

**Roland Schuster**

# Systems Thinking View on the Situation of Unemployment in the USA

**Diploma Thesis**

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**Roland Schuster**

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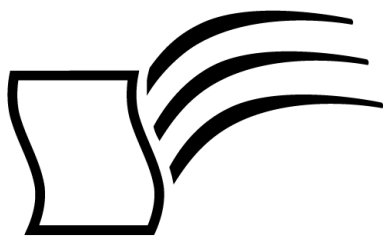


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Roland Schuster

# **Systems Thinking View on the Situation of Unemployment in the USA**

**Diplomarbeit  
Technische Universität Wien  
Fachbereich Wirtschaftswissenschaften  
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Diplomica GmbH —  
Hermannstal 119k —  
22119 Hamburg —

Fon: 040 / 655 99 20 —  
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agentur@diplom.de —  
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## How to Read the Thesis

Following these instructions helps to optimize the reading of the current paper.

The main parts of my thesis, Part I “THEORY” and Part II “REALIZATION AND RESULTS” are explained in the “Abstract”, chapter number 1.

The reason why I choose the structure explained below was to fulfill two demands.

- 1) I wanted to provide a paper that is easy to read and focuses pragmatically only on the issue itself. The reader that is just interested in the researched field of unemployment should not be distracted through too much theoretical background of system theory and economic theory.

So if you are just interested in the core issue skip all the parts that have the heading “Endnotes Chapter x”.

- 2) I also wanted to give the reader who is interested in the philosophy and the background of system theory and economic theory a possibility to go deeper into it.

If you want to explore some theoretical background and more specific details on the researched field of unemployment in the United States read the entire paper.

## Structure

In my thesis I use footnotes and endnotes in a specific way. Footnotes are used to show the referred literature (like usual in such papers). In the chapter of the endnotes I quote the several authors and write my comments to that. Footnotes are written on the bottom of the page where it appears. The numbering of Footnotes is with Arabic numerals starting with 1, 2, 3..., n. The numbering of footnotes is continued to the end of the whole document. Endnotes are written under a heading that looks like: {“Endnotes Chapter x”} The x is the number of the chapter the endnotes are relating to. Endnotes are indicated through a capital letter of the alphabet starting with A, B, C, ..., Z. Endnotes start with “A” again if a new chapter is started. So every part of my text that is based on special literature has a combination of a footnote and an endnote. Example: {...<sup>(1, A)</sup>} the footnote, in the example 1, leads to the bottom of the page. The text at the bottom of the page related to the footnote shows the source of the information. The endnote, in the example A, leads to the heading “Endnotes Chapter x”, at the end of the chapter x, and the text related to the endnote is the exact quotation my thesis is referring to. Additional to the quotation I further write down comments to explain how I see the quotation in the context. In some places I use endnotes in combination with footnotes, in some places footnotes alone. Every endnote has its related footnote. Footnote and related endnote are always in parenthesis and divided by a comma. In the text there are some footnotes without endnotes. But there are no endnotes without footnotes.

# 1 Abstract

The thesis is divided in two parts. Part I “THEORY” explains the theoretical background used for developing the work, part II “REALIZATION AND RESULTS” is the description of the realization and the discussion of the results generated.

## 1.1 Part I “THEORY”

The diploma thesis has its roots in the general system theory and emphasizes on a holistic view on the situation of unemployment in the United States. The chosen approach is a combination of state of the art scientific knowledge from the fields of sociology, psychology and economy. In the previous work performed for the thesis it was detected that the diversity of the basic approach is necessary in meeting the complexity of the issue. The many different factors influencing the chosen topic of unemployment are widespread. Contributing to the theory of systems thinking<sup>3</sup> the goal of the thesis was to find and describe an existing pattern that makes it possible to see the dynamic of the system. The systemic view takes in account that everything is interconnected and hence interacting. Systems thinking states that there are effects and influences on- and by unemployment that are only visible in applying a holistic view. The reason why the present paper is groundbreaking is not so much because of the used scientific knowledge, which is state of the art, but because of the combination of this knowledge. This combination is meant to regard to one of the tasks given by cybernetics<sup>4</sup> in increasing differentiation instead of increasing growth.<sup>(5, A)</sup> The basic standpoint is that the quantity of existing knowledge is already enough to create possible approaches for ways to optimize the current situation. Only lacking is the understanding of how all the fragments are connected. Systems thinking, an application of system theory, in this context, is seen as a tool that makes it possible to develop a model to generate this understanding.

## 1.2 Part II “REALIZATION AND RESULTS”

Because of the vast field that is covered by the topic, and the limited time available, the thesis finally shows

- a) The rough pattern of unemployment as an overall picture in the United States of America.
- b) The approaches of the United States Department of Unemployment (USDOL).
- c) The main streams in economic theory related to unemployment.
- d) “The President’s Plan for Jobs & Economic Growth” to prevent and to minimize unemployment.

It will be discussed whether or not the current existing approach is appropriate from a systems thinking point of view. As a very relevant point there is the

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<sup>3</sup> See 5.

<sup>4</sup> See 5.

<sup>5</sup> Frederic Vester, Neuland des Denkens, Vom technokratischen zum kybernetischen Zeitalter, ISBN 3-421-0273-X, page 454.

hypothesis of a basic conflict about unemployment in society. The hypothesis states that the basic conflict that society faces is the question of how much unemployment is a fact given by the “nature” of economy, the “nature” of people and the “nature” of society which includes an aporia<sup>6</sup> that is impossible to resolve with logical approaches.

The thesis concentrates further on the development of a systems thinking model of the unemployment situation. This includes the “Basic Causal Loop Diagram of the Unemployment Situation in the United States”<sup>7</sup>. It includes a computation of the indices of influence<sup>8</sup> to show possible interventions from a systems thinking viewpoint.

The basis is the researched information mentioned above in a) to d). And 20 interviews in four different subsystems related to unemployment. A focus here is the question of effects of vocational training on unemployment. Of special interest is the relation of trainers and trainees in vocational training centers (vocational training centers that do training of unemployed people) and the problems those two groups are facing within the whole system of unemployment in the United States. Here we meet again the hypothesis of an aporia. The hypothesis states that there is an aporia the trainers and trainees are facing, concerning the outcome of the training.<sup>9</sup> The aporia is by its nature the same aporia that society faces as is mentioned above. The exact formulation of the two hypotheses is given in 2.3.3.1.

The above explained research in terms of laws and politics, in terms of science, and in terms of the different viewpoints in the society had the intention to find out the existing situation in the United States. The accumulated outcome in form of the “Basic Causal Loop Diagram of the Unemployment Situation in the United States” and the computation of the indices of influence is finally the background for the summary (see 3.3.7) of the situation. The summary includes the critical standpoint of the systems thinking approach.

Finally a conclusion about the hypotheses and a future out view developed from the systems thinking position is stated in the discussion of the research (see 1). The thesis is the effort to breakdown state of the art theory to make it practicable in the field. And, to produce results of innovation, in communicating the generated and collected knowledge to the people concerned.

### 1.3 Endnotes Chapter 1

Endnotes contain more detailed information. \_\_\_\_\_

<sup>A</sup> In his book Frederic Vester states: “...in einem Umschwenken vom selbstzerstörerischem quantitativen Wachstum auf qualitative Umstrukturierung...”.

[“...to change sides from a self-destructive quantitative growth to a qualitative restructuring...”]. F. Vester is pointing out that quantitative growth can not help solve complex problems. In putting this to the issue of unemployment it states

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<sup>6</sup> See 5 and the term aporia and how it connects to the issue above is explained in detail in 2.3.

<sup>7</sup> See 3.3.

<sup>8</sup> See 2.2.3.5 and 2.2.3.6.

<sup>9</sup> See 2.3.3.

Endnotes contain more detailed information. \_\_\_\_\_

that it can not be the answer to increase production. If it was that simple there wouldn't be any unemployment in the world. It is the intention of the thesis to show an alternative approach in using systems thinking. In principle the idea is that the approach should rather lie in diversification. In his book F. Vester provides some examples of diversification, related to environmental problems.

## 2 Part I “THEORY”

When we view the world around us  
Parts and whole must not confound us.  
Nought's internal, nought's external,  
Each is other, both eternal.  
Swiftly seize then, here revealèd,  
Sacred secret, ne'er concealèd.

Müset im Naturbetrachten  
Immer eins wie alles achten:  
Nichts ist drinnen, nichts ist draussen;  
Denn was innen, das ist aussen.  
So ergreift, ohne Säumnis,  
Heilig öffentlich Geheimnis.<sup>10</sup>

Johann Wolfgang von Goethe

<sup>10</sup> See Goethes Sämtliche Werke, Jubiläums-Ausgabe, 40 vols., volume 2, page 249.



## 2.1 The Philosophic Background or “Why System theory?”

This chapter gives a rough picture of the philosophy of system theory.

### 2.1.1 From Laplace's<sup>11</sup> Daemon to System Theory

To explain the philosophical background I want to start with determinism<sup>12</sup> in natural science.<sup>(13, A)(14, B)</sup> Mathematicians and natural scientists, among them S. Laplace started to develop an idea of a deterministic behavior of space. This thought of determinism did also spread to other sciences like philosophy and even sociology. There was a strong believe of many scientists that it could be possible to find out how to have such accurate methods of measurements that life could be steered more or less like a simple mechanical device. Many humanistic sciences like philosophy, sociology, psychology started to search for mathematical formulas and methods to reach the goal of developing methods to navigate humans and societies. The idea of a possibility to operate mankind and thus to gain power over societies on earth, generated a lot of efforts amongst scientists. For historical grounds the humanistic science did develop its concepts very close to natural science and natural science was with determinism in the mood that it is upon to explain the universe and its reason. Some of the darkest decades of those efforts were happening within the last century where an oversimplification of the idea of eugenics<sup>15 (16, C)</sup> led to several inhuman and cruel trials in science. In the early years of the 20<sup>th</sup> century the sciences, especially the natural science began to doubt determinism. This leads us to Gödel<sup>17</sup>, defining truth as a relation stronger than provability.<sup>18</sup> Again mathematicians, one of the most famous was K. Gödel, brought up theories that should change natural science.<sup>(19, D)</sup> This new viewpoints were very important for mathematic itself (and the roots of chaos theory) and rocked the standpoint of a possibility to produce artificial intelligence out of a mechanistically model of mankind. Prove of the failure of determinism in nature science was finally done in physics by W. Heisenberg<sup>20</sup> and his uncertainty principle.<sup>(21, E)</sup> At that point natural science finally accepted that determinism is a dead end street. Natural science did realize the limits of its efforts and the necessity of new viewpoints.<sup>(22, F)</sup>

<sup>11</sup> Pierre-Simon Laplace (1749-1827).

<sup>12</sup> See 5.

<sup>13</sup> "Determinism.", <http://www.britannica.com/ebc/article?eu=387912>, 13 Apr, 2003 <.

<sup>14</sup> <http://www.maths.uwa.edu.au/~kevin/3A7/intro/history.html>, 14. Apr., 2003

<sup>15</sup> See 5.

<sup>16</sup> The Columbia Encyclopedia, Sixth Edition Copyright© 2000, Columbia University Press. Licensed from Lernout & Hauspie Speech Products N.V. All rights reserved. Page 15832.

<sup>17</sup> Kurt Gödel, Mathematician (1906-1978).

<sup>18</sup> <http://www.dm.uniba.it/~psiche/bas3/node5.html>, 14<sup>th</sup> April 2003.

<sup>19</sup> Wikipedia the free enzyklopedia, [http://www.wikipedia.org/wiki/Kurt\\_Goedel](http://www.wikipedia.org/wiki/Kurt_Goedel), 14<sup>th</sup> April 2002

<sup>20</sup> Werner Heisenberg, founder of quantum mechanics, (1901 - 1976).

<sup>21</sup> <http://www.aip.org/history/heisenberg/p08.htm>, 14<sup>th</sup> April 2003

<sup>22</sup> Werner Heisenberg, Das Naturbild der heutigen Physik, Veröffentlicht im Dezember 1955, Copyright 1955 by Rowohlt Taschenbuch Verlag GmbH, Hamburg, page 132.