

## CREATIVITY IN CONSTRUCTION PROJECT THROUGH ENTREPRENEURIAL LEADERSHIP, INNOVATIVE AMBIDEXTERITY AND COLLABORATIVE CULTURE

Sheikh Muhamad Hizam Sheikh Khairuddin, Syed Arslan Haider, Shehnaz Tehseen,  
and Shahid Iqbal

**ABSTRACT.** The purpose of this paper is to empirically find out how entrepreneurial leadership impacts the creativity in projects and the way innovation ambidexterity acts as a mediator and collaborative culture as moderator in the process. The non-probability random sampling technique and time lag was used to collect data from 300 employees working at project-based construction companies of Pakistan. Smart PLS SEM v.3.2.8 was used to test the hypotheses. The result indicates that entrepreneurial leadership has a significant and positive impact on creativity in projects. Entrepreneurial leaders act as a risk taker and encourage novelty, therefore, enhance innovation ambidexterity in the organization which in turn results creativity in projects. However, results indicate collaborative culture does not play significant role as moderator on the relationship between entrepreneurial leadership and creativity in projects.

### 1. INTRODUCTION

Today starting a firm has become riskier, ambiguous and complicated in an uncertain environment and taking risks to wisely apportion resources is challenging [10]. In the modern era of internet and connectivity, it is highly feasible to start a business. Lijauco et al. (2020) proposed that the average age of

---

*2020 Mathematics Subject Classification.* 62P25.

*Key words and phrases.* Entrepreneurial leadership; Innovation ambidexterity; Creativity in projects; Collaborative culture.

*Submitted:* 26.02.2021; *Accepted:* 09.03.2021; *Published:* 21.03.2021.

survival firms is only 2.9 years. This is because of the internal and external pressures on the organization, such as demand of high performance, harmonizing clients' demands, and immense level of service satisfaction with scarce resources and requires innovation [27]. For the long-term survivability of the companies, it is important to have some competitive edge (difficult for the rivals to copy), which can be achieved by innovative approach in thinking [38]. It has been acknowledged by many researchers that Entrepreneurial Leadership (EL) is of great prominence for conquering the businesses [4] that has been recognized as the essential source of advancement of the componential theory of creativity which is also the essential subject in practical ground.

This study focuses on how EL leads to the creativity and innovation in a project. As proposed by Bose (2020) that the idea generation and sense of insight (traits of an entrepreneurial leader) provide ways for creativity. Although, the task of creativity in organizations is of utmost importance in order to survive in the future [29]. Limaj & Bernroider (2019) also explain that Ambidextrous innovation refers to both the capabilities namely exploitative and explorative innovations [24]. An organization needs both the approaches to crop creativity in projects. Innovation ambidexterity (IA) can be built by performing contradicting tasks, active decision making, activities performed to extend the abilities and sharpen the skills and also to improve the technological and marketable abilities [32]. However, for a team building and inculcation of creativity, the leader needs to develop a culture of togetherness and knowledge sharing where employees can collectively think. A study conducted by Shamir-Inbal and Blau (2016) showed that collaborative culture (CC) improves the learning behavior and enhances the skills of team. Therefore, current study also puts CC in the spotlight while studying creativity.

So far, EL has been studied in big enterprises and organizations; however, limited attention has been put on the creativity and EL in projects also in the field of project-based construction organizations [40]. Therefore, light needs to be shed on this aspect. While addressing this gap, current research also focuses on the prospective mediator and moderator. Therefore, study proposes that IA mediates the relation of EL and CIP, whereas CC moderates the relation between EL and CIP. Also, variables altogether have not been studied in the Pakistani context and the findings would be very helpful for the project-based construction companies project managers, supervisors and leaders to gain competitive

advantage. This study would be favorable for giving insights to the managers about the creativity, innovation, effective type of leadership and the advantage of developing a collaborative culture in their projects.

2. RESEARCH LITERATURE

**Supporting Theory**

Theory that is supporting all the variables of research and creating a link with these variables directly or indirectly is componential theory of creativity [2]. The model has been developed on the constructs of this theory as shown in Figure 1. As, this study is going to explain the effect and influence of EL on CIP, using IA and CC, the theory also talks about the use of skills, expertise and motivation to produce a creative result. While, creative thinking is the capacity to develop new ideas and innovative thoughts. According to Sternberg et al. (2019), the first thing required to be creative are technical skills, knowledge and expertise. In the model these things combine up to make EL.

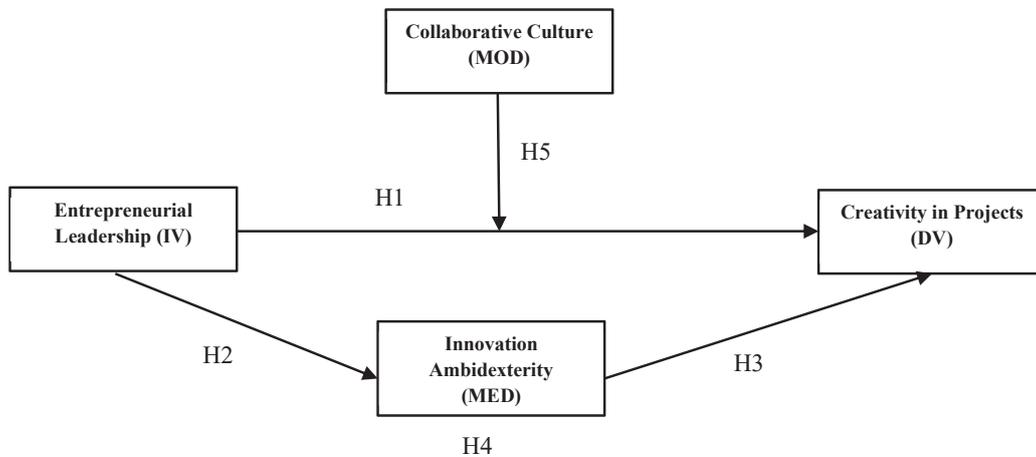


FIGURE 1. Conceptual model of the study

**Entrepreneurial Leadership and Creativity in Projects**

Entrepreneurs are looked upon as heroes in the contemporary work systems and for the development of economies [9]. Entrepreneurial leadership (EL) involves such activities, which encourage other members of the group to think and act out of the box. The innovative capacity of new project depends on the ability of an entrepreneurial leader as well as the creativity level of their team.21st

century has endorsed entrepreneurs as the most useful emerging power for the business they act as catalysts of change and look for opportunities in the environments that seem to be chaos for others [3]. According to the componential theory of creativity, the skills, knowledge and experience of a person matters the most because this would then transpire creativity [1]. Xiong (2020) proposed that entrepreneurial leaders are similar to other leaders in case of motivating, but they unlike others, encourage the riskier, vulnerable and unusual activities instead of status quo, conventional and career secured ones. Though, organizations today undergo through radical shifts instead of linear, gradual changes, hence it is important to have an entrepreneurial mentality is action oriented and focuses on problem solving in a unique way [27].

The prior studies illustrated that the true spirit of an entrepreneurial leader can only be measured if the extent of creativity in projects is measured, which will happen by assessing progress made through innovation [26]. Therefore, EL gained a lot of attention as a new theory, which will be helpful for future research as well as practice. As investigated by Mubarak et al. (2018), an entrepreneurial leader has two important tasks to do, one is to create an environment of change and secondly, convincing the stakeholders to adapt those changes by providing resources for implementation. Although, it is clear that creativity increases the output efficiency, but the scholar Lu et al. (2017) indicated that many people do not know how to implement creativity [25]. According to Kerr et al. (2017), Iceland is the most creative country with every fourth person working on a creative project [20]. Hence, creativity is the main reason behind the booming companies, the growth of projects and increase in value. Thus, first hypothesis is established based on above arguments.

Hypothesis 1: Entrepreneurial Leadership is positively associated with Creativity in Projects.

### **Mediating Role of Innovation Ambidexterity between Entrepreneurial Leadership and Creativity in Projects**

Considering the earlier studies, [10] described for achieving innovation and creativity in an organization, the essential element is a leader who implements the required type of strategy to endorse innovation and hence creativity. Ambidexterity is very important to achieve competitive advantage because it refers to being able to behold the current situation as well as being up to date about

the up comings [22]. Innovation ambidexterity (IA) focuses on applying the novel ideas, creative thoughts and using the skills to grab opportunities for future work [7]. Soto-Acosta et al. (2018) stated the explorative and exploitative innovation to be two ends of the same continuum. Limaj et al. (2019) explicated that IA is not an easy task to be achieved and until now there is not an example of an organization that is fully ambidextrous [24]. This is because it takes a lot of effort and resources to be innovative. IA is the radical and the gradual progress in innovation which means creating new ideas and working upon them to increase organizations efficiency.

Taking the example of New Flyer company of USA, Nijhof et al. (2002) specified that the CEO of the company was an entrepreneur who worked by embracing risks, reading the abilities of people and recognizing the opportunities, resulting in innovative projects. Therefore, it is a pressure on organizations to deliver innovative as well as efficient services [21]. A study by Hemmert et al. (2019) demonstrated that the employees become innovative when the supervisor has a quality relationship with them, gives an environment that appreciates innovativeness and the employee himself being displeased with status quo. When, the employees perceive that they need to work innovatively, they start working in that way [34]; it is the only requirement to make them feel that way. Innovation ambidexterity is enabled by the milieu which accepts risk, ambiguity, uncertainty, allows independence and gives authority [30]. Entrepreneurial leader's value creativity and innovation therefore encompass creativity in their own behaviors, giving way to an organizational culture which shows innovation ambidexterity [23]. Therefore, we have developed the following hypotheses.

Hypothesis 2: Entrepreneurial leadership is positively associated with innovation ambidexterity.

Hypothesis 3: Innovation ambidexterity is positively associated with creativity in projects.

Hypothesis 4: Innovation ambidexterity mediates the relation between entrepreneurial leadership and creativity in projects.

**Moderating Role of Collaborative Culture between Entrepreneurial Leadership and Creativity in Projects**

The purpose is to develop an open communication and reduce the barriers that transpire due to organizational structure and encourage innovative initiatives [19]. The norm of collaboration ensures that the colleagues share responsibility and there is delegation of authority that allows continuous improvement in thought process as well as implementation [17]. Jing et al. (2020) also indicated that the factors that contributed most toward collaborative culture are; the autonomy for a shared objective, involvement in decision making, and consideration of oneself as a part of community, referred to as the sense of belongingness. The knowledge increases with the exchange of ideas, uninterrupted communication and removes barriers in the development of workforce, causing it to improve the productivity, hence creativity.

Earlier studies have described that right type of leadership is very important to give employees an environment for practicing their novel and unique ideas [29]. Similarly, componential theory claims that motivation results in creativity which in this model is defined through collaborative culture [14]. The model proposed that a collaborative culture in the organization will enable the team members to boost their morals and share their ideas, create new ideas as well as pour in their suggestions for the existing work. Therefore, leaders and followers go in the same flow [28]; an entrepreneurial leader can make the team work for creativity in projects. As the study of Chen (2007) [6], considering 112 entrepreneurial teams concluded that a leader innovative, risk taking, and entrepreneurial abilities can result in the creativity of the team and hence in the entire project. Thus, the fifth hypothesis is constructed as follow:

Hypothesis 5: Collaborative culture moderates the relation between entrepreneurial leadership and creativity in projects.

### 3. RESEARCH METHODOLOGY

#### **Sample and Procedure**

The approach used in this research study is deductive whereas it is exploratory cum descriptive. Moreover, due to time & resource restraints it is not possible to collect the information from the whole population for that reason sampling technique is used for the collection and examination of data. For that reason, in this research study the techniques of simple random & time lag were used for the collection of data, as these two techniques decreases the common method

variance from all the data [12]. The population which was included in this research study was from projects-based construction companies (private & public) such as Majestic Builders (Pvt) Ltd, Pak Gulf Construction (Pvt) Ltd operating in twin cities Islamabad, Rawalpindi of Pakistan, Time one (T1) questionnaire was distributed in Feb, 2019 (after the project teams had worked together for approximately 3 to 5 months). After getting the requisite permission the author personally visited the said organizations/companies. An aggregate of 500 surveys were conveyed in the first phase of study (T1), just 327 participants returned the questionnaire, yielding a response rate of 65.4%. The follow-up questionnaire in the second phase (T2) in Feb, 2020 (project teams had completed their approximately 50% to 85% project work together) was sent only to those employees who responded at T1. The total of 300 useable questionnaires returned, which resulted in an overall response rate for the research of  $65.4 \times 91.74 = 59.5\%$ . After the collection of the data the test of “Harman’s single factor” was performed for the identification of “common method variance” the extraction sums of squared loading result is 26.37% of variance which could be seen i.e. less than 50%, which clearly reflects that there is no issue regarding the common method biased as far as the research data is concerned [37].

In addition, on the basis of  $G^*$  power analysis, required sample size to conduct this research study should not be less than 129 (respondents), so that to be able to generate the power of 0.95 & for the medium size effect i.e. 0.15. Although, the researchers of this study collected the data from 300 respondents which is of course more than the minimum threshold sample size [15]. Moreover, as the presence of female in construction projects is very low in Pakistan so for that reason only 30% of female participated in this research study. The age of the population sample was between 20 years to 40 years and maximum of the respondents having a master’s level degree. Moreover, they also have a job experience of (1year -3 years) & (4 years-6years).

### Measures

Questionnaires were used for the compilation of the data and there were total 35-items. As for as IV is concerned a scale of having 6-item was developed by Gopal et al. (2010) [13], which was used for “entrepreneurial leadership” measurement, also “creativity in projects” the DV was measured by using a scale of 13-item which was developed by (Zhou & Oldham, 2001) [41]. As mediator

variable innovation ambidexterity was measured using 11-item scale [35], and moderator collaborative culture 8-item scale also validated and developed by De Luque et al. (2008). Five-point Likert scale was used, having 5-Strongly Agree & 1-Strongly Disagree. For collection of the information of quantitative nature this is the best instrument which can be used with so much efficiently. Moreover, the pilot study was also conducted for checking the validity of the questionnaire. Cronbach alpha was used for checking the latent variables reliability. Cronbach alpha for all the variables were above the threshold value which is 0.70, as the reliability above the threshold of 0.7 is considered acceptable [18]. The results of the Cronbach alpha test are presented in Table1.

#### 4. RESEARCH FINDINGS

The genuineness of hypothesis with precise indicators could be easily evaluated by scrutinizing the particular factor loadings as it is recommended that loading should be  $> 0.50$  shows its significant value [18] [15]. Therefore, Table 1 shows the results of four constructs, entrepreneurial leadership, collaborative culture, innovation ambidexterity and creativity in projects, are all to all suitable procedures of its fastidious constructs. This method was presented by Hair et al. (2014) through which it was discovered that those items which are loadings anywhere between the values 0.40 & 0.70 must be excluded from the measure only if obliterate, the experiential variable which will add to the composite reliability in the weighty scale. Therefore, factor loadings estimations of, AVE & CR are more than the recommended threshold criterion; as a result, Table 1 is showing the convergent validity of the measurement model.

After checking/ensuring convergent validity of the model which actually met the pre-established criteria, the succeeding step was to confirm the authentication of model's discriminant, which happens when there is confirmation that two theoretically comparative ideas are distinct, also shows whether the latent variables are independent from each other [15]. Also, Table 2 indicates that the AVE for each construct should be greater than the squares of the correlation among the constructs and every other construct. On the other hand, the estimated model is considered to have great discriminant legitimacy when the relationship among the constructs is lower than the square root of  $t$  [11].

TABLE 1. Measurement Model

Constructs	Items	Factor Loadings		Cronbach's Alpha		CR		AVE	
		T1	T2	T1	T2	T1	T2	T1	T2
<b>Collaborative Culture (MOD)</b>				0.90	0.88	0.92	0.90	0.60	0.55
	CC1T1	0.819	0.717						
	CC2T1	0.778	0.728						
	CC3T1	0.790	0.757						
	CC4T1	0.784	0.738						
	CC5T1	0.768	0.755						
	CC6T1	0.785	0.755						
	CC7T1	0.752	0.745						
	CC8T1	0.742	0.760						
<b>Creativity in projects (DV)</b>				0.95	0.92	0.96	0.93	0.66	0.54
	CIP10T1	0.761	0.618						
	CIP11T1	0.843	0.728						
	CIP12T1	0.819	0.667						
	CIP13T1	0.753	0.725						
	CIP1T1	0.825	0.830						

Note:  $N = 327$ , <sup>a</sup>The Items displayed in boldface represents the square roots of the AVE. <sup>b</sup> Off-diagonal elements are the Pearson correlations between different constructs.

The structural equation model is computed after measurement model is done. We analyzed the impact for the 5000 bootstrapped samples from the initial 300 cases, to provide point measurement of clarified change and to estimate significance in direct effect structural equations model [16]. To examine the mediating outcomes of IA and moderating role of CC, In this research we pursue towards those methods which were suggested by Henseler et al. (2012) for the analyzation of direct & indirect outcome of (SEM) structural equation models, four (4) précised criteria's were used in research study: (1) First of all,  $R^2$  level estimating (for endogenous latent variables) for the determination of the amount of variance which was already explained by the all constructs [16]. Even though, the acceptable evaluation of  $R^2$  depend on the research study setting [8] clearly shows the evaluation of 0.26, 0.13, & 0.09 illustrate as low, moderate & high. Nonetheless, in this present study  $R^2$  values for endogenous variable, the direct effect model elucidated innovation ambidexterity is 0.522 at Time1, which entails that 55.2% change of IA is forecasted by EL but after 1 year it increased up

	CIP2T1	0.774	0.783						
	CIP3T1	0.827	0.785						
	CIP4T1	0.834	0.745						
	CIP5T1	0.794	0.799						
	CIP6T1	0.842	0.766						
	CIP7T1	0.844	0.729						
	CIP8T1	0.839	0.739						
	CIP9T1	0.819	0.639						
<b>Entrepreneurial Leadership (IV)</b>				0.91	0.87	0.93	0.90	0.70	0.62
	EL1T1	0.861	0.827						
	EL2T1	0.833	0.797						
	EL3T1	0.833	0.813						
	EL4T1	0.822	0.791						
	EL5T1	0.851	0.764						
	EL6T1	0.818	0.730						
<b>Moderation Effect</b>	EL * CC	0.988	1.685	1.00	1.00	1.00	1.00	1.00	1.00
<b>Innovation Ambidexterity (MED)</b>	IA10T1	0.616	0.725	0.91	0.91	0.93	0.93	0.55	0.55
	IA11T1	0.795	0.710						
	IA1T1	0.808	0.823						
	IA2T1	0.774	0.804						
	IA3T1	0.807	0.825						
	IA4T1	0.805	0.804						
	IA5T1	0.784	0.703						
	IA6T1	0.804	0.740						
	IA7T1	0.315	0.663						
	IA8T1	0.782	0.700						
	IA9T1	0.764	0.670						

to 61%. Also, the  $R^2$  for CIP is 72.9% at Time 1 and increased 80.6% at Time 2, the model shows adequate predictive accuracy as shown in Table 3.

Secondly, for the determination of  $Q^2$  - predictive relevance a measure of crossvalidation redundancy was used for measuring the proper significance of the investigation model [15]. Table 3 clearly shows the ample estimation significance of the direct effect model as the value of  $Q^2$  - predictive relevance is greater than zero ( $IAT1 - Q^2 = 0.282$  &  $IAT2 - Q^2 = 0.329$ ) for the endogenous latent variable the direct EL and JS also have the indirect effect of EL to CIP is ( $CIPT1 - Q^2 = 0.478$  and  $CIPT1 - Q^2 = 0.431$ ) for all those values which are greater than zero, so it could be considered as a satisfactory predictive relevance of this model [18]. Results also support the H1, H2, H3,

TABLE 2. Discriminant validity

	1	2	3	4	5	6	7	8	9	10
1.CC T1	<b>0.777</b>									
2. CC T2	-0.182	<b>0.744a</b>								
3.CIP T1	0.700	-0.180b	<b>0.814</b>							
4.CIP T2	-0.158	0.682	-0.179	<b>0.737</b>						
5.EL T1	0.757	-0.098	0.760	-0.114	<b>0.837</b>					
6.EL T2	-0.155	0.629	-0.154	0.643	-0.090	<b>0.788</b>				
7.IA T1	0.775	-0.087	0.774	-0.090	0.722	-0.062	<b>0.746</b>			
8.IA T2	-0.159	0.662	-0.188	0.735	-0.082	0.781	-0.079	<b>0.745</b>		
9.MOD Effect 1	-0.403	0.017	-0.327	0.005	-0.342	0.025	-0.448	0.008	<b>1.000</b>	
10.MOD Effect 2	0.235	-0.697	0.261	-0.690	0.179	-0.662	0.194	-0.65	0.008	<b>1.000</b>

the direct effect of EL has significant and positive effect on CIP both (Time  $1\beta = 0.265$  and Time  $2\beta = 0.425, p < 0.000$  ), EL to IA (Time  $1\beta = 0.722$  and Time  $2\beta = 0.780, p < 0.000$  ), IA to CIP (Time  $1\beta = 0.316$  and Time  $2\beta = 0.380, p < 0.000$ ) all were positive and significant.

TABLE 3. Coefficient of Determination in the PLS method

	R Square	R Square Adjusted	$Q^2$
CIP T1	0.729	0.726	0.478
CIP T2	0.806	0.801	0.431
IA T1	0.522	0.521	0.282
IA T2	0.610	0.607	0.329

Thirdly,  $f^2$  - effect size i.e. the effect by IV (independent variable) which is explicit to DV (dependent variable) in order to recognize that how much greater the outcome of exogenous IV (independent variable) is obvious to endogenous DV (dependent variable) [15]. As per rule Cohen (1988), the size of the effect approximation is between 0.02, 0.15 & 0.35 as having large, medium & small effects, likewise. Table 4 indicate effect size (T1 = 0.099 T2 = 0.319 ) for EL to CIP, (T1 = 0.1.092 and T2 = 1.546) for an EL to IA, (T1 = 0.125 and T2 = 0.245 ) for IA to CIP. The result represents large & medium effect size of these constructs (exogenous) on the construct (endogenous) respectively. lastly, this model also suggests & authenticate for this research study to be hypothesized as the innovation ambidexterity would mediate the relationship

between entrepreneurial leadership and creativity in projects. As described in Table 4, the indirect effect of EL on CIP is positive and significant at Time 1 ( $\beta = 0.228, p < 0.05$ ) and Time 2 ( $\beta = 0.296, p < 0.05$ ), but both are less than the direct effect. Though, if indirect effect is significant and positive but its effect is less than direct effect, so, it is reflected as partially mediated, hence the hypothesis 4 was also accepted. Though, the moderating effect of CIP at T1 ( $\beta = 0.058, p > 0.05$ ) is insignificant and at T2 ( $\beta = -0.053, p < .05$ ) the results are significant but negatively. Consequently, the hypotheses H1, H2, H3, and H4 were accepted and H5 was rejected.

TABLE 4. Results of the Structural Equations Model

	Relationship between variables of Research	$\beta$	SD	T Values	P Values	$f^2$	
<b>Direct Effect</b>							
<b>H1</b>	EL T1 ->CIP T1	0.265	0.048	5.520	0.000	0.099	Supported
	EL T2 ->CIP T2	0.425	0.041	10.365	0.000	0.319	Supported
<b>H2</b>	EL T1 ->IA T1	0.722	0.026	27.272	0.000	1.092	Supported
	EL T2 ->IA T2	0.780	0.035	22.117	0.000	1.546	Supported
<b>H3</b>	IA T1 ->CIP T1	0.316	0.052	6.029	0.000	0.125	Supported
	IA T2 ->CIP T2	0.380	0.042	9.021	0.000	0.245	Supported
<b>Indirect Effect</b>							
<b>H4</b>	EL T1 ->IA T1 ->CIP T1	0.228	0.039	5.898	0.000		Supported
	EL T2 ->IA T2 ->CIP T2	0.296	0.035	8.442	0.000		Supported
<b>H5</b>	MOD Effect 1 ->CIP T1	0.058	0.031	1.869	0.062		Not Supported
	MOD Effect 2 ->CIP T2	-0.053	0.022	2.394	0.017		Not Supported

## 5. DISCUSSION & CONCLUSION

The emphasis of this research was to determine the factors that cause creativity in projects. Hence, EL was taken as an independent variable to analyze its effect on CIP through IA as a mediator and CC as a moderator. As seen in the results the EL has positive and significant effect on CIP directly and indirectly through mediator IA, effect also increases after one year, which means if a leader has entrepreneurial characteristics, it would increase the level of creativity in projects. Literature also supports the results that EL is a blend of entrepreneurship and leadership. This blend then works the best to carve out

creativity in his team [39]. Also, such leaders motivate the team members to take a step, to share their ideas conveniently and encourage creativity. [7] described that many of the projects do not get successful because they lack the exact needed leadership. Therefore, it is very important to have an entrepreneurial CEO. Similarly, in the Pakistani context, it is very important for the project-based construction organization to develop appropriate leadership that can lead to creative projects. An entrepreneurial leader has the traits of being supportive towards the innovative ideas; he encourages the members to take steps that lead to a new direction. However, previous researchers believe that collaborative culture effects the projects positively and keeping this in view, it was proposed that collaborative culture acts as a booster for entrepreneurial leaders and the project creativity [23]. Conversely, the proposed hypothesis is rejected which may have certain reasons. Firstly, in project-based organizations, collaborative culture helps because the team shows cohesive behavior; they agree to each other and work with the same mindset. Whereas, this research talks about creativity in projects which needs out of the box ideas. In such case, the unified mindsets of the team members would be of no benefit. Team diversity would be helpful in generating contrasting ideas. Lastly, as some theorists suggest, collaborative culture contributes to knowledge sharing among employees [33], which may affect their ability to disagree with each other. Too much collaboration can cause the employees to approve every point of others, impeding their chances to think on their own and show creativity. A collaborative culture develops too much trust among members. This restricts them from questioning or raising arguments. Without disagreements there can be no change in the status quo, causing no creativity.

This research has made important theoretical and practical contributions as there is no previous study that has examined the impact of entrepreneurial leadership on creativity in projects in the Pakistani context. The findings of this research are practically significant as they depict the importance of a leadership style that helps in improving the creativity level of the project-based construction organizations particularly for the developing countries like Pakistan where there is lack of creativity and innovation. It has been proved that innovation ambidexterity acts as a mediator between entrepreneurial leadership and creativity in projects. In project-based construction organizations, project manager

should act as an entrepreneurial leader so that he can encourage an environment of creativity and innovation within the organization that will help in the uniqueness and novelty of the projects.

In this research study there are still some limitations because it is not feasible to cover up all feature and aspects. The sample size is of medium range as it only spotlights on the construction companies/organizations (project-based) in Pakistan. But the existing model of this research study can be utilized/tested for the future research perspective in diverse fields of knowledge. As for as future research is concerned it can improve this research model as EL can be explored more as there is still a big gap and its impact on other variables like project complexity can be studied in future to check alternate mediating and moderating variables such as culture barrier, performance or complexity, economic and financial efficiency of the project should concentrate on consideration.

#### REFERENCES

- [1] AMABILE, T. M. (1997): *Entrepreneurial creativity through motivational synergy*, The Journal of Creative Behavior, 31(1), 18-26.
- [2] AMABILE, T. M., CONTI, R., COON, H., LAZENBY, J., & HERRON, M. (1996): *Assessing the work environment for creativity*, Academy of management journal, 39(5), 1154-1184.
- [3] BERSON, Y., & KARK, R. (2018): *Leadership Now: Reflecting on the Legacy of Boas Shamir'. Leadership Now: Reflections on the Legacy of Boas Shamir (Monographs in Leadership and Management, Volume 9)*, Emerald Publishing Limited, 315-323.
- [4] BOSE, M. (2020): *Public leadership in a public sector*, Journal of Leadership Studies, 14(1), 66-73.
- [5] CHA, J., KIM, Y., LEE, J. Y., & BACHRACH, D. G. (2015): *Transformational leadership and inter-team collaboration: Exploring the mediating role of teamwork quality and moderating role of team size*, Group & Organization Management, 40(6), 715-743.
- [6] CHEN, M. H. (2007): *Entrepreneurial leadership and new ventures: Creativity in entrepreneurial teams*, Creativity and Innovation Management, 16(3), 239-249.
- [7] CHO, M., BONN, M. A., & HAN, S. J. (2020): *Innovation ambidexterity: balancing exploitation and exploration for startup and established restaurants and impacts upon performance*, Industry and Innovation, 27(4), 340-362.
- [8] COHEN J. 1988. STATISTICAL POWER ANALYSIS FOR THE BEHAVIORAL SCIENCES, New York: Routledge Academic.
- [9] DE LUQUE, M. S., WASHBURN, N. T., WALDMAN, D. A., & HOUSE, R. J. (2008): *Unrequited profit: How stakeholder and economic values relate to subordinates'*

- perceptions of leadership and firm performance*, *Administrative Science Quarterly*, 53(4), 626-654.
- [10] DIESEL, R., & SCHEEPERS, C. B. (2019): *Innovation climate mediating complexity leadership and ambidexterity*, *Personnel Review*.
- [11] FORNELL C, LARCKER DF. (1981): *Evaluating structural equation models with unobservable variables and measurement error*, *Journal of Marketing Research*, 1981; 18(1), 39-50.
- [12] FULLER, C. M., SIMMERING, M. J., ATINC, G., ATINC, Y., & BABIN, B. J. (2016): *Common methods variance detection in business research*, *Journal of Business Research*, 69(8), 3192-3198.
- [13] GOPAL, A., & GOSAIN, S. (2010): *Research note The role of organizational controls and boundary spanning in software development outsourcing: Implications for project performance*, *Information Systems Research*, 21(4), 960-982.
- [14] GRAHAM, J., & GANDINI, A. (2017): *Collaborative production in the creative industries*, University of Westminster Press.
- [15] HAIR JR, J. F., SARSTEDT, M., HOPKINS, L., & KUPPELWIESER, V. G. (2014): *Partial least squares structural equation modeling (PLS-SEM)*, *European business review*.
- [16] HAIR JR, J. F., SARSTEDT, M., MATTHEWS, L. M., & RINGLE, C. M. (2016): *Identifying and treating unobserved heterogeneity with FIMIX-PLS: part I–method*, *European Business Review*.
- [17] HEMMERT, M., CROSS, A. R., CHENG, Y., KIM, J. J., KOHLBACHER, F., KOTOSAKA, M., ... & ZHENG, L. J. (2019): *The distinctiveness and diversity of entrepreneurial ecosystems in China, Japan, and South Korea: an exploratory analysis*, *Asian Business & Management*, 18(3), 211-247.
- [18] HENSELER, J., RINGLE, C. M., & SARSTEDT, M. (2012): *Using partial least squares path modeling in advertising research: basic concepts and recent issues*, *Handbook of research on international advertising*, 252.
- [19] JING, F. F., AVERY, G. C., & BERGSTEINER, H. (2020): *Leadership Variables and Business Performance: Mediating and Interaction Effects*, *Journal of Leadership & Organizational Studies*, 1548051818824532.
- [20] KERR, B. A., BIRDNOW, M., HALLAERT, J., ALEXANDER, K., MALMSTEN, R., STULL, O., ... & CLAIBORN, G. J. (2017): *Creativity and innovation in Iceland: Individual, environmental, and cultural variables*, *Gifted and Talented International*, 32(1), 27-43.

- [21] KO, W. W., & LIU, G. (2019): *How Information Technology Assimilation Promotes Exploratory and Exploitative Innovation in the Small-and Medium-Sized Firm Context: The Role of Contextual Ambidexterity and Knowledge Base*, Journal of Product Innovation Management, 36(4), 442-466.
- [22] KORYAK, O., LOCKETT, A., HAYTON, J., NICOLAOU, N., & MOLE, K. (2018): *Disentangling the antecedents of ambidexterity: Exploration and exploitation*, Research Policy, 47(2), 413-427.
- [23] LIJAUCO, F., GAJENDRAN, T., BREWER, G., & RASOOLIMANESH, S. M. (2020): *Impacts of Culture on Innovation Propensity in Small to Medium Enterprises in Construction*, Journal of Construction Engineering and Management, 146(3), 04019116.
- [24] LIMAJ, E., & BERNROIDER, E. W. (2019): *The roles of absorptive capacity and cultural balance for exploratory and exploitative innovation in SMEs*, Journal of Business Research, 94, 137-153.
- [25] LU, J. G., AKINOLA, M., & MASON, M. F. (2017): *Switching On creativity: Task switching can increase creativity by reducing cognitive fixation*, Organizational Behavior and Human Decision Processes, 139, 63-75.
- [26] METALLO, C., AGRIFOGLIO, R., BRIGANTI, P., MERCURIO, L., & FERRARA, M. (2020): *Entrepreneurial Behaviour and New Venture Creation: the Psychoanalytic Perspective*, Journal of Innovation & Knowledge.
- [27] MIAO, Q., EVA, N., NEWMAN, A., & COOPER, B. (2018): *Ceo entrepreneurial leadership and performance outcomes of top management teams in entrepreneurial ventures: The mediating effects of psychological safety*, Journal of Small Business Management, 6(1), 64-74.
- [28] MOKHBER, M., TAN, G. G., VAKILBASHI, A., ZAMIL, N. A. M., & BASIRUDDIN, R. (2016): *Impact of Entrepreneurial Leadership on Organization Demand for Innovation: Moderating Role of Employees Innovative Self-Efficacy*, International Review of Management and Marketing, 6(3), 415-421.
- [29] MUBARAK, F., & NOOR, A. (2018): *Effect of authentic leadership on employee creativity in project-based organizations with the mediating roles of work engagement and psychological empowerment*, Cogent Business & Management, 5(1), 1.
- [30] NEWMAN, A., HERMAN, H. M., SCHWARZ, G., & NIELSEN, I. (2018): *The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership*, Journal of Business Research, 89, 1-9.
- [31] NIJHOF, A., KRABBENDAM, K., & LOOISE, J. C. (2002): *Innovation through exemptions: building upon the existing creativity of employees*, Technovation, 22(11), 675-683.

- [32] SAJILAN, S., & TEHSEEN, S. (2019): *Network competence and firm performance: The mediating role of entrepreneurial innovativeness among Malaysian Chinese entrepreneurs of wholesale businesses*, Asian Academy of Management Journal, 24(Supp. 1), 187-201.
- [33] SHAMIR-INBAL, T., & BLAU, I. (2016): *Digital literacy skills and the challenge of collaborative culture in higher education: From individual psychological ownership to co-ownership*, In Proceedings of the 8th annual International Conference on Education and New Learning Technologies, 26(5), 388-399.
- [34] SHIN, S. J., YUAN, F., & ZHOU, J. (2017): *When perceived innovation job requirement increases employee innovative behavior: A sensemaking perspective*, Journal of Organizational Behavior, 38(1), 68-86.
- [35] SOTO-ACOSTA, P., POPA, S., & MARTINEZ-CONESA, I. (2018): *Information technology, knowledge management and environmental dynamism as drivers of innovation ambidexterity: a study in SMEs*, Journal of Knowledge Management, 22(4), 824-849.
- [36] STERNBERG, R. J., & GLCK, J. (EDS.): (2019): *The Cambridge handbook of wisdom*, Cambridge: Cambridge University Press.
- [37] TEHSEEN, S., RAMAYAH, T., & SAJILAN, S. (2017): *Testing and controlling for common method variance: A review of available methods*, Journal of Management Sciences, 4(2), 142-168.
- [38] WEISSBROD, I. (2019): *Leadership and Goal Setting for Sustainable Innovation Projects in Large Businesses*, In Innovation for Sustainability (pp. 135-155).
- [39] XIONG, L. (2020): *Improvise to win: the relationship between entrepreneurial improvisation and start-up competitive advantage*, Asian Business & Management, 1-21.
- [40] ZHANG, R., WANG, Z., TANG, Y., & ZHANG, Y. (2020): *Collaborative Innovation for Sustainable Construction: The Case of an Industrial Construction Project Network*. IEEE Access, 8, 41403-41417.
- [41] ZHOU, J., & OLDHAM, G. R. (2001): *Enhancing creative performance: Effects of expected developmental assessment strategies and creative personality*, The Journal of Creative Behavior, 35(3), 151-167.

UNIKL BUSINESS SCHOOL (UBIS), UNIVERSITY KUALA LUMPUR KUALA LUMPUR, MALAYSIA  
*Email address:* sheikmhizam@unikl.edu.my

DEPARTMENT OF MANAGEMENT, SUNWAY UNIVERSITY BUSINESS SCHOOL (SUBS), SUNWAY UNIVERSITY, NO 5, JALAN UNIVERSITI, BANDAR SUNWAY, 47500 SELANGOR DARUL EHSAN, MALAYSIA.

*Email address:* haidershah24@gmail.com

DEPARTMENT OF MANAGEMENT, SUNWAY UNIVERSITY BUSINESS SCHOOL (SUBS), SUNWAY UNIVERSITY, NO 5, JALAN UNIVERSITI, BANDAR SUNWAY, 47500 SELANGOR DARUL EHSAN, MALAYSIA.

*Email address:* shehnazt@sunway.edu.my

MANAGEMENT STUDIES DEPARTMENT, BAHRIA UNIVERSITY, ISLAMABAD CAMPUS, PAKISTAN.

*Email address:* siqbal.buic@bahria.edu.pk