Chapter 5
A Multi-Dimensional Approach to Leadership in Chaotic Environments

Şefika Şule Erçetin
Hacettepe University, Turkey

Şuay Nilhan Açıkalın
Middle East Technical University, Turkey

M. Şahin Bülbül
Middle East Technical University, Turkey

ABSTRACT

In this chapter, the fundamentally interconnected concepts of chaos and leadership are subjected to theoretical and functional analysis. Building on this analysis, the authors develop a multi-dimensional approach to the study of leadership in chaotic environments.

INTRODUCTION

2011 will long be remembered as the year of the Arab Spring. The whole world wondered what the secret was behind this unexpected development in Arab countries, and how long and in which countries the domino-effect would spread. The Arab Spring can be considered the largest example of a chaotic situation to have arisen in the world in many years. The Middle East as a region transformed complexity into dynamism, and was confronted with a process of change whose effects were more complex, severe and sudden than has been experienced in recent memory. The countries that experienced the Arab Spring can be divided into two groups—large scale and small scale. While the events led to large-scale changes in Egypt, Tunisia, Yemen and Libya, the social uprisings in Syria, Iraq and a few other countries in the region were more limited. If we look into the details of these uprisings, the countries that saw large-scale effects during the Arab Spring undeniably share a "dictatorial" leadership model. Indeed, it seems to have become difficult in today's world for rulers

DOI: 10.4018/978-1-4666-2509-9.ch005

Copyright © 2013, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

to rule as dictators, and for oppressive regimes to exist. The governments in question brought on chaos and their own collapse in the course of this unexpected process. The process itself has triggered the pursuit of new understandings of leaders and leadership. When we consider the origin and results of the Arab Spring, which led to complex, uncertain situations in some countries, several questions about the relationship between chaos and leadership come to mind. Will the countries involved in the Arab Spring be able to convert this chaos into a process of transformation? What will be the result of the new leadership experiments being carried out in these countries? Has the Arab Spring, which started as chaos, created even more chaos?

LEADERSHIP AND CHAOS

Leadership and chaos can be considered fundamentally interconnected concepts. The following sections will look at some of the main ways in which the interplay between leadership and chaos has been studied.

The Simultaneous Conceptual Development of Chaos and Leadership

The mathematician and philosopher Poincaré's discovery of chaos, hidden in the heart of the Newtonian universe, was taken up by Planck in 1900 as one of the fundamental concepts of quantum theory. Later Einstein, Bohr, Heisenberg, Schrödinger, Louis de Brogile, Pauli, Fermi and Dirac, along with many other scientists, developed modern quantum theory. Along with the development of quantum theory came the further development of theories of chaos (Peat, 2002).

In the same period, leadership became one of the main topics of a great deal of studies in the field of management. Since the beginning of the 1900's, both theoreticians and practitioners have put significant effort into analyzing leadership. These efforts have led to more than 5,000 studies on leadership and more than 350 different definitions of the term (Erçetin, 2000,pp. 2).

Diversity of Classification, Units, and Grading: Chaos and Leadership

The topics of chaos and leadership have been classified, unitized and graded in a variety of ways. This section will take several fundamental questions as a starting point for a more concrete analysis. For example, are there different types of chaos? If so, which systems can be said to have which type? Does the process of chaos have different stages? Can one speak of high chaos, low chaos or abundant chaos? We will address and expand on these questions in turn. In a classification of fractals with chaotic structure, Mandelbrot, Julia, Yakınsak and Newton refer to four groups into which closed-orbit fractals and chaos can be divided (http://www.miqel.com/fractals_math_patterns/visual_math_fractal_types.html).

In another classification system, Jean-François COLONNA, chaos is divided into three groups: (http://www.lactamme.polytechnique.fr/Mosaic/descripteurs/ManyChaos.01.Ang.html#Etiquette1000)

1. **Natural Chaos:** A type of chaos that can arise spontaneously in natural systems. Waterfalls are an example of a chaotic system of this type.
2. **Virtual (subjective) Chaos:** This type of chaos is used to explain situations that are dependent on the position of the observer. For example, the motion of the orbits of planets in the solar system is something that can be perceived to be either chaotic or non-chaotic by different observers.
3. **Numerical Chaos:** All computer-generated fractals and simulations belong to the group of numerical chaos.

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/multi-dimensional-approach-leadership-chaotic/70885

Related Content

Financial Performance Measures, Efficiency and Indian Banking: Empirical Evidence
Padmasai Arora (2012). *International Journal of Productivity Management and Assessment Technologies (pp. 43-56).*
www.irma-international.org/article/financial-performance-measures-efficiency-and-indian-banking/93090

E-Business Process Management and Intellectual Property: Issues and Implications
Kathleen Mykytynand Peter Mykytyn (2007). *E-Business Process Management: Technologies and Solutions (pp. 45-67).*
www.irma-international.org/chapter/business-process-management-intellectual-property/8709

Emotional Intelligence in Business: Enhancing Leadership, Collaboration, and Performance
Tiago Manuel Horta Reis da Silva, Rick Hammettand Gary Low (2025). *Building Business Knowledge for Complex Modern Business Environments (pp. 149-178).*
www.irma-international.org/chapter/emotional-intelligence-in-business/359299

Employee Retention Predictors: A Statistical Analysis for Business
Greg M. Bensonand Whitney Taylor (2025). *Innovative Recruitment and Retention for Employee Empowerment (pp. 285-308).*
www.irma-international.org/chapter/employee-retention-predictors/366643

Agricultural Growth Accounting and Total Factor Productivity in Jordan: Trends, Determinants, and Future Challenges
Samia Nadeem Akroush, Boubaker Dhehibiand Aden Aw-Hassan (2016). *International Journal of Productivity Management and Assessment Technologies (pp. 1-14).*
www.irma-international.org/article/agricultural-growth-accounting-and-total-factor-productivity-in-jordan/144169