

## THE NEW SYMPHONY OF THE ECOLOGICAL LEADERSHIP

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### ABSTRACT

*THE NEW TECHNOLOGICAL DEVELOPMENTS IN THE INDUSTRIAL ENVIRONMENT CALL FOR A LEADERSHIP BASED ON COLLABORATIVE STRATEGIES, A LEADERSHIP THAT PRODUCES RESPONSIBILITY AND OVERCOMES TRADITIONAL METHODS. UNDER THESE CIRCUMSTANCES, WE PROPOSED THE ANALYSIS OF THE CHARACTERISTIC FEATURES FOR AN ECOLOGICAL LEADERSHIP (EL) IN THE CASE OF STUDENTS IN THE FIELD OF ENGINEERING SCIENCES. STARTING FROM THE EL PARADIGM, CONCEIVED IN TERMS OF ACTIVE SEARCH FOR OPPORTUNITIES FOR SHARING AUTHORITY, RESPONSIBILITY AND RESOURCES, WE PROPOSED THAT THE CONTENT OF THE NOTION OF ECOLOGICAL EL SHOULD INTERFERE WITH VARIABLES SUCH AS SOCIAL RESPONSIBILITY, EMOTIONAL INTELLIGENCE, HONESTY, PERSEVERANCE, SPIRIT OF PERFECTION, PLANNING, AUTONOMY, RESONANCE WITH NATURE, ETC.*

*IN ORDER TO CARRY OUT THE RESEARCH, WE USED A TOOL THAT INCLUDED THE SCALES EXTRACTED FROM TWO VALIDATED AND CALIBRATED INSTRUMENTS ON THE ROMANIAN POPULATION, NAMELY A PERSONALITY QUESTIONNAIRE ABCD-M AND EMOTIONAL INTELLIGENCE QUESTIONNAIRE BARON - EQ-I.*

*THE ANALYSIS OF THE RESULTS REVEALED THE CHARACTERISTICS OF THE GROUP: OPENNESS TO EXPERIENCE, DEEPENING, RESPECT FOR OTHERS, ACTIVISM, DESIRE FOR PERSONAL AFFIRMATION AND EMOTIONAL INTELLIGENCE OVER MEDIA. THE RESULTING FACTORIAL SOLUTIONS ARGUE THAT ECO-FRIENDLY LD COULD BE DEFINED BY RESPONSIBILITY FOR PERSONAL INITIATIVES, SOCIAL CONSCIENCE, FAIRNESS AND PROFESSIONAL COMPETENCE AND SOCIAL EFFICIENCY.*

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**KEY WORDS:** LEADERSHIP ECOLOGICAL, SOCIAL RESPONSIBILITY, EMOTIONAL INTELLIGENCE, SOCIAL EFFICIENCY, ENGINEERING STUDIES

### INTRODUCTION

The current trend is to conquer new frontiers, from geographic to technological, limiting being imposed only temporarily. The real question is not where, but when, the technology will make a new leap?

The great challenges of the global economy put forward visionary leaders in a "virtual" symphony on the consequences of current crises: social, cultural, environmental, political,

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and economic. How virtual is this symphony? This virtual symphony can be explained like a temporal dimension, but also as an opposition to the real size. Can we build a "Brave New World" from a humanist perspective and less from the perspective of technological innovation? The "philosophical stone" of "Brave New World" would be an ecological leadership in perfect harmony with the challenges of Industry 4.0.

Industrial ecology, said Daniel Goleman, is an area that addresses environmental challenges, and this is a young field dating back to at least two decades. The subject of study of this new field, after Goleman, aims to evaluate the multiple consequences of launching any new products or services in the field of modern technology.

In order to reduce the impact of the consequences on the environment, we should return to the germination phase of the idea until it reaches the final technology.

A new type of Leadership, namely *Ecological leadership*, would meet these challenges.

### **TRADITIONAL LEADERSHIP VS ECOLOGICAL LEADERSHIP**

The usual approaches to sustainable development, corporate social responsibility, product innovation are insufficient for the radical transformation of organizations into an ecological leadership. In order to respond to global challenges, the concept of leadership - a traditional and mechanistic concept at present - should be rebuilt and rediscovered a new paradigm: Ecological Leadership (EL).

The traditional model of leadership, a charismatic model based on hierarchical models, is characteristic and is recommended especially during times of crisis or for reaching the objectives. In stability situations, when the emphasis focuses on the collaboration and involvement of all stakeholders, the recommended model is ecological leadership<sup>4</sup>.

Traditional perspective of leadership is inadequate to make on current changes. It would take a new leadership in which the emphasis is on social responsibility, on our ability to learn new ways of understanding global change, defining and solving increasingly complex problems: environment, innovation, culture. Due to these considerations, it is necessary to describe and define the profile of ecological management, starting from the principles of symphony of all conjugated elements.

The new model of ecological leadership known as "Environmental leadership" implies a greater fits between the type of leadership and the challenge coming from both the environmental and the technological side. It is actively seeking to promote opportunities to share authority, responsibility and resources within an organization. The environmental leader preserves the vision of the entire organization, directing all the elements involved. It seeks to identify those with features and abilities as strengths for achieving specific goals, giving freedom of action<sup>5</sup> but also directing the whole process<sup>5</sup>.

According to many theoretical perspectives, leaders are directly responsible for organizational success and adaptation. In each organization there is an ecological and industrial constraint. That is why at the organizational level it is necessary to implement the ecological principles in the management processes, which will increase their adaptation characteristics. From this point of view, another theory of leadership is needed, and then a description of leadership based on ecological principles.

The adaptive changes that result from the interaction of the new development challenges require the redesign of the leadership principles from an ecological perspective. The leadership process can play a sustainable role for a sustainable and generative future. They propose a leadership that develops the ability of organisms and people to respond to

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<sup>4</sup> \*\*\* <http://www.processeducation.org/ijpe/2011/ecological.pdf>

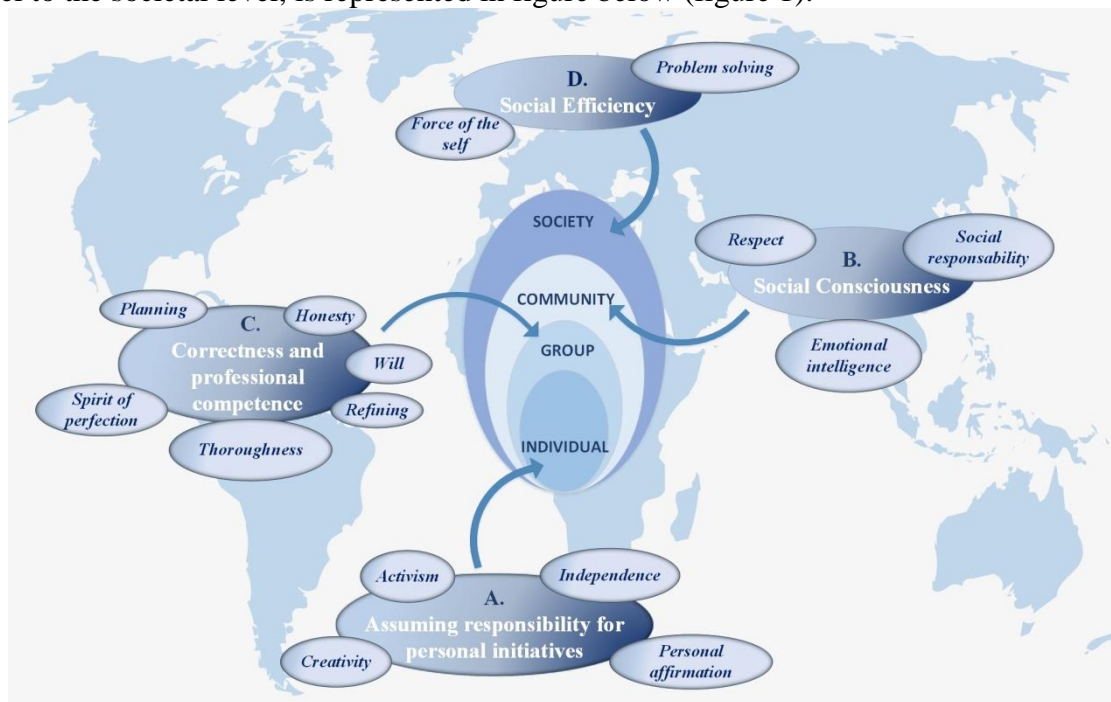
<sup>5</sup> Wielkiewicz, R. M., & Stelzner, S. P. (2005). An ecological perspective on leadership theory, research, and practice. *Review of General Psychology*, 9(4), 326-341. doi: 10.1037/1089-2680.9.4.326

these challenges. This is mainly about changes in the level of social, cultural, social innovation<sup>6</sup>

Lange has developed ten principles of ecological sustainability that suggest interrelated considerations for organizational policies<sup>7</sup>. From the perspective of corporate social responsibility, which is important for the subject addressed in this article, we have selected from Lange's principles the following: *Taking greater responsibility*, *Restoring and preserving biodiversity* and *Adoption of biomimetics / biomimicry* using new technologies that mimic natural processes.

The implementation of these principles, along with the others put forward by Lange, aims to reduce the negative impact of the "environmental footprint" on bio-social networks through what the author calls "treading lightly".

The representation of the principles we consider to be important for ecological leadership, passing through social responsibility, emotional intelligence, from the individual level to the societal level, is represented in figure below (figure 1).



**Figure 1.** Ecological leadership

**THE INTERPRETERS OF THE ECOLOGICAL SYMPHONY - CASE STUDY**

The new paradigm of leadership should derive from the principles of ecology and requires a radical change. It highlights individual responsibility, the long-term perspective, the development of individuals' capacities within organizations and the harmony with nature, while presenting the path to sustainability for future generations. For this new vision, we propose the *Inspirational conductor* - as a leader - to orchestrate instrumentalists in full harmony with the challenges of new technologies. The following valences have been identified for defining the concept of eco-Leadership, in turn described by factors in close interdependence with the three levels describing the Ecological Leadership:

**A. Assuming responsibility for personal initiatives** - described by the factors: Activism, Personal Affirmation, Independence, Creativity;

<sup>6</sup> \*\*\* <http://www.kathleenallen.net/index.php/writings/leadership-change/61-the-ecology-of-leadership/file>

<sup>7</sup> Fenwick, T., (2007) "Developing organizational practices of ecological sustainability: A learning perspective", *Leadership & Organization Development Journal*, Vol. 28 Issue: 7, pp.632-645

- B. *Social Consciousness*** - Described by the Factors: Respect, Social Responsibility, Emotional Intelligence
- C. *Correctness* and *Professional Competence*** - Described by the Factors: Honesty, Refining, Will, Deepening, Spirit of Perfection, Planning;
- D. *Social Efficiency*** - Described by the Factors: Problem Solving, Self Strength.

### Methodology

**Objectives:** To formulate the content of the term Ecological Leadership based on the observation of some defining factorial configurations for the categories of subjects investigated.

**Participants and Procedure:** 50 students of the Machine and Production Systems Department, Faculty of Engineering and Management of Technological Systems at the University POLITEHNICA of Bucharest: 42 Male students (M.age= 22.02, AS = 1.62) and 8 Female students (M.age= 21.62; AS = .91). The administration of the questionnaire was done both online and in writing by the subjects in two stages.

**Instrument:** The proposed test comprised selected scales from two questionnaires, namely a personality questionnaire (ABCD-M, built on the basis of the Five Factors model) and one of emotional intelligence (BarOn EQ-I) [3]. They referred to: 1. *Activism* expressed through energy and initiative; 2. *Personal affirmation* - self-image through success; 3. *Respect* - prosocial behavior and ability to be generous and benevolent; 4. *Strength of Ego* - I mature and stable; 5. *Honesty* - Correctness in Relationship; 6. *Will*; 7. *Spirit of perfection* - control of the effort of analysis and action; 8. *Planning* - the sense of organization and self-control; 9. *Deepening*; 10. *Refining* - tinting capability; 11. *Independence* - autonomy of decisions and assuming responsibility; 12. *Creativity* - open-minded attitude; 13. *Social responsibility* - ability to become a cooperative member, contributing constructively to the success of the group; 14. *Emotional Intelligence* - Effective Emotional and Social Functionality; 15. *Problem solving* - the ability to identify, define and solve problems. Overall, the questionnaire contained 133 items. The Cronbach alpha coefficients for these scales are between .66 and .95.

### Results and discussions

In table no. 1, we presented the descriptive analysis of the averages and the standard deviations for the mentioned variables. Referring to the medians obtained by the standards produced by Minulescu, it results that the analyzed group has high scores on in-depth dimensions, creativity, respect, activism and personal affirmation, while the lowest scores appear for the variable spirit of perfection and the force of Ego (figure 2)<sup>8</sup>.

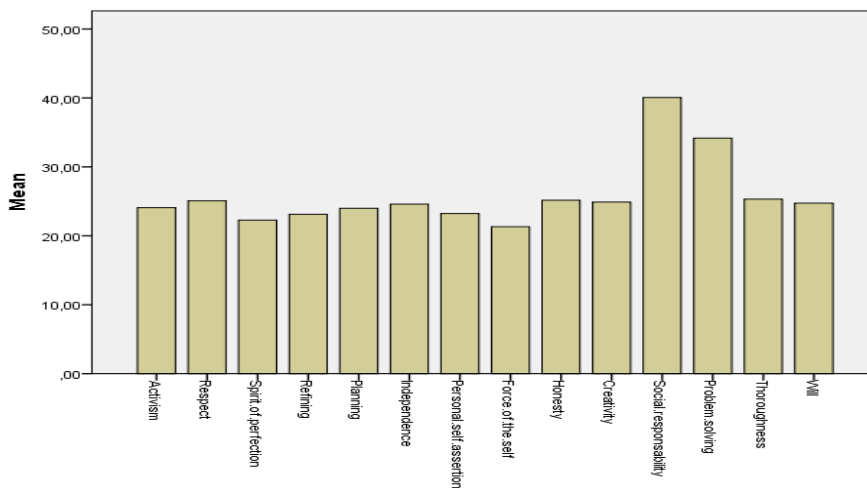
In table no. 2 is presented the result of the factorial analysis. The first factor - ***FI***, which holds the largest variation (20.96%), brings together the highest variable saturations whose content is related to action and creativity, namely activism indicating the preference for a high tempo, personal assertion, independence Personal doubled by assuming personal responsibility) and creativity (open attitude to novelty).

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<sup>8</sup> Wielkiewicz, R. M., & Stelzner, S. P. (2005). An ecological perspective on leadership theory, research, and practice. *Review of General Psychology*, 9(4), 326-341. doi: 10.1037/1089-2680.9.4.326

**Table 1. Descriptive analysis**

<b>Variables</b>	<b>M.</b>	<b>S.D</b>	<b>Min.</b>	<b>Max.</b>
<i>Activism</i>	24,08	4,15	10	30
<i>Personal affirmation</i>	23,24	3,25	11	29
<i>Respect</i>	25,08	4,03	13	30
<i>Strength of Ego</i>	21,32	4,38	11	29
<i>Honesty</i>	25,16	2,84	16	30
<i>Will</i>	24,74	3,08	16	30
<i>Spirit of perfection</i>	22,28	2,91	15	29
<i>Planning</i>	24,00	3,87	12	30
<i>Deepening</i>	25,32	3,25	11	29
<i>Refining</i>	23,12	3,20	10	30
<i>Independence</i>	24,60	2,47	20	29
<i>Creativity</i>	24,90	2,41	20	29
<i>Social responsibility</i>	40,06	2,84	16	30
<i>Emotional Intelligence</i>				
<i>Problem solving</i>	34,18	3,75	25	40



**Figure 2. Psychological variables**

The main methodological exigencies we have imposed in factorial analysis (Main Hotelling Components) were:

1. The instantiation of the limit of the correlation between a variable and its factor of .55;
2. Establishing the lower limit of the statistical ratio indicator of the total variation of a factor to 10%;
3. Adopting the factorial solution in the normalized varimax variant.

This factor is referred to as taking *Responsibility for personal initiatives*.

The second factor - **F2** (the 18.05% variant), relates variables such as respect for prosocial behavior, specific to those who respect others around *Self-respect* and *Self-confidence*, *Social responsibility* and *Emotional intelligence* (non-cognitive skills and abilities).

Because all the variables emphasize the individual's orientation towards his fellow men and acting with responsibility, we consider it to be social consciousness. Factor **F3** (16.31%) combines honesty, *Refinement* (tinting ability, open attitude to one's own completeness), *Will* and *Deepness* (opposed to superficiality) and indicates a factor of *Correctness* and

*Professional competence*. The last factor - **F4** (12.22% variant), joins two variables such as *Problem solving* and *Strength* (I mature and stable) and generates a social *efficiency factor*.

**Table 2.** Factorial analysis

Variables	Factors			
	1	2	3	4
<i>Activism</i>	<b>.72</b>	.11	.11	-.38
<i>Personal affirmation</i>	<b>.72</b>	.26	-.06	-.04
<i>Respect</i>	-.17	.16	<b>.76</b>	.34
<i>Strength of Ego</i>	-.09	-.05	.36	<b>.78</b>
<i>Honesty</i>	-.02	<b>.72</b>	.43	.10
<i>Will</i>	.46	<b>.57</b>	.19	.07
<i>Spirit of perfection</i>	.48	.55	.28	.17
<i>Planning</i>	-.07	.60	-.13	.59
<i>Deepening</i>	.37	<b>.57</b>	-.38	.06
<i>Refining</i>	.10	<b>.84</b>	.04	-.12
<i>Independence</i>	<b>.71</b>	.24	-.11	.26
<i>Creativity</i>	<b>.75</b>	-.11	-.04	.09
<i>Social responsibility</i>	.00	.08	<b>.89</b>	.04
<i>Emotional Intelligence</i>	.51	.02	<b>.64</b>	.27
<i>Problem solving</i>	.25	.05	.17	<b>.61</b>
Variant	20,69%	18,05%	16,31%	12,22%

## CONCLUSION

The research on Ecological Leadership - from the outset - emphasizes the quality of the leader in controlling, conserving and protecting nature in order to preserve the health of individuals and their well being<sup>9</sup>. For this, we have need by a Ecological Leadership (EL), collaborative, in which the leader has the role of counselor, mentor, strategy-maker, and secondary have to a manager role. It requires a combination of transformational EL qualities and the desire to protect and develop the natural world.

<sup>9</sup> Brymer, E., Gray, T., Cotton, W., Carpenter; C., (2010) Ecological leadership: a new perspective on leadership, Spirituality, leadership and management conference, January, 2010

The present paper started from the hypothesis of the existence of possible factors included in EL and proposed to evaluate them in the case of a group of technical students who will carry out their activity with implications both in the natural technological and human environment.

The secondary features that characterize the respective group of research, with possible implications in defining the concept of EL are: *Taking responsibility for personal initiatives*, *Social consciousness*, *Correctness* and *Professional competence* and *Social efficiency*. Under these circumstances, we believe that the environmental leader seeks to create new opportunities for the organization and maximize its resources, abilities and talents, acting for the benefits of employees (the management of individuals and processes) and the wider society.

The milestone of EL involves developing a culture of creative communication, how can transform the environment in the positive way. The starting point would be the involvement of the traditional leader in ecological leadership. The second step would be the awareness of each member of the "orchestra" of the importance of the ecological vision. Organizational culture is the third essential feature of an efficient organization that has an ecological leadership. We need to innovate, considering that new technologies are at least neutral in terms of their environmental impact - and, ideally, technologies that fulfil our debts to nature. This leap requires the leaders with daring, great vision, remarkable persuasive and collaborative skills.

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