

## Designing a Scale for Measuring Entrepreneurial Leadership in SMEs

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**Abstract.** While the importance of fostering entrepreneurial leadership is widely acknowledged, most evaluation tools of this construct have utilized a simple combination of evaluation indicators of leadership and entrepreneurship. This paper addresses this research gap and develops and validates a multidimensional assessment instrument of entrepreneurial leadership. Data are gathered from 386 founders and top managers in manufacturing and service SMEs, and are tested by factor analysis. The entrepreneurial leadership questionnaire loading on components revealed four different factors: strategic, communicative, personal and motivational. These factors explained the 72.5% variance. Moreover, the results indicate that demographic variables such as, gender, age, educational level and experience of entrepreneurial activities are strongly associated with some aspects of entrepreneurial leadership.

**Keywords:** entrepreneurial leadership, entrepreneurship, SMEs, factor analysis

### 1. Introduction

In developing studies of leadership in competitive environments, a consensus has been reached on ineffectiveness of most traditional approaches, and the necessity of using entrepreneurial approaches has been underlined (Ruvio, et al, 2010, pp.148 ; Gupta, et al, 2004, pp.242). To simultaneously utilize corporate entrepreneurship and leadership is constituted a new field of research called entrepreneurial leadership (EL). Entrepreneurial leadership is known as the dynamic process of presenting vision, making commitment among followers and risk acceptance when facing opportunities that cause efficient use of available resources along with discovering and utilizing new resources with respect to leader's vision. In fact, entrepreneurial leadership includes all necessary abilities for constant value creation of managers with respect to company's goals. Entrepreneurial leaders consider entrepreneurship as a basis to gain competitive advantage and to outshine rivals (Lee & Venkataraman, 2006, pp.114).

One of the main objections to entrepreneurial leadership is lack of consensus in its concept in previous studies. This various perspectives are more related to leadership theory which explains the concept of entrepreneurial leadership. For example, in perspective of Schulz & Hofer, the most important feature of entrepreneurial leadership is known as creating value by discovering new opportunities and editing new strategies in order to gain competitive advantages. They put emphasis on entrepreneurial leaders' communication and conceptual skills to recognize the complexity of the environment (Schulz & Hofer, 1999, pp.117). In this perspective, entrepreneurial leadership conforms to innovational dimensions of strategic management. Also Nicholson knows studying of personal characteristics is effective on entrepreneurial leadership and believes that the big five-factor model help leaders to demonstrate entrepreneurial capabilities. In this study, social and organizational norms in entrepreneurial leadership are verified. It means, usually this kind of leaders tend to violate few imposed or designated norms (Nicholson, 1998, pp.533).

In another study related to entrepreneurial leadership, some features are suggested for evaluating this kind of leadership such as inclination to risk acceptance, need for achievement, need for independence, self-actualization and span of control. Most of these concepts had emphasized in traditional theories of

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entrepreneurs' characteristics. Nevertheless, this study has referred to two important points. First, entrepreneurial leaders are affected by organizational systems and structures, which means there are fewer opportunities in bureaucratic structures to exploit the capabilities of entrepreneurial leaders. Furthermore, in this kind of organizations, most of leaders endeavour to overcome the structural restrictive factors. While exploiting the capabilities of entrepreneurial leadership in young businesses, in which organizational structures have not settled, is prevalent. Another contribution in this research is social intelligence role in demonstrating leaders' entrepreneurial behaviours (Vecchio, 2003, pp.308). On the basis of Baron's research results, it was suggested that the abilities of establishing social connections have significant role in success of leaders in entrepreneurial situations (Baron, 1998, pp.280-281).

In addition to aforementioned studies, we refer to the most important studies in entrepreneurial leadership which have been used in designing primary questionnaire, in the following table:

Table 1: Other important researches in entrepreneurial leadership

Author	Research findings
Cogliser & Brigham (2004)	In a study titled "The intersection of leadership and entrepreneurship", they referred to broad connection among leadership theories in dynamic environments with corporate entrepreneurship.
Gupta, et al (2004)	They designed multicultural evaluation tools in order to assess entrepreneurial leadership, by utilizing GLOBE project data. Final tool in this research has total generalization in social and organizational level and also partial generalization in personal level in various cultures.
Okudan & Rzasa (2006)	In this article, tools were presented to evaluate the satisfaction and perceptions of students. The ultimate results show that most of graduate students incline to work in small entrepreneurial companies.

Despite the broad concept of entrepreneurial leadership, most evaluation tools of this leadership have utilized a simple combination of evaluation indicators of leadership and entrepreneurship. Eventually what are evaluated with these tools are neither the abilities of entrepreneurial leadership nor the explanation of leadership and entrepreneurship. For instance, only a limited number of entrepreneurial leadership questionnaires have contained an explicit vision which is an essential part of strategic management and leadership (Ruvio, et al, 2010, pp.146; Kuratko, 2007, pp.7).

The main purpose of this article is to present a multidimensional and coherent scale with respect to features of dynamic environment and strategic aspects to satisfy the lack of entrepreneurial leadership evaluation tools. First, we attempt to design a primary questionnaire by reviewing the theoretical basis of entrepreneurial leadership and using a broad range of related indicators with leadership, entrepreneurship and strategic management, and then testing it in statistical society.

## 2. Research Method

Since the purpose of research is designing a questionnaire for measuring entrepreneurial leadership in small and medium enterprises (SME), the purpose is practical and the technique of gathering information is in descriptive survey method. Since the intention of using data analysis is to explore and to identify the main factors that form entrepreneurial leadership, factor analysis is utilized in this article. For evaluating the validity of the questionnaire, the content was examined and for evaluating reliability of the research, the Cronbach's Alpha value was calculated by SPSS15 software. For the primary questionnaire of entrepreneurial leadership, the alpha has been found 0.85.

## 3. Statistical Society and Sampling Method

Statistical society of the current research is founders and top managers of SMEs in manufacturing and service categories, in Tehran province. Service category includes financial, commercial and legal consulting companies, and also internet provider companies. Manufacturing category of statistical society includes electrical equipment manufacturing industry and auto parts manufacturers, which are highly competitive due to low entrance barriers in these industries in Iran. Overall, 34 companies in service category and 27

companies in manufacturing category were chosen and related questionnaires were distributed among statistical society.

Since in factor analysis, number of samples should be at least ten times more than variables and by considering the probability of unreturned questionnaires, 440 questionnaires were distributed that 386 questionnaires were returned (Rate of return 74%).

Demographically speaking, most of the samples were men and only 16% were women. The age distribution demonstrates that almost half of respondents (48.9%) were in range of 35 to 50 years old and the smallest sample (21%), was allotted to under 35 years old respondents. In terms of education, according to the collected data from the questionnaires, most of the respondents had bachelor's degree (55.3%), afterward respondents with master's degree and PhD degree relatively allotted the most number of respondents to themselves, which mostly related to samples of service category. Among these three identified groups, based on the experience of entrepreneurial activities of related industry, most of respondents (47.8%) were people with more than 10 years of experience. Subsequently, 35.2% of whole samples were people with entrepreneurial experience in range of 5 to 10 years.

#### 4. Research Findings

Since the purpose of this research is to find concealed variables of a measured set and to summarize a set of data, factor analysis is used. Firstly, by examining the theoretical issues and presenting an open questionnaire to universities and industries experts related to the research topic, 39 effective items on entrepreneurial leadership were identified. These variables included items that were verified by at least three experts. Then, in order to determine the main factors and their coefficients, factor analysis was used. After implementing first factor analysis it was recognized that four variables including understanding the objectives, creating job security, providing training to operational staff and challenging the job have no significant correlation with any of extracted factors; hence, after omitting these four variables, the second factor analysis was performed.

The calculated KMO value for each of main factors used in conceptual research model should be more than 0.6, and significance level of yielded Chi-Square by Bartlett's test for aforementioned factors should be less than 0.05; according to table 1, for this research, the outcome of KMO value was 0.795 and Bartlett's test demonstrated that the significance level of this test is less than 5% that shows the structure of factor analysis model is appropriate and the recognition of correlated matrix hypothesis is rejected.

Table 1: Results of Bartlett's test and KMO value

KMO Value	0.794
Chi-Square value of Bartlett's test	225.82
Significance level of Bartlett's test	0.003

Results related to second factor analysis exhibits identification of four main factors that theoretically and with respect to concepts of management, are called strategic, communicative, personal and motivational factors. In table 2, aforesaid factors are classified in order of their variance value calculated by Varimax Rotation method. Overall, these four factors specify 72.5% of whole variance of an entrepreneurial leader. Although the primary questionnaire of entrepreneurial leadership presents high reliability, after recognition of various determinant dimensions of entrepreneurial leadership and ultimate editing of its indicator, once again the reliability of each factor was tested by Cronbach's Alpha value of that factor's set of questions. The Cronbach's Alpha value for each factor is demonstrated in final column of table 2. The results demonstrate that each factor of entrepreneurial leadership in evaluation tools, which has been examined in this article, have acceptable reliability.

Table 2: Main factor analysis method, Varimax rotation method with normalization and Cronbach's Alpha

Row	Effective factors on entrepreneurial leadership	Variance percentage	Cumulative variance percentage	Cronbach's Alpha Value
1	Strategic Factor	35.6	35.6	0.84

2	Communicative Factor	19.1	54.7	0.92
3	Personal Factor	10.6	65.3	0.88
4	Motivational Factor	7.2	72.5	0.76

In factor analysis, based on coefficients, variables of each factor were recognized and only factors with coefficient of more than 0.5 were used in the structure. Varimax rotation matrix of research variables and substituted structure of factors are demonstrated in table 3:

Table 3: Structure of substituted variables of Varimax indicators

Factors	Coefficient
<b>First Factor – Strategic Factors</b>	
Assigning vision for followers	0.762
Predicting future problems and crises	0.714
Holistic view and avoiding details	0.721
Flexibility in decisions	0.641
Opportunism in dealing with threats	0.813
Willing to invest in risky projects	0.790
Establishing an information system for exploring environmental changes of a company	0.767
The ability of illustrating future events	0.801
Economic intuition in business decisions	0.802
Being prepared to deal with unforeseen circumstances	0.732
<b>Second Factor – Communicative Factors</b>	
The ability to persuade followers	0.744
Showing empathy to others	0.689
Avoiding destructive conflict	0.613
Active listening	0.602
Controlling feelings in case of conflict	0.811
Inspiring confidence among followers	0.581
Participation of subordinates in corporate and group activities	0.815
Regular meetings to obtain feedback from subordinates	0.702
Recognizing others' emotions in social interactions	0.730
<b>Third Factor – Personal Factors</b>	
Emotional stability	0.845
Creativity in making things and new methods	0.871
Hyperactivity in the assigned tasks	0.599
Open mind in dealing with events	0.648
Modesty and humility	0.725
Courage in dealing with problems	0.644
Placing people and things in their proper place	0.780
Candor and ingenuous	0.729
To maintain discipline	0.801
<b>Fourth Factor – Motivational Factors</b>	
Self-confidence to influence others	0.738
Enjoy influencing others	0.762

Motivation for success in business	0.843
Ability to understand the needs of followers	0.820
Tend to make constant progress in their followers	0.588
Motivation to perform hard works	0.717
Transfer the positive feelings of others	0.751

One of the most important and practical aspects of management studies is reviewing the impact of demographical factors on research variables. Impact of these factors including gender, educational level and experience of entrepreneurial activities on identified dimensions of entrepreneurial leadership was evaluated by ANOVA method. The outcome of this analysis is demonstrated in table 4. Table 4 shows that there is a significant difference between population of men and women in statistical society with respect to strategic and communicative factors. While men in strategic factors and women in communicative factors have superior entrepreneurial leadership capabilities and age variable were effective only on motivational dimension; that means younger respondents were more motivated about entrepreneurial leadership. ANOVA analysis results show that educational level is effective on strategic factors. However, education didn't have any relationship with other factors. Like gender, respondents' experience of entrepreneurial activities was the last demographical variable of this research and it has positive effect on both strategic and communicative factors. Average responses of each category shows that people with more than 10 years of experience have the most entrepreneurial leadership capabilities. In fact, with increase in experiences of respondents, their leadership capabilities were increased too. Another important point about the relationship between entrepreneurial leadership factors and demographical variables was that none of personal factors was meaningful by considering demographical variables.

Table 4: ANOVA analysis for average entrepreneurial leadership factors in terms of demographical variables

Demographical Variables	F-value & Significant	Strategic Factors	Communication Factors	Personal Factors	Motivational Factors
Gender	F-value	10.61	12.14	0.87	2.38
	Significant	0.02	0.00	0.74	0.58
Age	F-value	5.13	3.58	0.85	8.21
	Significant	0.11	0.30	0.93	0.04
Educational level	F-value	13.05	2.32	3.45	1.60
	Significant	0.00	0.52	0.41	0.83
Experience of entrepreneurial activities	F-value	18.30	13.54	0.44	1.53
	Significant	0.00	0.00	0.85	0.69

## 5. Conclusion

The purpose of this research is to identify entrepreneurial leadership dimensions and to design an evaluation tool for SMEs in Iran. As it was mentioned in theoretical review, there is lack of consensus in entrepreneurial leadership concept. With respect to scholars attitudes to various leadership and entrepreneurship theories, variety of definitions and indicators were used to specify the concept of entrepreneurial leadership. In this article, by combining three theories including transformational leadership, team oriented leadership and value oriented leadership theories and utilizing experts' perspectives, a new entrepreneurial leadership scale is presented that contains four main sets of factors including strategic, communicative, personal and motivational factors. Strategic dimension is focused on strategic thinking indicators such as assigning vision for followers, predicting future problems and crises, holistic view and avoiding details, flexibility in decisions, opportunism in dealing with threats, economic intuition in business decisions, being prepared to deal with unforeseen circumstances, identifying sources of competitive advantages.

The second category of identified factors in this research is communicative factors. Communicative dimension is referred to those entrepreneurial factors which utilize verbal and non-verbal behaviors in order

to successfully communicate with followers. Active listening, avoiding destructive conflict, inspiring confidence among followers, behavioral flexibility and the ability to influence and to persuade followers can be classified in this category. Despite previous studies mentioned some of these communicative variables (Prabhu, 1999, pp.143; Cogliser & Brigham, 1999, pp.787), the ability to establish an effective relationship have not been mentioned as a main factor. For example, Kuratko & Hornsby in an entrepreneurial leadership article in 21st century, noticed some variables such as persuasion and empathy, but they did not categorize and test those variables (Kuratko & Hornsby, 1998, pp.32).

In this research, personal factor was recognized as the third set of entrepreneurial leadership factors which includes emotional stability, creativity, open mind, candor and ingenuous. Previous studies often referred to personal factors in form of the big five-factor model. For instance, results of a study demonstrate that there is positive relationship between entrepreneurial leadership capabilities and some of the big five-factor variables like extroversion and awareness (Nicholson, 1998, pp.536). The recognition of personal factors in this research is compatible with Chell study in entrepreneurial characteristics (Chell, 1985, pp.51); in a way that even some of common variables like audacity, creativity and hyperactivity were in both researches. Final factor of current research is motivation which is the most exclusively identified factor in this research, since none of previous studies had referred to it. Some of subset variables of motivational factor are self-confidence to influence others, motivation for success in business, enjoying influencing others and tendency to make constant progress in their followers.

Findings have yielded from demographical variables of this research including gender, age, educational level and experience of entrepreneurial activities are important to the following reasons. Gender has impact on both strategic and communicative factors, in a way that the average responses of men in case of strategic factor and average responses of women in case of communicative factor were significantly high. Results of previous studies support these findings too. Although in entrepreneurial leadership researches, strategic variables were not studied by demographical method, researches in strategic management field expose that men in some indicators like effective use of vision, holistic view and risk acceptance were more successful than women (Elenkov, 2005, pp.667-668). In current research, in terms of communicative factor, most of the significant differences between men and women population were related to three variables including avoiding destructive conflicts, showing empathy to others and recognition of others' emotions in social interactions, which the average responses of women was significantly higher than men. Some of these variables are related to social and emotional intelligences indicators that also in some other researches women have shown high level of intelligence in these fields (Mallett, 2010, pp.110). The other demographical variable in this research was the age of statistical society that shows positive relationship only with motivational dimension of entrepreneurial leadership, in a way that young entrepreneurs have shown more self confidence and motivation in leadership. This can be interpreted that young leaders have more achievement motivation because they are at the beginning of their career and through trial and error they attempt to achieve necessary experiences.

Educational level was another demographical variable that showed positive relationship with strategic factor. An interesting point about impact of educational level on strategic variables is average superiority of some factors like assigning vision, establishing an information system for gathering information and predicting future problems, that academic education also emphasizes on these factors. However, in some variables like flexibility in decisions and economic intuition, the average responses did not significantly differ among various educational levels. The fourth demographical variable in this study was experience of entrepreneurial activities that had relationship with strategic and communicative dimensions of entrepreneurial leadership.

This article had two restrictions in its research method. First, entrepreneurial leadership has conceptual complexity due to various theoretical and research attitudes, which make it hard to present a comprehensive definition and to gather generally, accepted indicators. In order to minimize these restrictions, for reviewing research theories and designing primary questionnaire, we attempted to refer to previous reliable studies in entrepreneurial leadership. The second restriction in this research refers to the use of attitude evaluating tools for analyzing people perspective to entrepreneurial leadership, that these tools can cause systematic error due to self-expression.

Despite aforesaid restrictions, this research presents a tool with compatible reliability and validity for entrepreneurial leadership evaluation in business environment of Iran society which can be useful in specifying the capabilities of entrepreneurial leadership. With respect to expansion in use of leadership concept in dynamic and entrepreneurial environments and increasing studies in this field, scholars can evaluate people entrepreneurial leadership capabilities more precisely in comparison with previous studies by using dimensions and scale of this new tool.

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