

## Unlocking Employees Creative Potential: The Role of Self-Efficacy and Innovation in Sustainability

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### ABSTRACT

*The concept of employee creativity in organizations has become widespread. The creative abilities and performance outcomes of employees have been studied in previous literature. From the Pakistani perspective, the current study reveals the crucial role of employees in improving sustainability, mediated by self-efficacy and innovation. The study aimed to investigate the relationship between employees' self-efficacy and the potential for sustainable development through innovation. Data was gathered using questionnaires from 200 individuals operating in Pakistan's high-tech manufacturing industry of Hayatabad industrial state, Peshawar. The national language of Urdu was used for the questionnaires, but respondents also had the option to choose English. The questionnaire replied to questions about employees' creative potential in fostering sustainability, mediated through self-efficacy and innovation. SPSS data analysis software was utilized for statistical analysis when processing the data. Regression is employed to test hypotheses. Research shows that talented employees have essential skills in the workplace. The results also reveal that self-efficacy and innovation mediate the relationship between employee creative potential and sustainability, providing significant insights into organizational behavior and sustainability. This study not only expands our knowledge on the mediating role of self-efficacy*



*and innovation but also highlights the crucial role of policymakers in enhancing employees' creativity and sustainability through personal effectiveness and innovation. It underscores the urgent need for supportive policies in this area, urging immediate action.*

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## **Introduction**

It is widely recognized that employees' creative potential is not just a desirable trait but a crucial factor for gaining a competitive edge (Fateh et al., 2021). As knowledge-intensive roles become more prevalent, organizations are increasingly seeking out employees who can generate innovative solutions to complex problems (Homayoun & Henriksen, 2018). The evolution of labor-intensive company models and the creation of creative solutions to organizational difficulties are directly linked to employee creative potential (Abbas et al., 2023). It is claimed that the main factor influencing how people feel, think, and inspire themselves is their level of self-efficacy (Bandura 1991, 2001). Self-efficacy is a driving force behind innovation and creativity. Knowledge of creative ability in organizational settings requires an understanding of the notion of self-efficacy. However, the concept of self-efficacy, which is more universal, proved crucial. A dearth of information concerning creative self-efficacy, which can forecast original performance, in the knowledge management of the twentieth century (Tran et al., 2018).

Workplace innovation among employees is becoming a crucial component of a company's success strategy. Organizations must increase the competitiveness of their workforce by developing their knowledge, abilities, and capacity to do many things of jobs within the confines of the company to attain a high degree of innovation. Competition among businesses across several industries drives many companies to increase productivity, which includes employee engagement in creative work practices (Sinaga et al., 2024). Employers are constantly looking for workers who are willing to voice their opinions, such as when they offer fresh perspectives, improve processes, or innovate to increase output and efficiency. It is also true, nevertheless, that not every employee in the company participates in the employee voice program, a structured system that encourages and values employee input and suggestions for improvement (Rafique et al., 2024). Research on innovation, specifically eco-innovation, focuses on external implications (such as policy development and entrepreneurship) but often ignores external standards within organizations, such as company culture, leadership style, and communication practices, which can significantly influence the innovation process (Lukes et al., 2017).

The imperative and attractive force behind economic reform is "sustainability." Its impact on innovation is clear and loud. Living and working in a world where nearly 9 billion people live, expectations are increasing, providing energy, food, and security, preventing climate change, ecosystem destruction, expanding the distribution of wealth, and many other related issues. Conservative businesses, like the petroleum industry, present specific difficulties in accepting and incorporating sustainability into their business models as firms across a range of industries work to align their operations with sustainability principles (Bathrinath et al., 2021). According to empirical research, the creative potential of employees promotes innovation, improves performance, and extends the life of the firm; the innovative capacity of employees is increasingly essential for the long-term viability and productivity of the organization (Lee et al., 2019).

## **Literature Review**

Bandura's (1986) social cognitive theory provides a theoretical framework for examining individual behavior through a tripartite model. It connects mental, environmental, and interpersonal aspects and involves cognitive processes of self-regulation. The theory acknowledges the significance of ecological factors in shaping behavior, encompassing both internal and external influences on individual performance.

### **Employee Creative Potential**

According to Lee et al. (2019), organizations are increasingly prioritizing harnessing their employees' creative potential to gain a competitive edge. In today's business landscape, harnessing employees' creative potential is essential for achieving long-term success and ensuring the company's survival.

### **Self-Efficacy**

Self-efficacy is the belief in one's ability to succeed by planning and taking necessary actions. It is often influenced by personal desires and beliefs rather than objective reality (Bandura 1997, 2001) (Abbas et al., 2023).

### **Innovation**

Innovation is the creation of new products, services, or production processes that are beneficial within the context of an organization. New employee work behavior is defined as the goal of creating, expressing, and implementing ideas within the context of a job, team, or organization. To attain high levels of innovation, organizations need to boost their competitiveness by expanding the knowledge, skills, and talents of individuals in the organization (Dong et al., 2017). Adopting new workplace behaviors has become an essential element in supporting company success (Michie & Sheehan, 2003).

### **Sustainability**

Climate change, resource depletion, and human survival are often brought up while talking about sustainability. For a natural or social system to benefit, resource development cycles and processes, which involve the responsible extraction, use, and replenishment of resources, must be followed in addition to the preservation of currently available resources (Lemmetty et al., 2020). According to Horng et al. (2017), businesses are essential to promoting sustainability and raising awareness of its importance because they are the primary producers of products and services in the global economy. Product, service, and business model innovation are all influenced by sustainability (Juntunen et al., 2019).

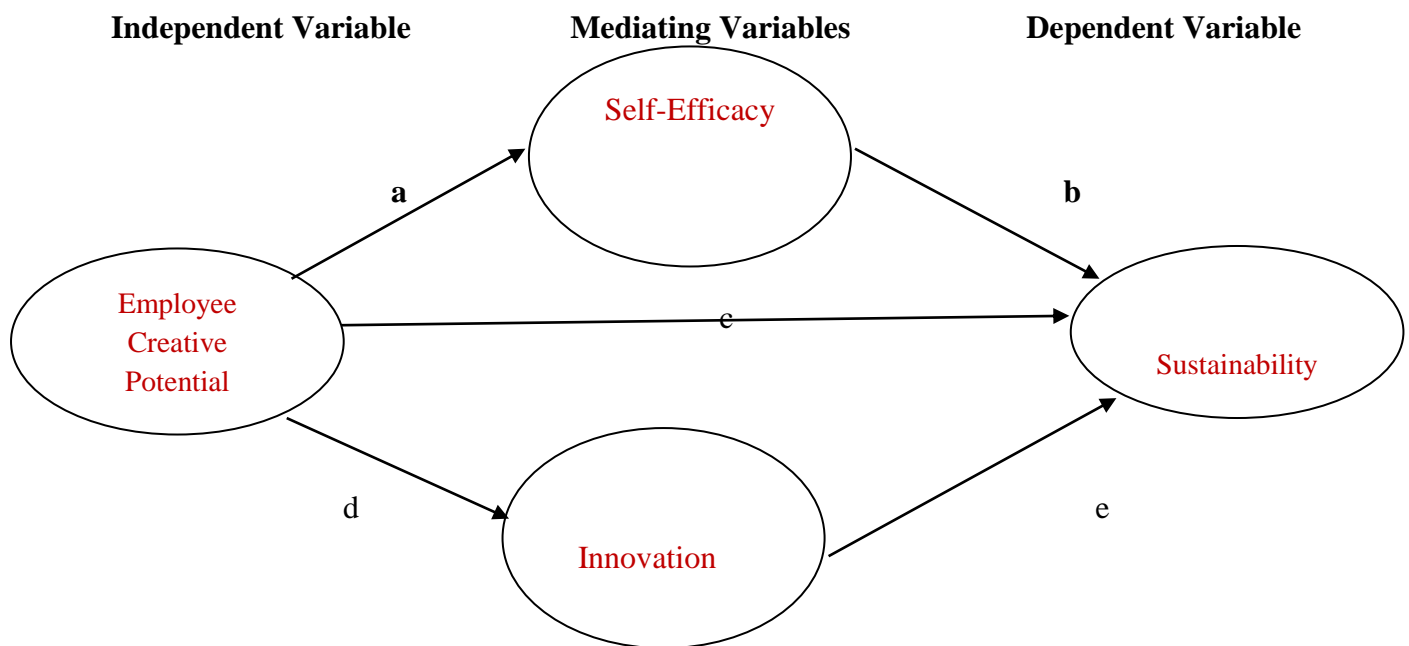
### **Relationship among employee creative potential, self-efficacy, innovation, and sustainability**

Since many of the problems facing global sustainability, like climate change, are the result of creativity, creativity and wisdom should always go hand in hand. One approach to looking at creativity is to conceive of it as a process that requires drawing resources from the past to produce better possibilities for the future. Thus, rather than completely replacing the old, innovation frequently entails reusing or recycling it (Lemmetty et al., 2020). According to Onputtha et al. (2021), staff creativity and innovative behaviors can affect lasting competitive advantage, which means that these actions can provide significant returns for service firms. However, creativity and

invention have a lot in common. Therefore, we assume that people with high self-efficacy are more willing to undertake new challenges and have the drive to finish routine tasks or activities (Valdez, 2023).

Research on managers' self-efficacy and dedication to environmentally friendly practices is positively correlated with their level of sustainability engagement, suggesting that a strong feeling of responsibility increases participation in eco-friendly efforts. Studies have shown that green mindfulness practices can improve people's self-efficacy in engaging in pro-environmental activity (Chen et al., 2015).

### Research Framework



**Figure 1:** Theoretical Framework

The following hypotheses are, therefore, posited in this study:

#### Research Hypothesis:

H<sub>1</sub>: Employee Creative Potential is positively related to Sustainability.

H<sub>2</sub>: Self-efficacy mediates the associations between Employee Creative Potential and Sustainability.

H<sub>3</sub>: Innovation mediates the associations between Employee Creative Potential and Sustainability.

### Research Methodology

#### Sample and Data Collection

Data were gathered via questionnaires from 200 staff working in Pakistan's high-tech manufacturing industry of Hayatabad industrial State Peshawar. A total of 230 questionnaires were distributed. Of these, 15 were left blank because the employees refused to complete them, and 15 were incorrectly completed. Thus, the size of the sample for testing the hypotheses in the

prevailing investigation is 200. Because data from a variety of personnel in Pakistan's high-tech industry were collected at random, the research was cross-sectional.

### **Research Instrument**

A quantitative technique is used for the research, and a systematic, closed-ended questionnaire is employed. The efficient application of survey research in business research is the crucial argument for its utilization. This research conducts an empirical analysis to determine how employee creative potential affects sustainability in the high-tech sector. Choosing the high technology sector was made possible by its enormous potential. Analysis was also done on the mediating roles of innovation and self-efficacy. Use this scale, which is based on a five-point Likert scale ranging from strongly disagree (1) to agree (5) strongly. By using a thirteen (13) item scale created by Zhang and Bartol (2010), employee creative potential was assessed. Carmeli and Schaubroeck (2007) devised an eight-item (8) scale to measure self-efficacy. Sustainability was evaluated by a five-item (4) scale created by McInerney & Niewiarowski (2022), National Environmental Education Foundation, and innovation was measured using a twelve-item (12) scale that was modified from (Jong and Hartog 2010) and (Bourini 2021). Success in the Job and the Market. Employee creativity, self-efficacy, innovation, and sustainability were evaluated using a total of 37 items.

### **Data Analysis**

The software utilized in this research is SPSS (Statistical Package for Social Sciences) version 20, which is crucial for accurate data entry, processing, and output results. For the mediation effect, PROCESS v4.2 by Andrew F. Hayes was employed.

### **Descriptive Statistics**

The mean values for the study participants are displayed in Table No. 1. This shows that, on average, there were more male respondents in the research than female employees (the gender mean value is 1.1450). The average age of the respondents in the survey was 1.4200, indicating that they were, on average, younger than other employees. The average qualification value of 2.2400 means that, compared to different groups, more respondents in the survey were bachelors. The employment period is at 1.3250, showing that employees have been employed for less than a year on average compared to the remainder. Additionally, the designation's mean value is 2.5000, meaning that, on average, there are more software developers, mobile application developers, graphic designers, and web developers in the workforce than there are overall.

**Table 1**

<b>Demographic Profile</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Range</b>
Gender	1.1450	.35298	1.00
Age	1.42000	.689913	3.000
Qualification	2.2400	.57799	2.00
Experience	1.3250	.87934	4.00
Designation	2.5000	1.26013	4.00

### **Demographic Analysis**

Two hundred employees from the high-tech manufacturing industry in Hayatabad Industrial Area, Peshawar, Pakistan, participated in this study. In examining the gender distribution, it is observed that female employees constitute 14.5% of the workforce, while their male counterparts represent a

substantial 85.5%. The age demographic reveals that the 20 to 30 age bracket is predominant, encompassing nearly 62% of the respondents. Those aged between 31 and 40 form 23% of the sample. A minor segment, 1.5%, is over 50 years old, and 7% fall within the 41 to 50 age range. Regarding educational qualifications, 7.5% of the respondents possess secondary education. A significant majority, 61%, holds a bachelor’s degree, and 31% have attained a master’s degree. Employment tenure data indicates that 83.5% of the respondents have been employed for less than five years. Those with 6 to 10 years of employment constitute 9%, while 4% have been used for 11 to 15 years. A smaller fraction, 2.5%, has been in their roles for 16 to 20 years, and 3% have over 21 years of employment experience. Software developers, graphic designers, web designers, and IT managers make up 32.5% of the workforce. Managers, supervisors, accountants, change management assistants, human resources managers, office assistants, and pharmacists make up 12.5%. Security engineers/managers, IT managers, project managers, and other employees account for 12.5% of the workforce.

**Reliability Statistics**

**Table 2: Data Reliability**

Variables	Cronbach's Alpha	No. of Items
Employee creative potential	0.902	13
Self-efficacy	0.760	8
Innovation	0.893	12
Sustainability	0.673	4

The Cronbach’s Alpha for variables having more than ten items should be  $\geq .70$ . If they have less than ten items, it should be  $> .5$ . Therefore, the value for Employee creative potential 13 items is 0.902. For innovation, the 12 items are 0.893. For self-efficacy, eight items, the value is 0.760, and for sustainability, four items, the value is 0.673. For all the variables, Cronbach’s Alpha values are excellent.

**Result and Discussion**

**H<sub>a</sub>:** Relationship between employee creative potential and self-efficacy (significant)

**Table 3: Model Summary & Coefficients**

Model	R	R-sq	MAP	F	df1	df2	p
<b>Summary</b>							
	.5651	.3193	12.0501	92.8977	1.0000	198.0000	.0000
Model							
	coeff	SE	T	p	LLCI	ULCI	
constant	12.8320	1.5533	8.2612	.0000	9.7689	15.8951	
ECP	.3143	.0326	9.6383	.0000	.2500		.3786

Table 3 presents the findings from the regression analysis, focusing on the relationships between the variables under study. The R-squared value is 0.3193, which means that there will be a 31% change in individual studies due to the creative abilities of the employees, which is quite significant at the 0.05 level. Therefore, all models are accepted according to the findings. The beta coefficient shows that each unit change in the employee's ability has the potential to cause a change of 0.3143 in the individual. The significance of the regression coefficient is underscored by the p-value, which falls below the threshold of significance.

**H<sub>4</sub>:** Relationship between employee creative potential and innovation (significant)

**Table 4: Model Summary & Coefficients**

<b>Model Summary</b>	<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
	.6043	.3652	38.1749	113.8999	1.0000	198.0000	.0000
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	15.9001	2.7647	5.7511	.0000	10.4481	21.3520	
ECP	.6195	.0580	10.6724	.0000	.5050	.7340	

Table 4 unveils the regression analysis results. The R-square value is 0.3652, which means that 36% of the innovation will occur due to employees' creativity. This is significant at the 0.05 significance level. Therefore, according to the findings, all models are accepted. The beta coefficient shows that a change in employees' creativity will lead to a new change of 0.6195. The regression coefficient is also significant because the p-value is less than substantial.

**Table 5: Model Summary & Coefficients**

<b>Model Summary</b>	<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>
	.4814	.2317	4.1082	19.7071	3.0000	196.0000	0.000
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	7.5616	1.0795	7.0047	.0000	5.4326	9.6905	
ECP	.5002	.1632	6.2368	.0000	1.2010	2.1573	
SE	.3138	.0429	5.5784	.0000	.2023	.3749	
INO	.2765	.0241	3.1730	.0000	.1589	.1740	

Table 5 elucidates the intricate relationship between the mediator variables—self-efficacy (SE) and innovation (INO)—and the dependent variable, sustainability, alongside the independent variable, employee creative potential (ECP). It is evident that self-efficacy and innovation function as crucial mediators, significantly influencing the overall relationship between sustainability and its 23% variation (2317). Notably, the connection between employee creative potential (ECP) and the mediators, self-efficacy (SE) and innovation (INO) are also significant. The dependent variable (sustainability) will vary by 5002% for every unit increase in employee creative potential. The dependent variable (sustainability) changes; however, the mediators' self-efficacy (SE .3138%) and innovation (.2765%).

**Table 6: TOTAL EFFECT MODEL**

<b>Model Summary</b>	<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
	.4356	.1898	4.2888	46.3762	1.0000	198.0000	.0000
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	7.9087	.9267	8.5346	.0000	6.0813	9.7361	
ECP	.1325	.0195	6.8100	.0000	.0941	.1709	

Table 6 shows the impact of employees' creative abilities on sustainable development. This means that sustainability will vary by 18% according to staff abilities. The regression coefficient or beta v

value is 0.1325, which is significant at  $p=0.000$  or 0.05. This means that a change in a worker's creative ability will lead to 0.1325.

**Table 7: Total Direct and Indirect Effects of X on Y**

Total Effect of X on Y						
	Effect	SE	t	p	LLCI	ULCI
Direct effect of X on Y	.5002	.1632	6.2368	.0000	1.2010	2.1573
Indirect effect (S)of X on Y						
	Effect	BootSE	BootLLCI	BootULCI		
TOTAL	.9249	.1654	.6243	1.2672		
SE	.4124	.1422	.3121	1.1331		
INO	.5125	.0654	.3122	.6232		

Table 7 above discloses the mediation process. This study aims to determine the influence of employees' potential on sustainable development, with self-efficacy and innovation functioning as mediating factors. To analyze these interactions, the author employed the SPSS method (Hayes, 2013). The findings reveal an r-squared value of 0.2317, indicating that employees' abilities and stability account for 23% of the variance in self-efficacy and creativity. With a p-value of less than 0.05, the model demonstrates significance across all levels. The beta value is 0.3138, which means that the firm will vary by 0.1632 units according to individual performance. Self-efficacy and innovativeness are shown to partially mediate the relationship between employees' ability to be competent and to establish good relationships.

## Conclusion

This study can benefit the management of the high-tech industry by strengthening the link between worker sustainability and creative capacity. Consequently, it has been demonstrated that employee creative potential and sustainability have a favorable and significant link. This study shows that employee creative potential and sustainability as a result of innovation have little of a mediating influence.

## Recommendations

Every organization's most valuable resource is its workforce. These kinds of activities ought to be encouraged generally to do research in the high-tech industry. It is crucial to observe how much the staff believes in the organization and its management. The analysis led to the following suggestions being made. To deal with the sustainability and high technology industry, management should instill in their staff a sense of value for the manufacturing sector. The findings highlight the significance of the creative potential dimension of employees. They can assist management in improving decision-making, creating a trusting environment, and developing efficient rewards, evaluation procedures, and appropriate documentation procedures.

## Limitations and directions for future research

In exploring the nexus between employees' creative prowess and sustainability, alongside the interplay of self-efficacy and innovation, certain limitations and avenues for further inquiry



emerge. This inquiry, confined to high-technology manufacturing firms in Pakistan, may not capture the broader spectrum. To amplify the generalizability of these findings, future research should encompass a larger, more diverse sample across various sectors and regions. Due to design limitations, longitudinal studies may be desired to understand the interaction between employees' competence, self-efficacy, innovation, and stability over time. Concerns about method bias in self-assessment can be tackled by using objective measures or multiple data sources. The evaluation of the proposed relationships does not embrace factors such as culture, climate, or leadership, which may contribute positively or negatively to these relationships. Therefore, future research can investigate the content of these terms as moderators. Moreover, the collection of personal information is considered limited as it may lead to bias. Future studies should obtain data from a range of sources to mitigate potential biases.

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