

The effect of Perceived Entrepreneurial Leadership on Innovative Behavior

(An empirical study on the workers of private sector pharmaceutical companies in Dakahlia Governorate)

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Abstract:

This study aims to investigate the effect of perceived entrepreneurial leadership on innovative behavior of the workers of private sector pharmaceutical companies in Dakahlia Governorate. The study employed a deductive approach, and a quantitative research method. A questionnaire was used to collect data from 253 worker (with 100% response rate). A Partial Least Square (Warp-PLS V. 7) was applied to test the research hypotheses and show the causal relationships between study variables. The research findings showed that perceived entrepreneurial leadership has a significant impact on innovative behavior (perceived scenario enactment has a negative impact on innovative behavior while perceived cast enactment has a positive impact on innovative behavior).

Key words: Perceived Entrepreneurial Leadership, Entrepreneurial Passion, Innovative behavior.

ملخص البحث:

استهدفت هذه الدراسة تقصي أثر القيادة الريادية المدركة على السلوك الابتكاري للعاملين في شركات الأدوية بمحافظة الدقهلية. اتبعت الدراسة المنهج الاستنتاجي، ومنهج البحث الكمي. تم استخدام قائمة الاستقصاء لجمع البيانات من 253 عامل (بمعدل استجابة 100%) و تم استخدام طريقة المربعات الصغرى الجزئية (Warp-PLS V. 7) لاختبار فرضيات البحث والتحقق من العلاقات السببية بين متغيرات الدراسة. أظهرت نتائج البحث أن للقيادة الريادية المدركة تأثير معنوي على السلوك الابتكاري (لوضع السيناريو المدرك تأثير معنوي سلبي على السلوك الابتكاري، في حين أن لتكوين فرق العمل المدرك تأثير معنوي إيجابي على السلوك الابتكاري).

الكلمات الرئيسية: القيادة الريادية المدركة، الشغف الريادي، السلوك الابتكاري.

1) INTRODUCTION.

Leadership undeniably plays a key factor in the overly competitive environments that is marked by rapid technological changes, and globalization (Bettis & Hitts, 1995). Remarkably, those conditions call for an organization that constantly explores and exploits opportunities in order to endure the possessed competitive advantage for the guarantee of an ongoing creation of wealth with the use of creativity and innovation factors (Torokoff, 2010).

In addition, both practitioners and academics have recognized how important the entrepreneurial style is for success of the ventures, an entrepreneurial leader is recognized for challenging and stimulating his employees in order to think and act more innovatively (Thornberry, 2006).

Moreover, business growth derived from competitive advantages is widely recognized to be associated with the powerful tool of innovation (Ar & Baki, 2011). Consequently, coming up with new ideas, adopting, and carrying out new work methods and product ideas represented by employee innovative behaviors; are an important asset enabling the organizations to success in the dynamic uncertain business environments (Tortoriello and Krackhardt, 2010). Such innovative behaviors practiced by employees are crucial to the organizational innovation in order to achieve an endured competitive advantage (Montani, Courcy & Vandenberghe, 2017).

2) THEORETICAL FRAMEWORK.

In the following section, the researchers demonstrate each of the study variable's definitions as follows:

2.1) Perceived Entrepreneurial Leadership.

The introduction of the idea of entrepreneurial leadership to the literature was a product of the conceptual overlaps between entrepreneurship and leadership (Renko et al., 2015).

Ireland et al. (2003) defined entrepreneurial leadership as “a leadership style in which the skill to influence employees to manage resources strategically to stimulate opportunity- and advantage-seeking behavior is important”. Additionally, Gupta et al. (2004) conceptualize it as "Leadership that creates visionary scenarios that are used to assemble and mobilize a supporting cast of participants who become committed by the vision to the discovery and exploitation of strategic value creation". Moreover, Darling et al. (2007) define entrepreneurial leadership as “The process of influencing organizations through leading and direct involvement in creating value for stakeholders by bringing together a unique innovation and package of resources to respond to a recognized opportunity”.

And another researcher defines it as “a unique concept combining the identification of opportunities, risk taking beyond security and being resolute enough to follow through” (Kuratko, 2007). Additionally, Roomi and Harrison (2011) define the concept as “a fusion of two constructs; having and

communicating the vision to engage teams to identify, develop and take advantage of opportunity in order to gain competitive advantage”. Furthermore, Renko et al. (2015)’s definition of entrepreneurial leadership is “A leadership style in which the leader influences and directs the performance of group members toward the achievement of organizational goals that involve recognizing and exploiting entrepreneurial opportunities”. Finally, Middlebrooks (2015) define entrepreneurial leaders as “those who employ their unique knowledge and capabilities to maximize innovation and explore new opportunities”.

Based on the previously mentioned above definitions of the entrepreneurial leadership, the researchers found a great deal of agreement between (Ireland et al., 2003; Gupta et al., 2004; Roomi & Harrison, 2011; Renko et al., 2015) in the following two points:

- 1) Entrepreneurial leaders are able to recognize and identify the entrepreneurial opportunities in the dynamic and uncertain external environment (**Opportunity Recognition**).
- 2) Entrepreneurial leaders are able to employ and make use of the previously recognized entrepreneurial opportunities by finding a cast of members and convincing them to achieve the goals built upon these opportunities (**Opportunity exploitation**).

Therefore, this study will adopt Gupta et al. (2004) definition of entrepreneurial leadership because it covers the above two points.

2.2) Innovative Behavior.

Generally, Fontana (2009) define innovation as the introduction of new forms of existing technologies or new technologies for the purpose of creating radical and serious changes in the benefits and prices offered and that this introduction is economically and socially successful (Fontana and Musa, 2017).

As for the concept of innovative behavior, West and Farr (1990) define it as to purposely introduce or apply an idea, process, product or a procedure within the person's role, group, or an organization. While Scott and Bruce (1994) conceptualize it as to generate an idea that grows into production or adaptation of beneficial ideas and to implement those ideas towards solutions. Individuals' behaviors directed toward the initiation and intentional introduction of new and useful ideas, processes, products or procedure within a work role, group or organization is another definition (De Jong, 2006). Finally, they are behaviors through which employees generate or adopt new ideas and make subsequent efforts to implement them (Omri, 2015). The definition adopted in this research is Scott and Bruce (1994)'s definition because they cover the three dimensions to be adopted by the researchers.

3) LITERATURE REVIEW.

In this section, the researchers demonstrate the extant literature related to the study variables of perceived entrepreneurial leadership and innovative behavior:

3.1) Perceived Entrepreneurial Leadership.

Chen (2007) study found that entrepreneurial leaders who are risktakers, pro-active, and innovative, have the ability to stimulate the creativity of the members of the entrepreneurial team.

Also, Huang, Ding and Chen (2014) study indicates that entrepreneurial type of leadership is related to both of exploratory and exploitative innovations positively, those two types of innovations are in turn related positively to the performance of new ventures.

Also, in the study of Rahim, Abidin, Mohtar and Ramli (2015), The result shows that entrepreneurial leadership has positive effect towards organizational performance.

Moreover, Bagheri (2017) found that entrepreneurial leadership significantly impacts opportunity recognition and the innovative work behavior of the employees working in high-tech SMEs.

Additionally, it has been found that entrepreneurial leadership had a significant positive impact on nurses' innovation work behavior (Bagheri & Akbari, 2018).

While Cai (2019) revealed that entrepreneurial leadership is positively related to employee and team creativity, and these relationships are found to be mediated by both employee creative self-efficacy and team creative efficacy.

While Miao et al. (2019) found that the exercise of entrepreneurial leadership by the CEO leads to higher levels of performance at the team and individual levels, and that psychological safety mediates such relationships.

Also, the study results of Helvaci and Özkaya (2020) is, entrepreneurial leadership behaviors of school administrators have a significant effect on organizational culture and it was concluded that as the entrepreneurial leadership behaviors of school administrators increase the organizational culture level increases.

And according to the outcomes of another study, entrepreneurial leadership and learning orientation had positive and significant implication on organizational performance. (Sawaeen and Ali, 2020).

3.2) Innovative Behavior.

Pieterse et al. (2010) study results revealed that transformational leadership was related positively to the innovative behavior but only when the psychological empowerment is high, while transactional type of leadership has been found to negatively affect the innovative behaviors under these conditions only.

And based on the research of Sagnak (2012), results showed that principals' leadership empowerment behavior was a significant predictor of teachers' innovative behavior and innovative climate.

In addition, Park et al. (2014) found that learning organization culture makes a direct and indirect impact on employees' innovative work behaviors.

More interestingly, Pundt (2015) found that the employees whose leader used humor more frequently reported to be more innovative.

Furthermore, Wang and colleagues' study results showed that leader-member exchange fully mediated the positive relationship between out-group weak ties and innovative behavior (Wang et al., 2015).

Also, Choi, Kim, Ullah and Kang (2016) study declared that transformational type of leadership is related to employee innovative behavior and knowledge sharing, significantly.

While Korzilius et al. (2017) reveal that cultural intelligence fully mediates the effect of multiculturalism on innovative work behaviors.

Also, in the study of Hansen and Pihl-Thingvad (2019), the findings reveal that transformational leadership with one transactional leadership component that is verbal rewards, are found to be associated positively with innovative behavior.

In addition to that, Zhu and Zhang (2019) research results showed that abusive supervision discouraged subordinates' innovative behavior through reducing subordinates'

psychological safety but promoted subordinates' innovative behavior through enhancing challenge-related stress.

Finally, it was concluded that occupational stress influence positively innovative behavior at work (Luis et al., 2020).

Hence, after going through related literature, the researchers conclude the following:

- Several studies took part in contributing to the literature by addressing the impact that the entrepreneurial leaders make on their employees' innovative work behaviors, but employees' perception of their entrepreneurial leader and its effect on their innovative behaviors had not been investigated yet.
- Different fields of application were utilized; but none of which has conducted the research on the pharmaceutical field.

Stemming from the above-mentioned points, this research is introduced as an attempt to fill the gaps in literature and to keep up with the modern directions in organizational and behavioral studies.

4) RESEARCH IMPORTANCE.

Research importance appears in the theoretical and practical levels as follows:

On the theoretical level: This study aims to contribute to the body of knowledge on perceived entrepreneurial leadership and innovative behavior. Also, this is the first study that tests the variables in the pharmaceutical companies' context. Furthermore,

this study introduces the concept of perceived entrepreneurial leadership for the first time to the literature.

On the practical level:

- Helping the managers of the pharmaceutical companies understand the importance of communication and to well-articulate the visions and plans.
- Also, this research stresses the importance of creating an overall innovative culture within the organizations in order to harvest the accompanied benefits of the innovation encouraging environments.
- This research also contributes to the practical field by instilling the managers with the undeniable fact that they are role models to their employees, and that this role model situation plays a pivotal role in enhancing or diminishing the innovative behaviors of the targeted employees.

5) RESEARCH PROBLEM.

In order to determine the research problem, the researchers conducted an exploratory study using personal interviews with a sample consisting of 30 of the employees working for pharmaceutical companies in Dakahlia Governorate. The interviews conducted by the researchers used:

- 10 employees from the Egyptian International Pharmaceutical Industries Company (EIPICO),
- 10 employees from Amriya Pharmaceutical Industries,
- And 10 employees from Delta Pharma.

Those interviews revolved around the following points:

- From your own perspective, do you consider yourself innovative at work?
- If not, give some reasons.

The results of the interviews shed light on the following aspects:

- Employees are not motivated in the way that could get them involved to search out new solutions and ideas in their work.
- Insufficient employee encouragement to come up with new solutions to the existing problems.
- Lack of a suitable working environment that could push workers towards feeling responsible for achieving the goals of the company, or that they are part of it.
- An overall shortage in developing proper plans that could bring the new ideas into the light.

Based on the previous aspects of the problem, the researchers can formulate the problem of the study as follows:

**“There’s a low innovative behavior level due to a deficiency
in the motivation and provision of proper working
atmosphere that instills people with the importance and
pivotal role of such behaviors”**

6) RESEARCH OBJECTIVE.

This study aims to investigate the following objective as follows:

“Examining the effect of perceived entrepreneurial leadership on innovative behavior”.

7) RESEARCH HYPOTHESES.

The research hypothesis and sub-hypotheses are as follows:

H1: Perceived entrepreneurial leadership has a significant impact on innovative behavior.

This hypothesis is divided into the following 2 sub-hypotheses:

H1a: Perceived scenario enactment has a significant impact on innovative behavior.

H1b: Perceived cast enactment has a significant impact on innovative behavior.

Figure (1) demonstrate the proposed conceptual framework:

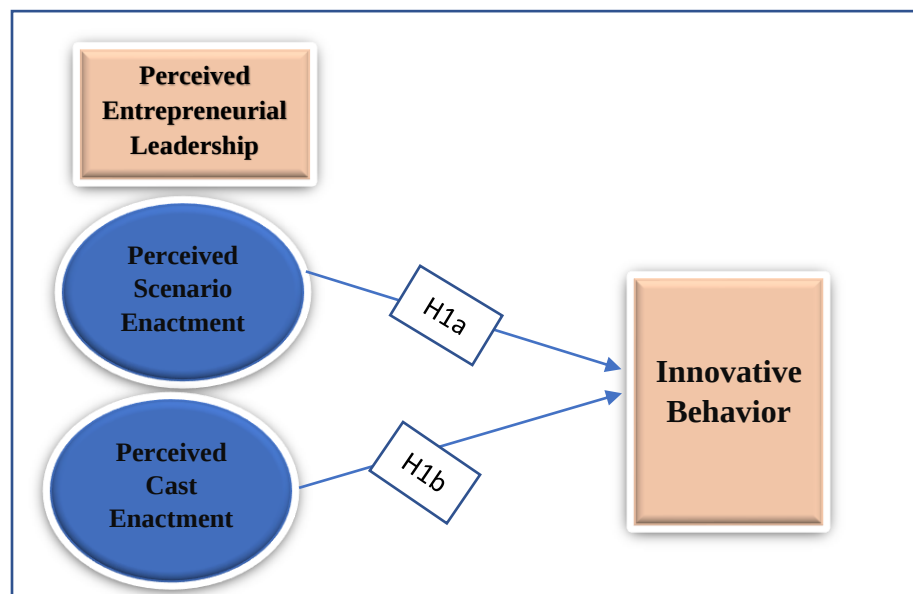


Figure (1): Proposed Conceptual Framework

Source: Made by the researchers

8) RESEARCH METHODOLOGY.

In this section, the researchers address the measurements of the study variables, data collection tool, population and sample of the study, data types and sources, and statistical methods employed:

a) Measurements of the study variables.

1. Perceived Entrepreneurial Leadership.

Most of the studies addressing the topic of entrepreneurial leadership uses the three dimensions of pro-activeness, risk taking, and innovativeness (Chen, 2007; Kuratko, 2007; Bagheri & Pihie, 2009). Also, another four dimensions were developed and adopted by Hejazi et al. (2012) and Musa and Fontana (2014) were as follows; strategic, communicative, personal and/or Organizational, and motivational dimension.

Additionally, two dimensions were developed as a theoretical foundation by Gupta et al. (2004). Through their personal development perspective and based on the challenges that entrepreneurial leaders face in organizational settings and the competencies they require to cope with, it has been suggested that an entrepreneurial leader is the one who has to create visionary scenarios that are necessary for selecting and mobilizing a supporting cast of interdependent members who commit to and enact the vision to achieve strategic value creation (Gupta et al., 2004; Rickards & Moger, 2006); This dominant framework of entrepreneurial leadership as conceptualized by the typology of Gupta, MacMillan and Surie (2004) has the two dimensions of scenario enactment and cast enactment.

Accordingly, the study will depend on the dimensions of Gupta et al. (2004) for two reasons:

1. It represents the only scale that depended on both leadership and entrepreneurship attributes to measure entrepreneurial leadership.
2. It is one of the most widely used scales to measure entrepreneurial leadership (Huang et al., 2014).

A further explanation of the concepts is as follows:

1.1. Perceived Scenario Enactment.

Scenario enactment is envisaging and creating a scenario of possible opportunities that can be seized to revolutionize the current transaction set, given resource constraints (Gupta, MacMillan and Surie, 2004). This task or challenge includes three roles, namely framing the challenge, absorbing uncertainty, and path clearing.

1.2. Perceived Cast Enactment.

Cast enactment is creating a cast of people endowed with the appropriate resources. It is to convince the followers that the transformation of this transaction set is possible by assembling resources (including recruiting additional cast) to accomplish the objectives underlying the scenario, —creating a cast of characters—people endowed with the appropriate resources needed to execute the transformation (Gupta, MacMillan and Surie, 2004). This perceived task consists of two roles, namely building commitment and specifying limits.

2. **Innovative Behavior.**

After reviewing past researches and scales measuring employee innovative behavior, the researchers found almost consensus regarding the measure used with the construct of innovative behavior; which is Scott and Bruce's (1994) 8 items scale. So, based on what was conceptualized by Scott and Bruce (1994) and Dorenbosch et al. (2005), innovative behavior is composed out of three inter-linked behavioral tasks (Scott and Bruce, 1994).

Idea generation, *idea promotion*, and *idea realization* are the three components making up the innovative behavior. based on Woodman et.al. (1993), *idea generation* task is conceptualized as "coming up with new ideas of any type that are useful to the organizational conduct". Dorenbosch et al. (2005) formulated that the problems that is work-related is the basis by which innovative ideas in organizations are generated.

It's also suggested by Reuvers et al. (2008) that the *idea promotion* task is a key part of the responsibilities that the job of manager or an employee who has generated the idea initially is composed of. Yet, it's required for a foundation or basis to exist for an individual to be able to capitalize on the generated idea, hence, finding allies or sponsors provided by the required influence and power is needed (Reuvers et al., 2008).

Regarding the third task, the preliminary idea should be transformed into a concrete one for the innovation process to be completed. Thus, the *idea realizations* task representing the final

step of the innovation process is the step by which the production of model of the preliminary innovative idea exists in order to be turned into the productive use.

b) Data collection tool.

The primary data collection tool employed by the researchers is the questionnaire survey consisting of 28 items. Perceived entrepreneurial leadership with its two dimensions are measured by 20 items proposed by Gupta et al. (2004). While innovative behavior is measured by 8 items proposed by Scott and Bruce (1994). The constructs employed are measured by five-point Likert scale with choices ranging from "1=strongly disagree" to "5=strongly agree".

Questionnaire pilot testing was conducted in order to enhance the respondents' ability to respond easily and smoothly.

1. Validity.

Regarding the face validity and content validity of the questionnaire, after presenting the first draft of the questionnaire to the supervisor of the research and taking the initial comments, the questionnaire was directed to *¹⁷ academics in the Faculty of

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- ¹ * Professor Abdel Mohsen Gouda.
 - Professor Abdel Qader Mohamed Abdel Qader.
 - Professor Abdel Hakim Ahmed Nagm.
 - Professor Abdel Aziz Ali Hassan.
 - Professor Mona Ibrahim Aldakroury.
 - Professor Hamida Mohamed Alnajjar.
 - Professor Mona Mohamed Sayed.

Commerce Mansoura University specialized in both marketing and HR fields, and *²³ Pharmaceuticals industry field practitioners. The given comments and recommendations regarding the clarity, understandability, and representation of the sentences were utilized to reshape the questionnaire form.

2. Reliability.

In order to test the reliability of the research's measurement item; the researcher directed the questionnaire to a sample of 20 employees in the faculty of commerce and 20 pharmacists working in the Mansoura University Hospitals. The responses were utilized to assess the reliability of the questionnaire. The results of both Cronbach's alpha and corrected item-total correlation for each construct are summarized in the following tables.

Table (1)

Corrected Item-Total Correlation and Cronbach's Alpha for Perceived Entrepreneurial leadership of the faculty of commerce employees

$\alpha = .950$		
Measurement items	corrected item-total correlation	Cronbach's Alpha if item deleted
PEL1	.783	.946
PEL2	.862	.945
PEL3	.781	.947
PEL4	.617	.949
PEL5	.525	.952
PEL6	.852	.945

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- ² Dr. Ramy Nabil Al-Atwy- Bioderma Company.
 - Dr. Ayman Mashaly- Jansen Company.
 - Dr. Hani Atia- Western Company.

PEL7	.771	.947
PEL8	.446	.951
PEL9	.573	.950
PEL10	.778	.946
PEL11	.666	.948
PEL12	.705	.948
PEL13	.743	.947
PEL14	.726	.948
PEL15	.523	.950
PEL16	.385	.952
PEL17	.709	.948
PEL18	.813	.947
PEL19	.791	.946
PEL20	.721	.947

Source: Made by the researchers

Table (1) shows that the Cronbach's alpha for perceived entrepreneurial leadership is 0.950 which represents a good indicator of the reliability of this construct. Additionally, the value of corrected item- total correlation of all items exceeds 0.3 which constituted good internal consistency.

Table (2)

Corrected Item-Total Correlation and Cronbach's Alpha for Innovative Behavior of the faculty of commerce employees

$\alpha = .916$		
Measurement items	corrected item-total correlation	Cronbach's Alpha if item deleted
IB1	.463	.924
IB2	.730	.907
IB3	.726	.905
IB4	.684	.909
IB5	.742	.904
IB6	.829	.896
IB7	.858	.894
IB8	.772	.901

Source: Made by the researchers

Based on table (2), the value of Cronbach's alpha for innovative behavior is 0.916 which indicates a high level of items' reliability, while, the corrected item-total correlation is above 0.3 which represents high internal consistency.

Table (3)

Corrected Item-Total Correlation and Cronbach's Alpha for Perceived Entrepreneurial leadership of Mansoura university pharmacists

$\alpha = .926$		
Measurement items	corrected item-total correlation	Cronbach's Alpha if item deleted
PEL1	.702	.921
PEL2	.513	.925
PEL3	.477	.925
PEL4	.613	.923
PEL5	.647	.922
PEL6	.543	.924
PEL7	.355	.929
PEL8	.617	.923
PEL9	.788	.919
PEL10	.522	.924
PEL11	.505	.925
PEL12	.590	.923
PEL13	.752	.919
PEL14	.716	.920
PEL15	.627	.922
PEL16	.601	.923
PEL17	.793	.919
PEL18	.704	.921
PEL19	.539	.924
PEL20	.523	.924

Source: Made by the researchers

Table (3) shows that the Cronbach's alpha for perceived entrepreneurial leadership is 0.926 which represents a good indicator of the reliability of this construct. Additionally, the

value of corrected item- total correlation of all items exceeds 0.3 which constituted good internal consistency.

Table (4)

Corrected Item-Total Correlation and Cronbach's Alpha for Innovative Behavior of Mansoura university pharmacists

$\alpha = .831$		
Measurement items	corrected item-total correlation	Cronbach's Alpha if item deleted
IB1	.481	.821
IB2	.333	.836
IB3	.544	.814
IB4	.365	.833
IB5	.651	.801
IB6	.736	.784
IB7	.662	.800
IB8	.700	.790

Source: Made by the researchers.

Based on table (4), the value of Cronbach's alpha for innovative behavior is 0.831 which indicates a high level of items' reliability, while, the corrected item-total correlation is above 0.3 which represents high internal consistency.

c) Population and sample of the study.

As the research targets the private sector pharmaceutical companies' field, the study population therefore is composed out of all the private sector pharmaceutical companies' workers working in Dakahlia Governorate (734 worker). Hence, the sampling unit utilized here is the individual worker working for the private pharmaceutical companies in Dakahlia Governorate. Therefore, according to Saunders et al., (2009), if the confidence

level is 95% and the population size is between 500 and 750, then, the required sample size ranges from 217 to 254.

d) Data types and sources.

In this study, primary and secondary data are utilized. Primary data were collected via questionnaires directed to the workers of the private sector pharmaceutical companies in Dakahlia Governorate. While the secondary data were collected from Intercontinental Marketing Statistics (IMS) in order to obtain the companies' names and number of employees working for them.

e) Statistical methods.

After encoding the collected data; the researchers employed structural equation modeling with partial least squares technique (PLS-SEM) in the Warp-PLS V. 7 software for data analysis. The employed statistical method was used to test:

- The measurement model (validity and reliability of the study measures).
- The structural model (testing the study hypotheses).

9) DATA ANALYSIS.

In this part, the measurement model assessment, structure model assessment and results of hypotheses testing are discussed below.

9.1) Measurement model assessment:

Table (5) shows descriptive statistics for the data collected, and statistics of the reflective measurement model assessment. Results shown in table (5) indicate that all combined item

loadings of constructs' indicators were more than 0.5, so indicators are reliable.

Table (5)
Measurement statistics of construct scales

Items	Mean	STDV	Combined Loadings	P-Value
<i>Perceived Scenario Enactment (PSE)</i>				
PSE1	4.0564	0.40819	0.688	<0.001
PSE2	4.0940	0.45412	0.629	<0.001
PSE3	4.1316	0.46942	0.668	<0.001
PSE4	3.7895	0.66222	0.689	<0.001
PSE5	3.6992	0.63228	0.692	<0.001
PSE6	3.6692	0.60466	0.686	<0.001
PSE7	3.6541	0.60868	0.632	<0.001
PSE8	3.8797	0.52179	0.518	<0.001
PSE9	3.8797	0.54996	0.582	<0.001
PSE10	3.8647	0.53949	0.568	<0.001
PSE11	3.8609	0.51342	0.544	<0.001
PSE12	3.8797	0.52179	0.573	<0.001
<i>Perceived cast Enactment (PCE)</i>				
PCE1	3.8647	0.49575	0.596	<0.001
PCE2	3.8496	0.48364	0.626	<0.001
PCE3	3.8421	0.50420	0.622	<0.001
PCE4	3.6353	0.58157	0.759	<0.001
PCE5	3.5940	0.60859	0.743	<0.001
PCE6	3.5940	0.63290	0.701	<0.001
PCE7	3.7143	0.57719	0.671	<0.001
PCE8	3.5489	0.62605	0.723	<0.001
<i>Innovative Behavior (IB)</i>				
IB1	4.2068	0.60072	0.670	<0.001
IB2	4.2030	0.58612	0.721	<0.001
IB3	3.9774	0.40685	0.710	<0.001
IB4	3.8872	0.54467	0.693	<0.001
IB5	3.8910	0.50596	0.657	<0.001
IB6	3.8797	0.50712	0.675	<0.001
IB7	3.8947	0.50302	0.656	<0.001
IB8	3.8421	0.53330	0.693	<0.001

Results shown in table (6) indicate that the internal consistency of each construct was also accepted, as the Cronbach's α values and Composite Reliability (CR) were all above 0.7.

Table (6)
Results of internal consistency of model analysis

Construct	PSE	PCE	IB
CR	0.862	0.874	0.876
α	0.827	0.836	0.838

Source: Made by the researcher.

Regarding model validity, values of Average Variance Extracted (AVE) of each construct support the convergent validity, they were all above the minimum acceptable level of 0.5 (Hair et al., 2019) (see table 7).

Table (7)
Average variance extracted for model constructs

Construct	PSE	PCE	IB
AVE	0.550	0.566	0.569

Source: Made by the researcher.

Finally, the discriminant validity was supported through the square root values of the AVE of each construct, as they all were greater than its correlation with the other construct (Fornell and Larcker, 1981) (see table 8).

Table (8)
Discriminant validity (Factor Correlation Matrix with Square Roots of AVE)

	PSE	PCE	IB
PSE	(0.741)	0.444	0.350
PCE	0.444	(0.752)	0.239
IB	0.350	0.239	(0.754)

Source: Made by the researcher.

Based on the results of measurement model assessment, all the results support the reliability and validity of measurement model, then, the researcher proceeds to the next step which is structure model assessment (testing the study hypotheses).

9.2) Testing the study hypotheses.

Research hypothesis (H1) states that ‘perceived entrepreneurial leadership has a significant impact on innovative behavior’. As shown in table (9) below, the results findings reveal that H1 was supported as perceived entrepreneurial leadership has significant impact on innovative behavior. The R^2 value (0.25) refers to that PEL explains about 25% in the variance of the dependent variable IB. As per the perceived scenario enactment (PSE), it has a negative direct impact on IB ($\beta = -0.17$; $P < 0.01$), and its effect size was ($F^2 = 0.061$) indicating small effect size (Cohen, 1988). Also, the perceived cast enactment (PCE) has a positive direct effect on IB ($\beta = 0.19$; $P < 0.01$) and its effect size was ($F^2 = 0.068$) indicating small effect size (Cohen, 1988). Relevance of significant relationships could be obtained in the light of path coefficient values as it was revealed that perceived cast enactment ($\beta = 0.19$) had higher impact on IB than perceived scenario enactment ($\beta = -0.17$). Also, Q^2 Value is (0.368) which is greater zero and indicates a predictive relevance of the model. (see figure 2).

Table (9): Results of testing hypothesis (H1)

H1	Relationship	B	P. value	F^2	Q^2	R^2	Result
H1a	PSE → IB	-0.17	$P < 0.01$	0.061	0.368	0.25	Supported
H1b	PCE → IB	0.19	$P < 0.01$	0.068			Supported

Source: Made by the researchers

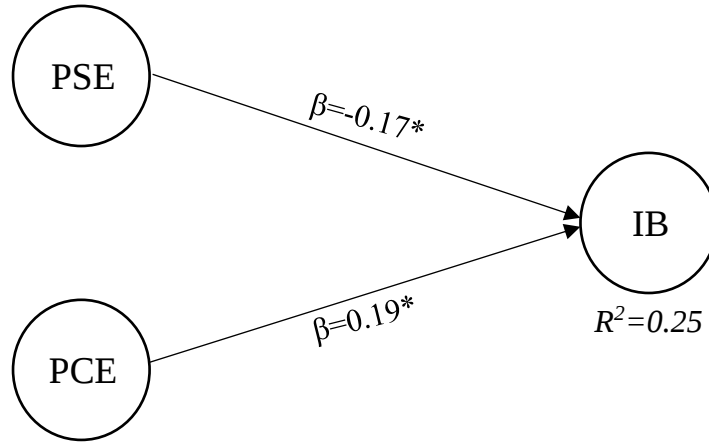


Figure (2): Results of direct effect of perceived entrepreneurial leadership on innovative behavior

Findings of the study revealed that innovative behaviors are significantly influenced by perceived entrepreneurial leadership. Those results came in concordance with Miao et al. (2018) findings that entrepreneurial leadership is found to positively influence subordinates' innovative behavior. And with Huang, Ding and Chen (2014)'s study that indicates that entrepreneurial type of leadership and explorative and exploitative innovations are positively related. Moreover, Bagheri (2017) found that there's a significant impact of entrepreneurial leadership on innovation work behavior. Furthermore, Bagheri and Akbari (2018) found that entrepreneurial leadership was effective in enhancing nurses' innovation work behavior.

On the same line of results, innovative behavior of employees has been found by preceding researches to rely heavily on the interactions made within members in the work (Zhou and Shalley, 2003; Anderson et al., 2004). Meaning that leaders represent strong source of impact over the work behaviors of their employees; hence, Innovative behavior is no exception. Meaning that the role the leaders play enables and enhances such innovative behaviors of employees.

Also, the research's results can be justified based on Bandura's (1977) proposal that Social Learning Theory (SLT) implies that one-way learning can occur vicariously through the observation of behaviors of others, referred to as models (Scherer et al., 1989). So, those role models represented by the entrepreneurial leaders who set an example by their vision, creativity, and passion, motivate others to experiment and learn for themselves (Renko et al., 2015).

From another perspective, the study's results supported extant literature in the notion implying that leadership practices have a noticeable influence on employee innovative behavior; specifically, the transformational leadership that has close ties with the entrepreneurial leadership style; Gupta et al. (2004) declared that entrepreneurial leadership and transformational leadership has much in common. For example, Choi, Kim, Ullah and Kang (2016) findings revealed that transformational leadership was significantly related to employee innovative behavior. And based on study conducted by Qi, Liu, Wei and Hu

(2019), it was found that inclusive type of leadership had significantly positive impact on the innovative behaviors of the employees. Also, in the study of Hansen and Pihl-Thingvad (2019), the findings reveal that transformational leadership with one transactional leadership component that is verbal rewards, are found to be associated positively with innovative behavior.

Additionally, the current study found that the perceived scenario enactment has a significant negative direct impact upon innovative behavior.

According to this role, the entrepreneurial leader frame a challenge that will push the team to the limits of its abilities without pushing them over their limits (McGrath and MacMillan, 2000). Then formulates a vision of the future state to be enacted by the followers and, then, shoulders the burden of responsibility for being wrong about the future (Gupta et al., 2004), and they would be required to tackle any obstacles that may hinder the achievement of the required transformation.

Since the exact specific causes for such negative relationship remain doubtful; the researchers might attribute such negative effect to a failure in enacting one or more of the tasks required to fulfil this role such as a lack of understanding of the limits of what can or cannot be accomplished, not showing trust in their followers resulting in an employee who is not believing in their own skills and abilities as a result of the narrow range of discretion provided by their manager; so negative relationship may have emerged from their belief that they're not given much

room for an input and thought into the previously formulated vision of the organization or department, or as a result of the inability of the leader to pave the way for his or her employees; such as his or her inability to resolve the conflicts that might arise between them or that a trust wasn't effectively built between team members affecting the whole innovative atmosphere aimed for by the manager.

As for the perceived cast enactment, the empirical study supported the assumption arguing that perceived cast enactment significantly influences innovative behavior, positively. The researchers might attribute this positive relationship to the fact that here the leader should be instilling his or her employees with commitment towards the organization in order to accomplish the previously enacted scenario. This relationship comes in concordance with extant literature's findings that high level of commitment is positively and significantly related to high levels of innovative behavior (e.g., Lee, 2008; Hakimian et al., 2016).

10) RESULTS SUMMARY AND RECOMMENDATIONS.

10.1) Results summary.

In order to attain study's objective, Hypothesis (H1) and its sub-hypotheses (H1a and H1b) were examined, and the results of the statistical analysis have proved the hypotheses correct; a significant effect of perceived entrepreneurial leadership on innovative behavior, and that perceived scenario enactment has a

significant negative impact on innovative behavior while perceived cast enactment has a significant positive direct one.

Hence, the researchers have achieved the previously stated objective of the study.

10.2) Study recommendations.

The research has some worthy of discussing recommendations that need to be addressed in the upcoming future researches;

1. The researchers suggest that a comparative study to take place in order to compare the results of the private and public sector fields. Additionally, larger sample size that includes another Egyptian Governorates to be considered.
2. The use of control variables (e.g. work tenure, gender, marital status) is suggested.
3. The research data was collected from the workers responsible for promoting company's drugs or medical equipment. So, it is suggested that employees in the R&D departments to be considered.
4. A longitudinal study is recommended in order to test the changes in the research results over time.
5. The researchers encourage others to further use and validate the study's scale in any environment in which employees can assess their entrepreneurial leader across the dimensions of the used scale.

Additionally, the following are some practical suggestions the researcher believes useful in shaping an inspired and dedicated employee contributing to the prosperity of the organization:

1) Leading by example and promoting an innovative culture where new ideas are welcomed, risk-taking is promoted, and people are inspired by their failures is a must. The entrepreneurial leader should create an atmosphere that encourages everyone to share ideas, grow, and thrive. Such innovative culture could be achieved from the very early process of recruitment and selection where the organizations represented by their managers could target the creative mind and people with the tendency to innovate.

2) leaders should enhance and encourage an environment of collaboration between members at work that could be reached for example through instilling every member with the sense of inclusion and that every opinion matters, and by encouraging people to socialize outside the work environment so that mutual interests could bring people together and help harden the mutual trust, and by also recognizing, rewarding and celebrating the collaborative behavior.

3) Interaction and communication should take place every once in a while among the leader and his or her followers through the personal meetings, team meetings, video conferences, and even through outdoor meetings that takes an informal or casual form as the latter could enforce and ease the

interactions between them, those means play a pivotal role in cultivating innovation.

4) leaders should share their experiences and expertise in order to inspire creativity in their employees, and give the needed approval in order to obtain the ideas.

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