistants from large public and private hospitals in Malaysia found that employee empowerment mediates the relationship between transformational leadership and job satisfaction; also, researchers found a significant relationship between transformational leadership and job satisfaction; to obtain the mediating effect, applied a partial least squares-structural equation modeling (Choi, et al., 2016); additionally, researchers from ISM University of Management and Economics in Vilnius, Lithuania; examined the impact leadership style has on job satisfaction in higher education institutions (HEI) in Lithuania found a significant positive impact of leadership style on job satisfaction (Alonderiene & Majauskaite, 2016); some researchers have compared the impact transactional and transformational have on job satisfaction individually; for instance, a study conducted on 270 employees from selected retail outlets of Slough, United Kingdom, concluded that transactional leadership does not have a significant influence on job satisfaction, while

transformational leadership showed a significant positive on job satisfaction (Asghar & Oino, 2018); similarly, an investigation in Hanoi, Da Nang, and HoChiMinh City, found that transformational leaders had a higher influence on job satisfaction than transactional leaders (Ho, et al., 2016).

Regarding the relationship between leadership and job satisfactions in Computer-Mediated Communication environment, few research results have been found in scientific journals about this issue; even though, a studied conducted on 375 professional-level employees found that employees with lower quality relationships with the leaders showed a lower job satisfaction, it means that leadership had a positive relationship with job satisfaction (Hoyt & Blascovich, 2003)

As consequence of the previous literature review, it can be assumed that there is a positive relationship between leadership and job satisfaction in Computer-Mediated Communication environments (CMC), then the following hypotheses arises:

*H1.a. There is a significant, positive relationship between the transactional leadership and job satisfaction in CMC environments.*

*H1. b. There is a significant, positive relationship between transformational leadership and job satisfaction in CMC environments.*

*H1. c. There is a significant, positive relationship between level 5 leadership and job satisfaction in CMC environments.*

For the relationship between communication satisfaction and leadership, a recent research conducted on 362 primary school teachers in Serbia showed a very high positive relationship between leadership and

communication satisfaction (Terek, et al., 2015); likewise, investigating the correlation between the Transformational Leadership, Interpersonal Communication, Organizational Conflict, and Organizational Effectiveness, researchers conducted a study on 90 Indonesian found a strong positive correlation between interpersonal communication and transformational leadership (Mukhtar, et al., 2020).

Subsequently, based on the previous findings, the following hypotheses emerge:

*H2.a. There is a significant, positive relationship between transactional leadership and communication satisfaction in CMC environments.*

*H2.b. There is a significant, positive relationship between transformational leadership and communication satisfaction in CMC environments.*

*H2.c. There is a significant, positive relationship between level 5 leadership and communication satisfaction in CMC environments.*

A study conducted on 53 five-star hotels in Hainan tested a significant relationship between communication satisfaction and job satisfaction (Hua & Omar, 2016). Likewise, a research to identify the factors influencing job satisfaction found a significant correlation between job satisfaction and communication satisfaction; similarly, the study concluded the impact communication satisfaction had on job satisfaction for participants working at a surgery ICU, and dissatisfaction with nursing (Park & Lee, 2018). Similarly, a research conducted in Belgium evidenced a moderate relationship between all dimensions of communication satisfaction and job satisfaction. It demonstrated high levels of communication and job satisfaction (Vermeir, et al., 2018).

Finally, a study conducted in India showed a positive relationship between communication and job satisfaction, as well as a moderation effect of the generational category on the relationship between organizational communication and job satisfaction (Mehra & Nickerson, 2019).

Regarding the communication and job satisfaction relationship on Internet-based work environments, Smith, Patmos, and Pitts could test a strong relationship between job satisfaction and communication channel satisfaction for e-mail instant messaging, phone, and video (Smith, et al., 2018).

Studies have also tested the multivariable relationship between leadership, communication, and job satisfaction. A study conducted on 225 people from Turkish deposit banks showed that interactive leadership style and communication competency have a stronger relationship with job satisfaction (Çetin, et al., 2012). A study at Indonesian universities, revealed that either communication skills, or task and relationship-oriented leadership styles are especially influential in determining employees' satisfaction with communication relationships with leaders, and their satisfaction with work (Wikaningrum, et al., 2018). Similarly, A research carried out in Turkey, showed that when analyzing individually, communication satisfaction and transformational leadership demonstrated significant positive relationships with job satisfaction; also, the SEM model tested a partial mediation effect of transformational leadership on the relationship between communication satisfaction and job satisfaction (Ulutürk & Tayfun, 2019).

No studies conducted by business and academic scholars about the influence of leadership as moderators on the relationship between

communication satisfaction and job satisfaction at CMC environments have been found; nevertheless, findings seem to support the notion that leadership styles influence the relationship between communication satisfaction and job satisfaction; consequently, the following hypotheses emerge:

*H3. Communication satisfaction has a positive and significant relationship with Job Satisfaction in CMC environments.*

*H3.a. Transactional leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

*H3.b. Transformational leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

*H3.c. 5-level leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

Literature review suggests that the use of Internet-based communication channels have a positive impact on communication satisfaction; for instance, a Serbian study tested a statistically significant positive relationship between the information technologies items have with the dimensions of communication satisfaction and the dimensions of organizational learning (Miti, et al., 2017); likewise, a group of researchers in Croatia predicted that internet based channel of communication is connected with communication satisfaction (Tkalac Verčić & Špoljarić, 2020); similarly, a study conducted in the Republic of Macedonia the use of social networks increases job satisfaction



(Siljanovska, 2015). Nevertheless, a previous Serbian study concluded that the use communication technology in terms of social networking tools has no influence on communication satisfaction (Lalic, et al., 2012), which may imply that the absence of Internet-based communication in the organization would not affect communication satisfaction.

Consequently, the following hypothesis emerges:

*H4. Leader's refusal to communicate via Internet-based channels with employees has no influence on communication satisfaction.*

## **Research questions**

**RQ1.** Which leadership style – transactional, transformational, and level 5 - has a greater effect on job satisfaction when they interact within the organization in CMC environments?

**RQ2.** Which leadership style – transactional, transformational, and level 5 - has a greater effect on communication satisfaction when they interact within the organizations in CMC environments?

**RQ3.** What moderation effects do transactional, transformational, and level 5 leadership have on the relationship between communication satisfaction and job satisfaction in CMC environments?

**RQ4.** Does the leader's refusal to communicate via Internet-Based communication with employees have influence on communication satisfaction?

## **Methodology**

### **Sample**

For the current study, the probability sampling technique was used, since it is agreed that it is a reliable technique to be applied when highly precise information is required to understand a phenomenon (Malhotra, 2010, p. 359).

The selection of organizations was based on three basic characteristics: the first one was to be organizations from the service sector, the second one was to be small and medium-sized enterprises, and the third one to be in the same country; consequently, a proportional stratified sampling was designed to make sure of accurate divisions of the subgroups (Strata / Stratum) (Gay, et al., 2012, p. 133).

Therefore, each organization represented a subgroup. Subsequently, given the fact that every possible candidate had an equal probability of selection to participate, the simple random sampling technique was utilized in every stratum, which guaranteed that every participant was selected independently of the other participants, as well as a reliable procedure that responded to a proportional stratified sampling (Malhotra, 2010, p. 350); consequently, an equal representation in proportion for every stratum of the population was guarantee (Gay, et al., 2012, p. 133).

The stratum 1, consisted of staff employed by the organization 1, the stratum 2 were employed by the organization 2, the stratum 3 from the organization 3, and the stratum 4 were employees working for the organization 4.

*Table 1: Total sample size*

GENERAL SAMPLE	
Stratum 1	34
Stratum 2	29
Stratum 3	15
Stratum 4	25
<b>Total</b>	<b>103</b>

Source: Own construction

Sample for the study consisted of 103 employees (55 women, 48 men) from service SMEs in Colombia. Regarding the highest academic qualifications, participants have got, 29% of employees (n=30) have a specialization degree; 22.3% (n=23) answered to have a bachelor degree; 19.4% (n=20) responded to have obtained a specialization degree; 13.6% (n=14) have a technical degree; 7.8% (n=8) replied they have got a secondary degree; 5.9% of participants (5.9%) admitted to have obtained a master degree; just 0.98% (n=1) has obtain a Ph.D. degree, and 0.98% (n=1) has not reached any academic qualification.

## Questionnaires

Questionnaires were rigorously selected by considering two criteria; firstly, that they responded to the theoretical approach purpose of the study, and secondly, that they have proved to have previous consistent reliability measures.

- A sociodemographic questionnaire was administered.
- Job Satisfaction Survey instrument (JSS) (1985) was administered to measure job satisfaction.
- Communication satisfaction was measured by Communication Satisfaction Questionnaire developed by (Downs & Hazen, 1977).

For leadership, 2 questionnaires were administered.

MLQ 5X was used to measure transactional and transformational leadership styles (Bass & Avolio, 1997), and L5LS instrument was administered to measure level 5 leadership.

Level 5 leadership was measured by the 2-dimension L5LS instrument (Collins, 2009).

Finally, to test the hypothesis 4, the Internet-Based Communication Satisfaction Questionnaire and a semi-structured interview were designed.

### **Procedure and results**

To understand the context of Internet-based communication, as well as the use of tools linked to the CMC for the performance of tasks at work, some questions were asked to 103 participants.

To this study, employees responded that they spent an average of 5.4 hours a day using the internet to carry out their work activities; likewise, they assure that 65.4% of the organizational communication is done through the CMCs. The information allows us to infer that ICTs have been sufficiently used by organizations; likewise, that 65.4% of Internet-based communication channels are used for organizational communication is relevant information to understand that Internet-based communication is the predominant way in these organizations.

Pearson's correlation coefficient was used to analyzed hypotheses 1, 2, and 3. Simple linear regressions were used to analyze Hypotheses 1 and 2. Multiple linear regressions were used to see the moderator effect in hypothesis 3 and to answer research questions 1, 2 and 3. Descriptive statistics, graphs, and interview analysis were used to test hypothesis 4 and answer the research question 4.

Table 2: Pearson's correlation coefficient moderation H3

VARIABLE	1	2	3	4	5
1. JS	-	-	-	-	-
2. CS	,721**	-	-	-	-
3. TRN	,391**	,596**	-	-	-
4. TRF	,537**	,690**	,796**	-	-
5. L5LS	,521**	,725**	,672**	,794**	-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Hypothesis 1.a.

*There is a significant, positive relationship between the transactional leadership and job satisfaction in CMC environments.*

Table 3: Coefficients H1.a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	110.999	9.719		11.421	.000
TRANSACTIONAL	14.741	3.455	.391	4.267	.000

a. Dependent Variable: JOB SATISFACTION

Both the constant coefficient ( $b=110.999$ ,  $t=11.421$ ) and the transactional leadership coefficient ( $b=14.741$ ,  $t=4.267$ ) are significant at  $p<.001$ . The coefficient of the independent variable ( $b_1=14.741$ ,  $p<.001$ ) shows that there is a positive relationship between job satisfaction and transactional leadership. As a result, the H1.a. is supported.

### Hypothesis 1.b.

*There is a significant, positive relationship between transformational leadership and job satisfaction in CMC environments.*

Table 4: Coefficients H1.b.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	92.564	9.427		9.819	.000
TRANSFORMATIONAL	19.898	3.112	.537	6.394	.000

a. Dependent Variable: JOB SATISFACTION

Both the constant coefficient ( $b=92.564$ ,  $t=9.819$ ) and the predictor coefficient ( $b=19.898$ ,  $t=6.394$ ) are significant at  $p<.001$ . Additionally, the coefficient of the independent variable ( $b_1=19.898$ ,  $p<.001$ ) demonstrates that there is a positive relationship between job satisfaction and transformational leadership. As a result, the H1.b. is not rejected.

### **Hypothesis 1.c.**

*There is a significant, positive relationship between level 5 leadership and job satisfaction in CMC environments.*

*Table 5: Coefficients H1.c.*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	91.482	9.985		9.162	.000
LEVEL 5	7.515	1.225	.521	6.133	.000

a. Dependent Variable: JOB SATISFACTION

Both the constant coefficient ( $b=91.482$ ,  $t=9.162$ ) and the predictor coefficient ( $b=7.515$ ,  $t=6.133$ ) are significant at  $p<.001$ . Additionally, the coefficient of the independent variable ( $b_1=7.515$ ,  $p<.001$ ) shows that there is a positive relationship between job satisfaction and level 5 leadership; as a result, the H1. c. is supported.

In conclusion, the analysis of Pearson's correlation and the linear regression have demonstrated that H1.a., H1.b., and H1.c. can be supported.

### **Hypothesis 2.a.**

*There is a significant, positive relationship between transactional leadership and communication satisfaction in CMC environments.*

*Table 6: Model Summary H2.a.*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
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1	596a	.356	.349	.934
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a. Predictors: (Constant), TRANSACTIONAL

Table 7: Coefficients H2.a.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.400	.378		6.353	.000
	TRANSACTIONAL	1.003	.134	.596	7.469	.000

a. Dependent Variable: COMMUNICATION SATISFACTION

It is found a significant difference between  $b_0$  ( $b=2.400$ ,  $t=6.353$ ) and  $b_1$  ( $b=1.003$ ,  $t=7.469$ ) at  $p<.001$ . About the coefficient, it is found that the independent vector coefficient ( $b_1=1.003$ ,  $p<.001$ ) indicates a significant and positive relationship between the communication satisfaction and the transactional leadership. Consequently, the hypothesis H2.a. is not rejected.

### Hypothesis 2.b.

*There is a significant, positive relationship between transformational leadership and communication satisfaction in CMC environments.*

Table 8: Coefficients H2.b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.773	.360		4.922	.000
	TRANSFORMATIONAL	1.141	.119	.690	9.592	.000

a. Dependent Variable: COMMUNICATION SATISFACTION

A high significance was observed from the model where  $b_0$  ( $b=1.773$ ,  $t=4.922$ ) and  $b_1$  ( $b=1.141$ ,  $t=9.592$ ) at  $p<.001$ . About the coefficient, it is found that the independent coefficient ( $b_1=1.141$ ,  $p<.001$ ) shows a significant and positive relationship between communication satisfaction

and transformational leadership. Consequently, the hypothesis H2. c. is supported.

### **Hypothesis 2.c.**

*There is a significant, positive relationship between level 5 leadership and communication satisfaction in CMC environments.*

Table 9: Coefficients H2.c

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.431	.359		3.985	.000
LEVEL 5	.466	.044	.725	10.572	.000

a. Dependent Variable: COMMUNICATION SATISFACTION

It was found that the constant coefficient ( $b=1.431$ ,  $t = 3,985$ ) and the predictor coefficient ( $b=.466$ ,  $t = 10,572$ ) are significant at  $p < .001$ . Additionally, the coefficient of the independent variable ( $b_1 = .466$ ,  $p < .001$ ) shows a positive relationship between communication satisfaction and 5 level leadership; as a result of the linear regression, the H2.c. is supported.

### **Hypothesis 3**

*Communication satisfaction has a positive and significant relationship with Job Satisfaction in CMC environments.*

Table 10: Coefficients H3

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	68.121	8.141		8.368	.000
CS	16.178	1.546	.721	10.461	.000

a. Dependent Variable: JOB SATISFACTION



It can be concluded that both the constant coefficient ( $b=68.121$ ,  $t=8.368$ ) and the CS coefficient ( $b=16.178$ ,  $t=10.461$ ) are significant at  $p < .001$ . Additionally, the coefficient of the independent variable ( $b=16.178$ ,  $p < .001$ ) indicates a positive relationship between job satisfaction and communication satisfaction; as a result, H3 is not rejected.

### *Moderation*

#### **Hypothesis 3.a.**

*Transactional leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

Table 11: Model H3.a

	coeff	se	t	p	LLCI	ULCI
constant	150.3129	2.0943	71.7713	.0000	146.1573	154.4685
CS	17.8400	2.1866	8.1590	.0000	13.5014	22.1786
TRN	-2.4581	3.2581	-.7545	.4524	-8.9229	4.0067
Int_1	1.9103	2.3057	.8285	.4094	-2.6647	6.4854

Product terms key: Int\_1 : ECS x TRN

The interaction term coefficient was not significant ( $b=1.91$ ,  $t=0.829$ , 95% CI. [-2.6647, 6.4854],  $p > .05$ ). It indicated that the relationship between job satisfaction and communication satisfaction was not moderated by transactional leadership. As a result, the hypothesis was rejected.

#### **Hypothesis 3.b.**

*Transformational leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

Table 12: Model H3.b

	coeff	se	t	p	LLCI	ULCI
constant	150.9317	2.1870	69.0133	.0000	146.5922	155.2711
CS	15.2023	2.2876	6.6454	.0000	10.6631	19.7415
TRF	2.9159	3.6287	.8036	.4236	-4.2841	10.1160
Int_1	.5077	2.2500	.2256	.8220	-3.9568	4.9721

Product terms key: Int\_1 : CS x TRF

The interaction term coefficient was not significant ( $b=0.508$ ,  $t=0.226$ , 95% CI. [-3.9568, 4.9721],  $p>.05$ ). It indicated that the relationship between job satisfaction and communication satisfaction was not moderated by transformational leadership. As a result, the hypothesis was rejected.

### Hypothesis 3.c.

*5-level leadership influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments.*

Table 13: Model Summary H3.c

R	R sq	MSE	F	df1	df2	p
.737	.543	317.7775	39.2679	3.0000	99.0000	.0000

Product terms key: Int\_1 : CS x L5LS

Table 14: Model H3.c

	coeff	se	t	p	LLCI	ULCI
constant	148.7497	2.0702	71.8530	.0000	144.6419	152.8574
CS	17.7114	2.3063	7.6794	.4107	13.1351	22.2877
L5LS	.7669	1.4682	.5223	.6026	-2.1464	3.6802
Int_1	1.6449	.7315	2.2488	.0267	.1935	3.0962

Product terms key: Int\_1 : CS x L5LS

Table 15: Moderator

	R2-chng	F	df1	df2	p
X*W	.0233	5.0570	1.0000	99.0000	.0267

The model summary showed a significant moderate coefficient of determination ( $r^2=.543$ ,  $F=39.268$ ;  $p<.001$ ). Similarly, the relationship between the interaction term and the dependent variable (JS) was significant ( $b=1.645$ ,  $t=2.249$ , 95% CI [.1935, 3.0962],  $p<.05$ ). Also, when the moderator term was added, the change in  $r^2$  was significant

( $r^2=0.23$ ,  $p < 0.05$ ). It indicates that the relationship between Job Satisfaction and communication satisfaction was moderated by the level 5 leadership. As a result, the hypothesis H3.c. was supported.

*Conditional effects of the focal predictor at values of the moderator(s)*

The influence of level 5 leadership was significant at all values (low, moderate and high); nevertheless, when the value was high ( $b = 20.652$ , 95% CI [14.785, 26.518],  $t = 6.985$ ,  $p < .001$ ) the conditional effect of L5LS was higher than at low value ( $b=14.283$ , 95% CI [9.5673, 18.9978],  $t=6.010$ ,  $p<.001$ ) or at moderate value ( $b=18.618$ , 95% CI [13.754, 23.483],  $t=7.595$ ,  $p<.001$ ).

## Hypothesis 4

### *Descriptive Statistics Analysis*

*The leader's refusal to communicate via Internet-based channels with employees has a negative impact on communication satisfaction.*

After using SPSS, the results of the Descriptive Statistics obtained are shown in the following table:

*Table 16: Descriptive Statistics H4*

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
1. The communication is not fluid if my boss does not use Internet-based communication channels.	103	1.0	5.0	2.534	1.2273
2. The information is not clear if my boss does not use Internet-based communication channels.	103	1.0	5.0	2.282	1.0794
3. The tasks are difficult for me if my boss does not feed	103	1.0	5.0	2.087	1.2296

back to me via Internet-based communication channels.					
4. The fulfillment of goals is delayed if my boss does not use Internet-based communication channels.	103	1.0	5.0	2.417	1.3025
5. The relationship with my colleagues is not pleasant if my boss does not use Internet-based communication channels.	103	1.0	5.0	1.883	1.0600
<b>Grand Mean: 2.24</b>					

It can be clearly evidenced that the relationships between colleagues within the work environment, the scope of organizational goals, the clarity of the information shared with the boss, and the messages sent by the boss for the fulfillment of the task, are not affected when the boss communicates via non- Internet-Based channels. Likewise, it may be inferred that the fluency of the messages is not perceived to be affected when the communication between the boss and the employees is carried out without the intervention of the Internet-Based channels.

*Table 17: Final score*

<b>2</b>	<b>Disagree</b>	Employees perceive that the absence of Internet-Based communication by the boss does not affect communication satisfaction
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#### *Interview analysis*

After using AtlasTi, it is observed that the Internet-based communication process among interviewees and their boss is considered an important channel in the fulfillment of their tasks, organizational goals, and work environment; however, it can be seen as an alternative channel to speed it

up, or keep it as a proof of evidence, rather than a determinant way to impact or improve tasks. In addition, the absence of Internet-based communication does not prevent the fulfillment of the tasks or the achievement of goals; in fact, it is confirmed that, although Internet-based channel exists, the communication is not satisfactory in its entirety; as a consequence, some limitations such as the absence of information and lack of clarity are overcome through other ways such as meetings in person or face-to-face conversations; that is, Internet-based communication is considered important, but when it fails or is not used, other non-Internet-based mediums come in handy.

As a result, the absence of Internet-based communication does not have a negative influence on communication satisfaction; therefore, the hypothesis 4 is rejected.

## Research questions analysis

### Research question 1

*Which leadership style – transactional, transformational, and level 5 – has a greater effect on job satisfaction when they interact within the organization in CMC environments?*

Table 18: Coefficients H.1

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	87.065	10.221		8.518	.000
	TRANSACTIONAL	-4.892	5.204	-.130	-.940	.349
	TRANSFORMATIONAL	15.770	6.224	.425	2.534	.013
	LEVEL 5	3.902	1.979	.270	1.972	.051

a. Dependent Variable: JOB SATISFACTION

Transactional leadership and level 5 leadership vectors showed a negative relationship with job satisfaction ( $b=-4.892$ ,  $p>.05$ ,  $b=3.902$ ,  $p>.05$ ) when

the three leadership styles interact. Regarding the transformational leadership style, it can be noticed that the variable has a positive and significant value of coefficient  $b=15,770$ ,  $p<.05$ , therefore it is concluded that there is a significant effect on the relationship with job satisfaction when the three leadership variables are aggregated.

In this way, it is concluded that transformational leadership is the style that has a greater effect on job satisfaction in the organization when the three variables interact within the organization.

## Research question 2

*Which leadership style – transactional, transformational, and level 5 - has a greater effect on communication satisfaction when they interact within the organizations in CMC environments?*

Table 19: Coefficients H.2

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.134	.365		3.109	.002
	TRANSACTIONAL	.128	.186	.076	.691	.491
	TRANSFORMATIONAL	.425	.222	.257	1.913	.059
	LEVEL 5	.302	.071	.469	4.276	.000

a. Dependent Variable: COMMUNICATION SATISFACTION

The transactional and transformational leadership vectors were not found to have a significant effect on communication satisfaction when the 3 leadership styles interact ( $b=.128$ ,  $p>.05$ ,  $b=.425$ ,  $p>.05$ ). The effect on the relationship between level 5 leadership and communication satisfaction showed a beta coefficient that is statistically significant when the three leadership styles interact ( $b=.302$ ,  $p<.05$ ). Consequently, it was concluded that level 5 was the leadership style that had a greater effect on

communication satisfaction in the organization when the three variables interact.

### **Research question 3**

*What moderation effects do transactional, transformational, and level 5 leadership have on the relationship between communication satisfaction and job satisfaction in CMC environments?*

At the moderated multivariable regressions, it was observed that transactional leadership ( $b=1.91$ ,  $t=0.829$ , 95% CI. [-2.6647, 6.4854],  $p>.05$ ) and transformational leadership ( $b=0.508$ ,  $t=0.226$ , 95% CI. [-3.9568, 4.9721],  $p>.05$ ) had no moderating effect on the relationship between communication satisfaction and job satisfaction. On the contrary, 5 level leadership had a significant and positive moderating effect on the relationship. The higher the value of the moderator ( $b=20,652$ , 95% CI [14,785, 26,518],  $t=6,985$ ,  $p <.001$ ), the greater the effect on the job satisfaction and communication satisfaction relationship.

### **Research question 4**

*Does the leader's refusal to communicate via Internet-Based communication with employees have influence on communication satisfaction?*

Both the questionnaire and the interview analyses concluded that it does not affect communication satisfaction.

## **Discussion**

### **Hypothesis 1**

Regarding the relationship between leadership styles and job satisfaction, the study validates the findings of previous research that demonstrated the existence of a positive relationship between leadership and job satisfaction, (Choi, et al., 2016), (Alonderiene & Majauskaite, 2016). The

current study found that the three leadership styles, when evaluated individually, showed a significant and positive relationship with job satisfaction.

Results also found that transformational leadership style has a greater influence on improving job satisfaction than transactional leadership, which may be due to the fact that transformational leadership seeks to achieve the institutional goals differently from transactional leadership style; transformational leadership style allows followers to feel empowered and committed to the organization by aligning their individual goals with the organizational; thus, followers' skills are developed (Bass & Riggio, 2006, p. 4); the finding validates results found by (Asghar & Oino, 2018) and (Ho, et al., 2016) who concluded that transformational leadership has a greater effect on job satisfaction than transactional leadership, which implies that a leader who motivates followers to align their personal goals with organizational goals is more suitable for leading SMEs than a leader who just focuses strategies on rewards-based motivational maneuvers.

Similarly, findings showed that the influence by leaders on job satisfaction has a positive impact on the dimensions of the study; however, the effect it has on improving employees' perception of job satisfaction is weak. Consequently, it is concluded that it is needed more than the strategies deployed by the transactional or transformational leaders to make followers increase job satisfaction.

On the other hand, results tested that level 5 leaders had a moderate influence on job satisfaction. The fact that this leadership style has a greater impact on job satisfaction than transactional and transformational styles, may be related to the way in which these leaders establish lasting



and strong bonds with their followers through a blending of personal humility and professional will (Collins, 2001). Now, one question remains to be answered, which could be perfectly part of another study, it is to know which behaviors and distinctive characteristics of level 5 leaders drive followers to feel more satisfied in their work environment.

The fact that results tested that transformational leadership has a greater impact than transactional, also, that level 5 leadership has the greatest impact of the three styles, reflects a consistency with the theoretical constructs established by the authors; therefore, it allows, on the one hand, to validate the descriptive categories of each of the three leadership styles; on the other hand, the finding resulting from this comparative exercise can be considered as an important theoretical input to help organizations create differentiated strategies to improve employees job satisfaction.

Additionally, the hypothesis tests led to answer the following research question:

*Which leadership style - transactional, transformational, and level 5 - has a greater effect on job satisfaction when they interact within the organizations?*

The finding is a completely new contribution to the study of the three leadership styles in terms of their interaction analysis and their effect on the perception that employees have on job satisfaction.

The interaction of the three leadership styles showed that the influence of the transactional and level 5 leadership styles was not statistically significant on job satisfaction, while transformational leadership turned out to be the only one of the three styles that can improve the perception that employees have on job satisfaction. Hence, it can be concluded that

these organizations better interpret leaders who are able to motivate employees by the way they treat, value, and motivate followers to achieve that personal goals get aligned with institutional goals, rather than by leadership strategies aiming at obtaining rewards, or by typical actions of leaders who arise admiration for their characteristics of knowledge and humility.

### **Hypothesis 2**

Regarding the relationship between leadership styles and internet-based communication satisfaction, the study validates the findings of the research carried out by (Terek, et al., 2015) and (Mukhtar, et al., 2020) who tested the existence of a positive relationship between leadership and communication satisfaction. The current study showed that, when tested individually, the predictors of each of the leadership styles showed a positive and significant relationship with communication satisfaction in internet-based environments.

An important finding of this study is that when studying leadership styles individually, and then comparing them among themselves, it was observed that employees perceive a weak influence by transactional and transformational leadership on communication satisfaction, while Level 5 leadership has a moderate influence. It is necessary to highlight that the 3 leadership styles impact communication satisfaction, however, the way employees perceive it could mean that transactional and transformational leaders require more training to get more out of Internet-based channels; likewise, regarding level 5 leaders, although they showed a greater impact on communication satisfaction, the impact level should be expected higher since level 5 leaders must take the organization to higher levels and keep them on top, which should require more rigorous motivation, control, and management exercises that involve communication.

Similarly, when observing the findings of the leadership variables individually, it was found that transformational leadership showed to be a greater predictor than transactional leadership to communication satisfaction; consequently, the finding does not validate the results by (Madlock, 2012), who concluded that transactional leadership (more centered on the task) has greater influence than transformational leadership (more centered on the relation) in CMC environments.

To answer the research question, the results tested that transactional and transformational leadership have no influence on communication satisfaction, while the level 5 leadership predictor showed to be the only one, out of the three, that influenced communication satisfaction. The current finding is unique in leadership research. It shows that level 5 leadership is the only one that influences the Internet-based communication satisfaction and has the greatest influence on communication outcomes.

The finding is important because when the predictors were both individually and aggregated tested, it was observed that level 5 leaders had greater influence on communication satisfaction in CMC environments. The finding may be because level 5 leaders have a better knowledge of how to use internet-based communication channels to interact with their employees and to create empathic ties that allow followers to feel accompanied; additionally, the level 5 leader is capable of assuming responsibilities with humility, to assume and correct their mistakes, which would indicate that their abilities to learn how to deal with new challenges, such as technological ones, can lead to adapting to new forms of internet-based communication faster.

### **Hypotheses 3**

Results tested a positive relationship between communication satisfaction and job satisfaction. Results validate previous findings by (Hua & Omar, 2016), (Park & Lee, 2018), (Vermeir, et al., 2018), and (Mehra & Nickerson, 2019); regarding the influence communication satisfaction has on job satisfaction; In addition to this, the current study validates previous results that found communication satisfaction had a moderate effect on job satisfaction (Vermeir, et al., 2018); in addition, from the Internet-based work environments, results validated the findings presented by (Smith, et al., 2018) who found a strong relationship between relationship between communication and job satisfaction in CMC.

Once the positive relationship between Internet-based communication and job satisfaction was found, Pearson's correlation coefficient analysis was used. The results proved that there is a positive relationship between the criterion variable and the predictor variables; the result validates previous findings (Çetin, et al., 2012), (Wikaningrum, et al., 2018); subsequently, to test how transactional, transformational, and level 5 leadership styles influenced the relationship, a multiple regression analysis was used.

Findings in the current study are unique in the theories of leadership, job satisfaction, and organizational communication since no studies conducted by business and academic scholars about the influence of leadership styles as moderators on the relationship between communication satisfaction and job satisfaction in CMC environments have been found previously.

In the context of SMEs when leadership styles act as moderators of the relationship between job satisfaction and communication satisfaction,

results demonstrated that, transactional and transformational leadership styles have no effect on the relationship. It may be because the current context of organizational communication is Internet-based, which could imply that SMEs should invest greater resources in the qualification of employees, and leaders, with transactional and transformational characteristics, on issues related to modern technological resources. On the contrary, when observing the results of the regression, and the moderating effect, results tested that level 5 leader influences the relationship between communication satisfaction and employees' job satisfaction in CMC environments. Among the three leadership styles, level 5 is the only one that influences the relationship, which implies that the characteristics of this leader, the combination of professionalism and humility meets the modern demands of internet-based communication in SMEs to improve organizational tensions from the relationship between communication satisfaction and job satisfaction. Another unique finding in the research was obtained by testing how level 5 leadership impacted the relationship when the effect was low, medium, and high. The three linear regressions tested that when the effect is greater, the influence of leadership on the relationship between communication satisfaction and job satisfaction grows progressively higher than the low and moderate effects; likewise, it was observed that the influence of level 5 leadership increased the relationship between communication satisfaction and job satisfaction; it implies that the better the perception employees have of the level 5 leader, the greater the impact he/she has on the relationship; that is, potential tensions in the relationship between communication satisfaction and job satisfaction in a CMC environment decreases when level 5 leadership intervenes.

Finally, as a conclusion, the data obtained allows us to answer the following research question:

What moderation effects do transactional, transformational, and level 5 leadership have on the relationship between communication satisfaction and job satisfaction in CMC environments?

Transactional and transformational leadership styles do not have influence on the relationship; it is level 5 leadership the only style that affects the relationship between communication satisfaction and job satisfaction in CMC environments.

#### **Hypothesis 4**

Results of the current study do not validate the findings carried out by (Miti, et al., 2017), (Tkalac Verčič & Špoljarić, 2020), and (Siljanovska, 2015), who tested that the use of Internet-based tools in communication channels influence communication satisfaction. On the contrary, findings validate the results by (Lalic, et al., 2012), it is to say, the absence of Internet-based communication channels do not affect communication satisfaction.

An important finding in this study tested that factors related to communication satisfaction in organizations, such as the clarity and fluency of the message, the relationships within members of the organization, the fulfillment of organizational goals and tasks, are not influenced by the absence of internet-based tools; the finding implies that employees and leaders use channels differently from Internet-based ones such as face-to-face meetings, meetings in persons, or phone calls to communicate the guidelines, argue their difficulties, give feedback, or clarify doubts in the organizational context. Finally, when observing the results, although participants perceived that the absence of internet-based

channels does not affect communication satisfaction, it can be inferred that employees from SME in Colombia recognize the importance of using Internet-based tools as resources for organizational communication.

### **Implications**

First, it is important to underscore that the current crisis, because of the Covid19 outbreak, has forced nations to move abruptly to virtual work; consequently, employees and leaders from all sectors of the industry have been forced to work from home via Internet-based communication channels. These sudden circumstances, the characteristics of the change, and the little, if any, training that was carried out for the change to this type of work, should be studied for future research. In this scenario, findings of this study are valuable, and increase the importance of the implications as an input for literature, research, evaluation, decision-making, and policy generations that help better understand and improve communication satisfaction, job satisfaction, and leadership practices in CMC organizational environments.

Second, findings of the current study are an input to enrich the leadership literature on SMEs immersed in Internet-based communication realities; the unique finding of leadership styles as moderators of the relationship between job satisfaction and communication satisfaction in SMEs in CMC environments is an important theoretical input to deepen the characteristics of leaders and their contributions in the current period of virtual work imposed by global health conditions.

Third, findings related to level 5 leaders are literature that can be used by researchers to delve into the characteristics of these leaders, and their influence on SMEs; thus, the new literature allows to broaden the spectrum of the level 5 leadership style and observe how it contributes to

employees' satisfaction at SMEs focusing their communication on CMC channels.

Finally, for the administrative staff, these findings can serve to create policies to improve the conditions of the firm's members; as well as the identification of level 5 leadership characteristics that help improve organizational achievements; likewise, to create training policies for transactional, transformational, and level 5 leaders, in topics related to technology and its integration into Internet-based communication.

### **Limitations**

Regarding the job satisfaction questionnaire, the facet operation procedure had a low Cronbach's alpha coefficient (.460), as the design of the questionnaire suggests scoring the overall facets, it was followed the author's recommendation to keep it.

Regarding the conceptual argument exposed by Collins (2001), level 5 leaders lead the firms from good to great and can be found in highly performing organizations. The current study was conducted in SME's in Colombia; it could be understood as a limitation, nonetheless, it is important to underscore that when referring to SME's, the categorization of a successful SME's needs to be redefined since in emerging economy environments the SME's success should not always be observed in terms of financial growing, but in the way the sufficiently struggle to compete and create jobs.

Although results of the interview to support findings of the survey to test the hypothesis 4 were consistent, and match results of the survey analysis, there is a limitation in terms of the size of the sample for the interviews; yet it is a good approach to validate the reliability of the questionnaire.



During the design of the Internet-based Communication Satisfaction Questionnaire, the initial sample of test-retest was low, the following tests of Alpha's Cronbach coefficient were over 100 participants though, it would have been better for the sample to be larger; likewise, the percentage of use of internet-based communication channels was 65.4%, although is a high result, a higher percentage would be more adequate.

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