



<https://doi.org/10.48100/merj.2021.162>



Leadership Styles and Firms' Innovation, Mediating Role of Absorptive Capacity: Empirical Evidence from Emerging Economy

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Received: 02-03-2021

Accepted: 15-05-2021

Available online: 16-05-2021

Published: 01-09-2021

Abstract:

This study contends explicitly that leadership styles (transformational and transactional) are positioned as a pylon for firms' innovation performance. Further, this study contemplates the intermediating inspiration of absorptive capacity (potential and realized) linking leadership styles (transformational and transactional) and firms' innovation. Data was collected from 301 permanent employees working in Pakistani manufacturing firms (food and tobacco) through the self-administered questionnaires to test the proposed hypothesis of this study. The study's findings demonstrate a positive influence of leadership styles (transformational and transactional) on the firm's innovative performance. Moreover, both absorptive capacity dimensions (potential and realized) mediate the relationship between leadership styles (transformational and

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transactional) and innovative performance. This study demonstrates that both leadership styles (transformational and transactional) provide phenomenal path routes to augment firms' innovation. Overall, this study contributed a legitimate illustration of leadership styles strengthening firms' innovation, specifically transactional leadership style, encouraging results within the developing economy perspective.

Keywords: Transformational Leadership, Transactional Leadership, Absorptive Capacity, Potential Absorptive Capacity, Realized Absorptive Capacity, Firm Innovation.

JEL Codes: M00, M1, M5, M10.

1. Introduction

Globalization and rapid technological advancement change the business environment that increases the competition level (Xie et al., 2018) and enforce organizations to pay attention to innovative performance for survival in the highly competitive globalized economy (Kim & Koo, 2017; Woods et al., 2018). Organizational innovation can be increased with the support of proper leadership, motivations, and providing a productive environment that further increases the innovative capabilities of the individuals and enables organizations to accomplish competitive advantages (Afsar et al., 2019; Schuckert et al., 2018). In recent years emerging economies play a vital contribution to the globalized economy (Lebedev et al., 2015; Padmanathan et al., 2018).

In the last decades, the phenomenon of leadership has been studied in an industrial and business context (Rehman et al., 2019) because it becomes obligatory for organizations to adopt effective leadership for the accomplishment of their organizational goals and objectives, especially in the environment of high competition (Rehman et al., 2019; Tourish, 2014). Leadership styles are considered a vibrant cradle to foster a firm's innovation (Afsar & Umrani, 2019; Al-Husseini et al., 2019; Zheng et al., 2016), and effective leadership also plays a meaningful role in the success and failure of firms' goals and objectives (Tourish, 2014). Transformational leadership (TFL) and transactional leadership (TSL) have been at the vanguard of the leadership literature in recent areas, which not only sufficiently influence the organizational management but also provide a better platform of leadership, especially for the developing economies (Ohiorhenuan, 2019; Saleem et al., 2019). Leadership not only influence the job satisfaction level of individuals (Rothfelder et al., 2012), but it also increases the proficiency, creativity, and innovative behaviors of employees (Leroy et al., 2012; Slåtten & Mehmetoglu, 2011; Slåtten et al., 2011) and

organizational performance (Kim & Brymer, 2011) as well. However, meta-analytic studies of Wang et al. (2018) and Koh et al. (2019) discuss the influence of TFL and TSL on employee outcomes.

Transformational leaders emphasize behaviors that encourage their followers/subordinates to execute beyond the expectations (Avolio et al., 2004; Walumbwa et al., 2010) and increase the efficiency level of leaders (Tracey & Hinkin, 1996). Transformational leaders have strong connections with ideas generation, crafting novel behavior, increasing firm's innovative performance (Jiang & Chen, 2018; Naguib & Naem, 2018) through transitional constructs, i.e., organizational learning (García-Morales et al., 2012), empowerment (Jung et al., 2003), and culture (Steele et al., 2018). Scholars are captivated that leadership styles with intermediate constructs positively influence firm innovation (Rehman et al., 2019). Moreover, transformational leaders become helpful for enhancing trust and individual identification levels, which further promote an innovative atmosphere at the workplace (Xie et al., 2018).

In contrast, transactional leaders clarify the opportunities, anticipations, and rewards to their followers to accomplish organizational objectives (Chang et al., 2015; Rangus & Černe, 2019). Additionally, transactional leaders rely on the accomplishment of tasks with the exchange of appropriate and timely incentives (Xie et al., 2018). Past literature validates and takes a fractional attitude in probing TFL and TSL styles, converging on only one leadership style or interactions concerning TFL or TSL linking to situational and organizational physiognomies (Kark et al., 2018). It stretches the impression that operation and field managers frequently practice leadership styles to diverse and lead their employees (Qian et al., 2019). Numerous researchers examined TFL and TSL styles to facilitate innovative behaviors at individual and organizational levels (Jiang & Chen, 2018; Kark et al., 2018; Nguyen et al., 2017; Steele et al., 2018).

Cohen and Levinthal (1990) argued that absorptive capacity (AC) is “the ability of firms to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (p. 128). Moreover, Zahra and George (2002) intellectualized AC as an energetic capability intended by a set of routine organizational developments to differentiate into potential absorptive capacity (PAC) and realized absorptive capacity (RAC); as PAC is concerned with obtaining and clarification of exogenic knowledge and RAC concerned with transformation and application of knowledge. Earlier studies reveal that PAC produces several positive outcomes i.e., enhancement in performance, reduction in cost especially

during the process of research and development by reducing the development cycles of new products (Caloghirou et al., 2004; Jones et al., 2001; Sisodiya et al., 2013). In contrast, RAC helps the organizations not only for the recombination and reconfiguration of knowledge but also allows organizations for the reinterpretation of knowledge that further enables organizations to achieve the objective of higher performance by introducing new products with lower cost (Araujo et al., 2003; Cegarra-Navarro et al., 2014; Cohen & Levinthal, 1990). Recent studies demonstrate the positive affiliation between AC and innovation performance (Darwish et al., 2018; Xie et al., 2018).

Based on the theoretical foundation of diffusion of innovation theory (Rogers, 2003) and path-goal theory of leadership (House, 1996), the present study investigates the direct influence of leadership styles (TFL and TSL) on firms' innovative performance. Additionally, we examined the intervening influence of absorptive capacity (potential and realized) between the relationship of leadership (TFL and TSL) and firms' innovative performance. Secondly, the present study overcomes the gaps suggested by earlier researchers; there is a need to explore the effect of TFL and TSL, on the innovation process of products (Al-Husseini et al., 2019; Sheehan et al., 2020), with mediating mechanisms (Sheehan et al., 2020). This study added contributions within the context of the developing economy such as Pakistan. The present study contributes to the innovation arena by investigating the charm of leadership styles (TFL and TSL) through AC's (PAC and RAC) mediating effect, which opens new research curiosity linking AC, leadership styles, and firm's innovation by explicating a comprehensive appraisal of the presented literature multidisciplinary parameters about firm's innovation. Moreover, current study also contributes to the literature of leadership and OB by explaining the lends of diffusion of innovative theory and path-goal theory of leadership.

2. Theoretical Foundation

The research model of the present study is based on the notations of diffusion of innovation theory (Rogers, 2003) and path-goal theory of leadership (House, 1996) through which leadership styles (TFL and TSL), absorptive capacity (PAC and RAC), and firms' innovation are linking to shape the novel ideas and practices. Diffusion of innovation theory by Rogers (Rogers, 2003) is talking about the communication process, as diffusion is concerned with process channels through which innovation is communicated at the workplace through team members; on the other side, innovation is concerned with the novel, new and unique idea by an

individual (Carreiro & Oliveira, 2019; Zhou et al., 2019). Diffusion of innovation theory contributed in several diverse areas, i.e., marketing, innovation, and public health (Raven & Walrave, 2020; Rogers, 2004), to facilitate leadership to realize the appropriate procedures for crafted novel ideas smoothly. Based on this notion, we argue that absorptive capacity in the presence of positive leadership enhances the innovation level of firms, as potential and realized absorptive capacity enables firms to generate new products and services through the interpretation of new and current knowledge. Path goal theory of leadership (House, 1996) discusses the leading behaviors of leaders through which they facilitate, guide, and help their subordinates/followers to achieve goals. Path goal theory (House, 1996) further explains that leaders' necessary support and direction enable their followers/subordinates to achieve organizational and individual goals. This act of leaders motivates their subordinates/followers and enhances commitment, satisfaction, and performance (Cho et al., 2019; House, 1996). We argue that leadership behavior (TFL and TSL) increases the level of absorptive capacity (PAC and RAC) that further enhances firms' innovation in producing new products and services at a lower cost. Consequently, encompassing Rogers's conceptual work, we argue that leadership style needs diffusion and innovation gadgets to harvest new ideas specifically within the context when firms belong to a developing economy and are enthusiastic to upsurge competitiveness in the present market. Thus, extending this particular augmentation specified by Rogers (2003), we argued that employees/followers primarily need to assume such novelties that are offered in front of them through their leaders; consequently, here, the leadership styles (TFL and TSL) indicate a phenomenal charisma to peruse actually into innovative infrastructure. From the above extant literature, we proposed our conceptual model.

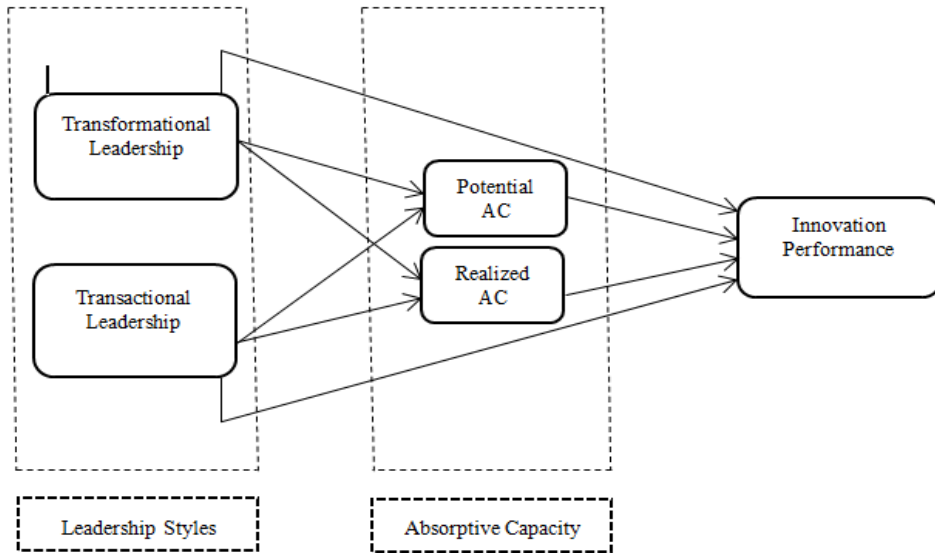


Figure1. Conceptual Model

3. Hypothesis Development

3.1. Leadership Styles and firms' Innovation

Every leadership style has different working inferences and influences on the productivity of individuals and firms and innovative activities that resulted in firms' innovation (Chen et al., 2019; Donate & de Pablo, 2015). In any organization, the influence of leadership is crucial because it is an essential factor for the organization's productivity (Chan et al., 2018; Chan et al., 2016). Leaders are the powerful primary tool of the organization that provides freshness to their subordinates/followers, especially during organizational change through thrive (Chan et al., 2019). Transformational leadership (TFL) is considered the most favorite, motive leadership style that encourages followers/subordinates through better communication and provides a supportive intellectual environment (Chan et al., 2019). Transformation-oriented leaders inspire their followers/subordinates not only for creative and innovative thinking but also for creating a positive environment for achieving organizational goals as a team (García-Morales et al., 2012). Numerous scholars stated that TFL is a vital capability of the firms, which not only promote innovative thinking, generation of creative and novel ideas but also influence individuals to the solution of complex and ill-defined problems at the workplace (Medeiros et al., 2017; Watts et al., 2020; Xie et al., 2018).

On the other hand, TSL deals with the transaction of exchange, as these leaders focus on extrinsic motivation and the self-interest of subordinates to achieve organizational goals (Bass et al., 2003). Transactional leaders manage their subordinates by giving them directions with responsibilities and rewards regarding accomplishing organizational goals and objectives (Avolio et al., 1999). These leaders achieve their organizational performance objective by launching strong expectations and goals plans through constructive feedback and an appropriate reward system (Avolio et al., 1999; Howell & Hall-Merenda, 1999). This leadership style is formulated with the notion that effective leadership could encourage the activities of preferred followers and eradicate inappropriate behavior patterns by providing or suppressing incentives and physically and psychologically punitive measures (Bass & Bass, 2008). TSL is considered exchange leadership, which provides rewards that encourage employees to gain and share new knowledge (Rawung et al., 2015), which ultimately increased the firms' innovation level. Several studies asserted that TSL produces numerous positive outcomes, e.g., creativity (Herrmann & Felfe, 2014), job and career satisfaction (Riaz & Haider, 2010), employees' engagement (Breevaart et al., 2014), and motivation (Wahyuni et al., 2014) as well. Based on the above discussion of literature, we propose that;

H_{1a}: TFL is positively related to firms' Innovation.

H_{1b}: TSL is positively related to firms' Innovation.

3.2 Leadership Styles (TFL and TSL) and Firms' Innovation: The Case of Mediation of Absorptive Capacity (PAC and RAC)

Innovation of the organizations concerned with generating new and novel ideas that how to apply new knowledge to produce new products and services and modification and improvement in existing ones (Leal-Rodríguez et al., 2014). Leadership styles projecting firm's expectations and passion that enhance firm's revolution by escalating the chances for their employees (Al-Husseini et al., 2019; Weintraub & McKee, 2019; Zheng et al., 2016) and promote organizational success and values (Meyer & Peng, 2016; Raisal et al., 2019). Leader's actions display the leading power behind managerial innovation (Ferrerias Mendez et al., 2018). TFL leaders are well-defined leaders, positively designate upcoming conditions for the organizations, and encourage employees' self-confidence by indulging their possible, converse vibrant and manageable mission and vision (Al-Husseini et al., 2019; Xenikou, 2017). Moreover, transformational leaders robust the

visualization of innovation by enhancing the sharing of knowledge and information that increased self-confidence for creativity and innovation (Al-Husseini et al., 2019; Avolio et al., 1999).

TSL leaders are usually jam-packed in their exchange tasks, expectations, and reward-based strategy, alienated into necessary units, i.e., contingent rewards and management-by-exception (Avolio et al., 1999; Bass et al., 2003). Leaders associated with transactional style offering to motivate and entusiast their followers/subordinates to attain specific organizational objectives by utilizing transactions/exchanges and grasping external knowledge sources through absorptive capacity (potential and realized) to facilitate innovation performance. Thus, we contend that potential and realized absorptive capacities demonstrate a compassionate atmosphere for transactional leaders to expedite innovation performance exclusively. Findings of the study conducted by Dorfman et al. (1997) demonstrate that Korean firms' employees were happier with transactional leaders to attain certain work-task within a particular time. Thus, extending the certain logic, we posit that the TSL style can also be beneficial and facilitate the context of Pakistani firms when the object is about innovative performance within the particular period.

On the other side, the concern of AC is linked with the "acquisition, assimilation, transformation, and exploitation of external knowledge of firms" (Zahra & George, 2002). This capability enables the firms to organize their internal resources according to the changing requirement of the markets that a competitive advantage can be achieved (Wu et al., 2019). Absorptive capacity holds two dimensions; first, protentional AC, which is concerned with the acquisition and assimilation of knowledge, and realized AC discussed the transformation and exploitation of the knowledge (Zahra & George, 2002). Large volume organizations utilize PAC's benefits to enhance their performance because PAC provides the foundation of strategic thinking through the utilization of new knowledge that ultimately resulted in a decrease in financial and time cost (Chaudhary & Batra, 2018; Jansen et al., 2005). In contrast, RAC helps the organizations for the generation of new products and services and also enables organizations to modification and improvement in their products and services according to the requirement of the market that in return gives them a competitive advantage (Ahmed et al., 2019; Ferreras Mendez et al., 2018).

From this perspective, we argue that leadership style holds the quality of utilizing AC that increased the firm's innovation level. The organization's leadership style diverse the firm's internal knowledge and enables organizations to acquire and assimilate new external knowledge to

enhance the creativity and innovation of the firm. The process of ACs enables firms to enhance speed, frequency, and level of innovations (Cohen & Levinthal, 1990), especially with the support of leadership styles, e.g., TFL and TSL. In certain high-rated situations when firms acquire new knowledge and information via leadership, at that stage, leadership becomes the ideal factor for firms to categorize, apprehend, and relate external knowledge to create better-quality firms' innovation (Castillo & Trinh, 2019; Medina et al., 2019).

Earlier studies evidenced that both dimensions of absorptive capacity (PAC and RAC) work as an intervening mechanism for enhancing innovative performance (Daspit et al., 2019; Raisal et al., 2019; Wu et al., 2019) with different predicting variables. On the other side, the study conducted by Ahmad et al. (2019) evidenced that PAC does not hold any intervening mechanism, but RAC has an indirect influence on the relationship of intellectual capital and business performance. In the developing economy context (e.g., Pakistan), it is crucially essential for the firms either from the service or manufacturing sector to adopt the practices of ACs (potential and realized) for the utilization of internal and external knowledge, which does not increase the creativity and innovation but also enhance the capabilities of the employees with the support of efficient leadership (e.g., TFL and TSL). On the above literature deliberations basis, we propose our hypothesis;

H_{2a}: PAC mediates the relationship between TFL and firm innovation.

H_{2b}: RAC mediates the relationship between TFL and firm innovation.

H_{3a}: PAC mediates the relationship between TSL and firms' innovation.

H_{3b}: RAC mediates the relationship between TSL and firms' innovation.

4. Research Methods

4.1. Sampling and Data Collection

We collected data from Pakistani manufacturing firms (food and tobacco) because leadership activities have grown awareness in Pakistan, as innovations and their commercialization become mandatory for a developing economy (especially for Pakistani firms) to fulfill the needs of a progressively sophisticated, fast-growing market with technologically demanding customers. The targeted population for the current study was permanent employees working in manufacturing sector organizations (food and tobacco) through the self-administered data collection method. In this technique, participants somewhat provide their opinion about the questions

regarding the specific phenomenon of the study. Sampling is an obligatory requirement for any survey (Etikan et al., 2016); a convenient (non-probability) sampling technique was used in this study to collect data. Convenience sampling is beneficial for researchers as it is available to the researchers by its accessibility (Etikan et al., 2016). Participants of this study were approached through the HR departments of the respective organizations; before the collection of data, participants were briefed about the study objectives and the confidentiality of the data. The aggregate 350 questionnaires were sent to the manufacturing sector employees by using electronic Google Forms and manual distribution methods, 301 questionnaires were received which were completed from all aspects and were considered valid for further analysis, so the response rate was 86%.

4.2. Measurement Development

4.2.1 Instruments

All variables of this study were analyzed on a seven-point Likert-scale start from having '1 = strongly disagree', '2 = disagree', '3 = slightly disagree', '4 = neither agree nor disagree', '5 = slightly agree', '6 = agree', '7 = strongly agree'.

4.2.1.1 Independent Variables

The transformational leadership (TFL) scale was alienated into five sub-divisions: 'idealized influence', 'inspirational motivation', 'intellectual stimulation', 'individualized consideration', and 'risk acceptance'. Each sub-division consists of three major questions. This scale was developed and used by (Avolio & Bass, 1998; Bass, 1990; Bass & Avolio, 2000; Bass et al., 2003), and the Cronbach Alpha value was 0.79. The transactional leadership (TSL) scale was also alienated into three sub-divisions: contingent reward, management-by-exception, and laissez-faire leadership. This scale was developed and used by (Avolio & Bass, 1998; Bass, 1990; Bass & Avolio, 2000; Bass et al., 2003), and the Cronbach Alpha value was 0.72.

4.2.1.2 Mediating Variables

Measurement of potential absorptive capacity (PAC) was assessed through a 12-items scale, but we deleted one item the range developed by (Jansen et al., 2005; Zahra & George, 2002), Cronbach Alpha value was

0.84. Measurement of realized absorptive capacity (RAC) was assessed through a 08-items scale was adopted, and this scale, developed by (Jansen et al., 2005; Zahra & George, 2002), Cronbach Alpha value was 0.82.

4.2.1.3 Dependent Variable

Measurement belongs to innovative performance was assessed through a 05-items scale, developed by (Chen et al., 2013; Chen et al., 2015; Ritala et al., 2015), Cronbach Alpha value was 0.77. Therefore, the cumulative Cronbach value of all instruments for this study shows a significant Cronbach value of 0.70, which according to (Lisawadi et al., 2019; Nunnally & Bernstein, 1994), is accepting the reliability of the apparatus, so this scale of cognitive style indicator is reliable in Pakistani firms' context.

5. Data Analysis

After data collection, SPSS version 25.0 and AMOS version 24.0 were engaged for analysis of collected data. Different types of tests were conducted to rehearse the data at the initial state. Descriptive statistics, validity, and composite reliability tests were rehearsed. To test the research hypothesis, hierarchical regression analysis (for direct impact) and Hayes PROCESS-macro (for the test of intervening impact) (Hayes, 2015, 2018) statistical techniques were used in this study. As data for the present study were collected at one time and reported by the same participant for all variables, CMB (common method bias) may exist. Thus, we conducted a single factor analysis test suggested by Harman (1967) test, and results show that the single fixed factor explains 31.3% of the variables' covariance. It is less than 40%, so CMB does not play a significant role in this model.

5.1 Descriptive Statistics

Of 301 respondents, 169 male respondents (56%) and 132 female respondents (44%). Table 1 endorses the validity of the questions asked to the respondents to measure the talent variables. Generally, our variables' alpha ranges started from 0.71 to 0.84, which are quite good as they are higher than the Cronbachs' alpha benchmark (i.e., 0.70). TFL has been determined and carries alpha 0.79 and 0.77, which is on the upper side of the acceptable rate. Correspondingly, PAC and RAC come with the help of (12 and 8) questions, and alpha is 0.84 and 0.82, which is an exceptionally high range and illustrates sound reliability. Five questions were asked for

the innovation performance, and its alpha is 0.77, proving the reliability of measurement instruments used in this study.

Table 1. Reliability and Validity

Construct	(AVE)	(CR)	Cronbach's Alpha
Transformational Leadership (TFL)			
Idealized Influence	0.70	0.87	0.79
Inspirational Motivation	0.51	0.75	0.71
Intellectual Stimulation	0.56	0.79	0.72
Individualized Consideration	0.59	0.81	0.74
Risk Acceptance	0.53	0.77	0.77
Transactional Leadership (TSL)			
Contingent Reward	0.58	0.80	0.72
Management-By-Exception	0.58	0.81	0.73
Laissez-Faire Leadership	0.85	0.94	0.91
Potential Absorptive Capacity (PAC)			
Potential Absorptive Capacity (PAC)	0.51	0.92	0.84
Realized Absorptive Capacity (RAC)	0.51	0.89	0.82
Innovation Performance (INP)	0.52	0.84	0.77

5.2. Confirmatory Factor Analyses

To analyze the discriminant validity, we conducted CFA (confirmatory factor analyses) using AMOS 24.0. As shown in Table 2, the hypothesized five-factor model (with TFL, TSL, PAC, RAC, and INP) achieved acceptable fit ($\chi^2=632.03$, $df = 179$, $\chi^2/df = 3.53$, $RMSEA = .08$, $IFI = .88$, $CFI = .88$). Further, we also tested numerous nested models by combining high-relevant constructs and one-factor models. Results in Table 2 shows that the hypothesized model fit indexes are significantly well than other models. Thus, it proved that TFL, TSL, PAC, RAC, and INP could be statistically discriminant.

Table 2. CFA

Model	χ^2	df	χ^2/df	RMSEA	IFI	CFI
5-Factor Model (hypothesized model)	632.03	179	3.53	0.08	0.88	0.88
4-Factor Model (TFL and TSL merged)	1310.45	183	7.16	0.14	0.69	0.68
4-Factor Model (PAC and RAC merged)	1116.86	183	6.10	0.13	0.744	0.742
3 -Factor Model (TFL and TSL merged, PAC and RAC merged),	1319.88	186	7.09	0.14	0.68	0.68
1-Factor (all items load on a single factor)	1436.94	189	7.60	0.148	0.65	0.65

Note: N=301, TFL; transformational leadership, TSL; transactional leadership, PAC; potential absorptive capacity, RAC; realized absorptive capacity, INP; innovative performance

5.3. Correlations

Table 3 demonstrates the bivariate correlational values of all the variables, and according to the values, all study variables (TFL, TSL, PAC, RAC, and INP) correlated with each other at the significance level of 0.01.

Table 3. Correlations

Variable	M	SD	TL	TSL	PAC	RAC	INP
TFL	3.97	0.4017					
TSL	3.48	0.6723	0.419**				
PAC	5.72	0.7033	0.696**	0.180**			
RAC	5.73	0.6937	0.722**	0.284**	0.806**		
INP	5.74	0.7549	0.695**	0.229**	0.746**	0.795**	

Note: N=301, TFL; transformational leadership, TSL; transactional leadership, PAC; potential absorptive capacity, RAC; realized absorptive capacity, INP; innovative performance.

5.4. Hypotheses Testing

Table 4 represents the hierarchical regression results of leaderships (TFL and TSL), absorptive capacities (PAC and RAC), and firm innovative performance. Model 2 and model 3 show the regression of innovation performance on TFL and TSL. As hypothesized, TFL ($\beta=.69$, $p < .001$) and TSL ($\beta=.26$, $p < .001$) are significantly and positively influencing the innovation performance. So, H1a and H1b are supported. PAC has a significant influence on INP ($\beta=.54$, $p < .001$), while the coefficient of TFL

($\beta=58, p < .001$) decreased sharply compared to model 4, which implies PAC partially mediated the relationship between TFL and INP (supporting H2a). Similarly, in model 5, RAC has a significant influence on INP ($\beta=.65, p < .001$), while the coefficient of TFL ($\beta=46, p < .001$) decreased sharply compared to model 8, which implies RAC partially mediated the relationship between TFL and INP (supporting H2b). In model 6, PAC has a significant influence on INP ($\beta=.76, p < .001$), while the coefficient of TSL ($\beta=.08, n.s.$) is insignificant, which implies PAC fully mediated the relationship between TSL and INP (supporting H3a). Similarly, in model 7, RAC has a significant influence on INP ($\beta=.84, p < .001$), while the coefficient of TSL ($\beta=.08, n.s.$) is insignificant, which implies RAC fully mediated the relationship between TSL and INP (supporting H3b).

Table 4. Regression

	Innovative Performance						
	M1	M2	M3	M4	M5	M6	M7
Intercept	4.660***	-0.032***	3.734***	-0.143***	-0.157***	0.636***	0.615***
Controls							
Gender	-0.041	0.034	-0.025	-0.013	0.000	-0.044	-0.022
Age	0.324**	0.151*	.313***	0.135*	0.146*	.166**	0.174**
Edu	-0.002	-0.045	-0.039	-0.004	-0.052	0.012	-0.046
Experience	0.117*	0.124**	0.167**	0.043	0.039	0.024	0.013
Independent							
TFL		0.694***		0.585***	0.461***		
TSL			0.264***			0.078	-0.002
Mediator							
PAC				0.547***		0.764***	
RAC					0.653***		0.842***
R^2	0.069	0.501	0.115	0.622	0.667	0.583	0.641
$AdjustedR^2$	0.050	0.432	0.046	0.121	0.166	0.468	0.528
F	6.604***	61.484***	8.812***	83.391***	101.56***	71.041***	90.387***

Note: N=301, TFL; transformational leadership, TSL; transactional leadership, PAC; potential absorptive capacity, RAC; realized absorptive capacity, INP; innovative performance.

Further, we tested the indirect effects of TFL and TSL on INP via ACs. The procedure was conducted using PROCESS macro (Model 4) in SPSS, in which the sample was set to 5000, and finally produced 95% asymmetric confidence intervals. If the 95%CI does not contain zero, it means the indirect effect is significant. Tables 5 present the bootstrapping results. For H2a and H2b, TFL's two specific indirect effects on INP through PAC and RAC are significant, respectively. In detail, the 95% CI via PAC range from .121 to .639, which did not contain 0. The 95% CI via RAC range from

.419 to .935, which also did not contain 0. For H3a and H3b, the two specific indirect effects of TSL on INP through PAC (95% CI range from .030 to .159) and RAC (95% CI range from .101 to .276) are also significant respectively. Therefore, the mediation effects of H2a, H2b, H3a, and H3b all received support.

Table 5. Indirect Effects

The indirect effect of TFL on INP	Effect	Boot SE	95% LLCI	95% ULCI
Total	0.9689	0.1499	0.6850	0.2756
Via PAC	0.3339	0.1306	0.1215	0.6394
Via RAC	0.6349	0.1314	0.4197	0.9435
(CIs)	-0.3010	0.2149	-0.7137	0.1330
The indirect effect of TSL on INP	Effect	Boot SE	95% LLCI	95% ULCI
Total	0.2605	0.0571	0.1506	0.3810
Via PAC	0.0802	0.0324	0.0304	0.1592
Via RAC	0.1803	0.0431	0.1018	0.2768
(CIs)	-0.1000	0.0504	-0.2111	-0.0088

Note: N=301, TFL; transformational leadership, TSL; transactional leadership, PAC; potential absorptive capacity, RAC; realized absorptive capacity, INP; innovative performance.

6. Discussions

The primary purpose of the present study was to investigate the influence of leadership styles (TFL and TSL) on firms' innovation; we also examine the intervening influence of absorptive capacity (PAC and RAC) between the relationship of leadership styles and firms' innovative performance, especially with the context of Pakistani manufacturing firms (food and tobacco). The diffusion of innovation theory (Rogers, 2003) and path-goal theory of leadership (House, 1996) provide the theoretical foundation for investigating this study's model. The first hypothesis of the present research predicted that both leadership styles (TFL and TSL) positively related to firms' innovation. The present study's findings are also evident for accepting both portions of this hypothesis, H1a, and H1b. The findings of the current study are also in line with the findings of earlier studies, which explained that leadership styles work as an antecedent of innovation of the firm (Jiang & Chen, 2018; Kark et al., 2018; Nguyen et al., 2017; Steele et al., 2018). The second hypothesis of the current study predicted that both absorptive capacity (PAC and RAC) dimensions mediate the relationship between TFL and firms' innovation. The findings of the present study also prove both sections of the hypothesis H2a and H2b.

Moreover, findings of the earlier studies also provide support to the results of this study by explaining that the PAC and RAC of the firm with the presence of TFL increase the level of innovation of the firm (Castillo & Trinh, 2019; Darwish et al., 2018; Kotabe et al., 2017; Naqshbandi & Tabche, 2018; Wang et al., 2018) at the organizational and individual level. The third hypothesis of the present study predicted that both absorptive capacity (PAC and RAC) dimensions mediate the relationship between TSL and firms' innovation. The findings of the present study also prove both sections of the hypotheses H3a and H3b. Moreover, findings of the earlier studies also provide support to the results of this study by explaining that the PAC and RAC of the firm with the presence of TSL increase the level of innovation of the firm (Darwish et al., 2018; Duan et al., 2020; Naqshbandi & Tabche, 2018; Wang et al., 2020); as Naqshbandi et al.(2018) argued that leadership styles could be affected by the context of the observed leadership styles. This study confirmed that both TFL and TSL styles positively impact Pakistani firms' innovative performance through the intervening role of AC, sub-dimensions i-e, potential, and realized. The results also support all of the hypotheses, which show that effective leadership styles manipulate a firm's innovation through PAC and RAC.

6.1.Theoretical and Empirical Implications

This study found two effective leadership styles (TFL and TSL) positively related to absorptive capacity's sub-dimensions (potential and realized) and firms' innovation. Potential and realized AC adopted in firms with TFL and TSL styles encourage their employees to learn about the existing knowledge and escalate the new knowledge. Firms with improved and highly learned AC (potential, realized) enjoy higher individuals and organizational innovation levels.

These findings have imperative theoretical implications. Previous studies on AC have less concern about which factors affect the AC inside the firms' settings; this study has proved that firms with effective leadership styles (TFL and TSL) commence new learning among employees for more constancy of AC (PAC and RAC), with the context of developing economy context. Previous studies generally observe the direct influence of the TFL style on innovation (Flatten et al., 2015; Nguyen et al., 2017). Second, previous studies have observed meaningful mediators in the mechanism through which the TFL and TSL leader affects a firm's innovation: culture, organizational citizenship behavior, employee commitment (Bian et al., 2019; Steele et al., 2018). Adopting diffusion of innovation theory(Rogers, 2003) and path-goal theory of leadership (House, 1996), this study tries to

clarify that how and why novel ideas and technology can extend to addressed existing gaps in the literature concerning the mediating effect of potential and realized AC between effective leadership styles and a firm's innovation.

The findings of the present study also propose some managerial implications. First, firms who desire to increase their absorptive capacity should concentrate on their manager's leadership styles; because leadership styles, e.g., TFL and TSL, helps to escalate the new information and foster innovative ideas among the firm's employees. Second, this study elucidates that it is helpful for managers to know about their outer relationships to develop absorptive capacity and focus on strategies to establish stability between strength and width about leadership styles' requirements. Third, the present study proposes that training managers about adopting the latest leadership styles increase managers' efficiency and learning level towards the utilization of internal and external knowledge.

6.2. Limitations and Future Suggestions

This study carries several critical limitations; first, this study's findings are based on Pakistani firms (food and tobacco) and are probably limited in their generalizability to other developing countries contexts. Future research should investigate multinational firms from other developing regions and compare the effective leadership styles investigated within innovation. Second, this study was intensified by the aspiration to expand fine-grained understanding of the potential and realized AC's mediating function by testing alternative leadership styles encouraged in the future, such as authentic leadership, servant leadership, or creative leadership on firm's innovation. Third, future research could also observe the moderating influence of knowledge characteristics such as acquisition, exploitation, and sharing of knowledge through tacit and explicit sources and their impact on potential and realized AC with innovation. Finally, this research suggests that future studies must pay attention to the cultural factors, e.g., (Sarooghi et al., 2015), to improve potential and realized AC towards innovations.

6.3 Concluding Remarks

This study develops a theoretical model through the foundation of diffusion of innovation theory and path-goal theory of leadership to ascertain the influence of TFL and TSL leadership styles to strengthen the innovation process through ACs. We found that TSL and TFL leadership

styles improved Pakistani firms' innovation level through potential and realized AC by recognizing the worth of new advanced knowledge—to absorb and utilize that knowledge to meet the worthwhile goals for achieving the competitive benefits.

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Recommended citation:

Mushtaq , I., Chughtai , M. S., & Lashari, F. (2021). Leadership Styles and Firms' Innovation, Mediating Role of Absorptive Capacity: Empirical Evidence from Emerging Economy. *Management & Economics Research Journal*, 3(2), 63-87. <https://doi.org/10.48100/merj.2021.162>