

TRAINING FOR UNCERTAINTY*

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ABSTRACT

The complexity of today's environment places humanity under the pressure of coping with the ever-increasing levels of uncertainty. The paper attempts to highlight the need of training the individual for facing this problem. The focus is set on the decision-making process as a function of the human mind. It also touches on some of the popular strategies and tactics for dealing with uncertainty and making well-founded choices.

KEY WORDS: training, uncertainty, decision-making

INTRODUCTION

The World as we know it today places the human being in an extremely complex environment. The constantly changing weather and climate, the endless geo-political struggle, the widespread of infectious diseases and the disinformation campaigns lead by the major political players are just a few of the factors contributing to the ever-increasing levels of uncertainty. In order to train an individual for coping with the conditions of today's reality we need to answer two important questions: *How do humans make decisions?* and *Is it possible to overcome the uncertainty?*

HOW DO HUMANS MAKE DECISIONS?

Decision making as a function of human consciousness is studied by cognitive psychology, which also deals with problems related to logical

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thinking, attention, perception, and imagination. Since ancient times, cognitive processes have been differentiated into two groups, traditionally called intuition and reason, and in modern science they have been incorporated into the generally accepted theory of the dual process of judgment and decision-making (1). This theory has been considered by many authors, such as Daniel Kahneman[†], Shane Frederick^{**}, Barry Schwartz^{***}, and others, but they all accept the existence of a process with two clearly distinguishable cognitive operations. The first operation is fast, automatic, and associative, and is performed on a subconscious level. It is used to build heuristic methods for solving problems, learning, or drawing conclusions based on experience, not guaranteeing that these methods are optimal or perfect, they are just a way to reach a final conclusion or result in a faster way. The results of this first operation traverse into consciousness, where they are given a meaning and serve as the basis of the second cognitive operation, which is a slower process that requires effort because it is subjected to certain rules for applying logic, various forms of deduction or even probability theory and the application of mathematical selection criteria.

* Daniel Kahneman is professor emeritus of psychology and public affairs at Princeton University

** Shane Frederick is a tenured professor at the Yale School of Management

*** Barry Schwartz is the Dorwin Cartwright Professor of Social Theory and Social Action at Swarthmore College

System 1 - intuitive	System 2 - conscious
Main characteristics	
Does not require working memory. Autonomous.	Requires working memory. Performs cognitively separated mental simulations.
Comparative characteristics	
Fast	Slow
Large capacity	Limited capacity
Parallel	Consecutive
Subconscious	Conscious
Biased results	Rated results
Contextualized	Abstract
Involuntary	Controlled
Associative	Rules guided
Results	
Decisions based on previous experience and personal characteristics	Decisions based on conscious and considered consequences

Picture 1. Table of comparison based on Dual-Process Theories (2)

These two levels at which cognitive operations are performed are considered by Evans* and Stanovich** as separate but interconnected systems with the conditional names System 1 and System 2.

It is not necessary for the person making the decision to accept the results of the automated work of the intuitive system as sufficient or definite, but this subconscious process delivers the results on the basis of which the consciousness begins to work (3). Although the intuitive system of choice and decision-making is more primitive and exists in nature not only in the human mind, it does not make it less capable as a tool for proper assessment of the situation. On the contrary, complex cognitive operations performed by the conscious system migrate into the intuitive with the acquisition of sufficient skills and experience. An example of this is the ability of Grandmasters to instantly assess the strengths and weaknesses of different chess configurations and positions without having to go through the slow process of consistent analysis of options.

* Jonathan Evans is a professor of cognitive psychology at the University of Plymouth

** Keith E. Stanovich is Professor of Applied Psychology and Human Development at the University of Toronto

When examining the basic framework in which the decision-making mechanism of the individual is placed, it becomes clear that the process is based on personal characteristics, which provide the starting point of the intuitive cognitive process, on the basis of which the in-depth conscious analysis and course of action choice is built.

IS IT POSSIBLE TO OVERCOME THE UNCERTAINTY?

There are two main strategies that have gathered support when dealing with the problems of decision-making under uncertainty.

The first strategy is to try to reduce it or completely remove it. Tactics for reducing uncertainty include but are not limited to collecting additional information before making a decision (4) or delaying the decision until additional information becomes available (5). When there is no additional information available uncertainty can be reduced by extrapolating from available information. One method of extrapolation is to use statistical models to predict future events by assuming that existing trends will continue, or similar patterns will be applicable based on information on present or past events. Another tactic of extrapolation is assumption-based reasoning, filling gaps in sound knowledge by making assumptions that go beyond what is more firmly known and are discarded when or if a conflict with new evidence arises (6).

The second and more frequently applied strategy is acknowledging the uncertainty. It can be applied when reducing uncertainty is either impossible or too costly. Decision-makers usually acknowledge and accept uncertainty in two distinct ways – by taking it into account when choosing a course of action or by preparing to avoid potential risks by planning for all reasonable contingencies, and by adopting a flexible tactics that would allow making changes to the original plan at low cost (5).

Both strategies have their merits and are used by decision-makers around the Globe, but what they both fail at is accounting for the time that they take to come up with a solution to the problem of making a reasonable choice when facing uncertainty. That is because they are based on the conscious system of the human mind, which is fundamentally slow.

CONCLUSIONS

In each situation, all or most of the factors creating uncertainty act to varying degrees. For this reason, each decision made at a given time will lead to a different result.

It is impossible to completely eliminate the influence of the factors that create uncertainty, and therefore the uncertainty itself. However, knowing the nature of these factors and the extent of their impact on the processing of available information and decision-making can reduce their impact, which will reduce the negative impact of uncertainty and increase the adequateness of the decisions taken.

By understanding the mechanism of cognitive operations performed when in need of finding a suitable solution to a problem or making a well-founded judgment a person would be able to increase their efficiency in decision-making. This could be achieved by training the mind in applying strategies and tactics for coping with uncertainty so that this conscious and consecutive cognitive process becomes autonomous. If that is accomplished, a person would be capable of intuitively choosing a correct course of action in any complex environment more often than not.

When time is available, even in uncertain, complex, and fast-moving environments, there is a need for sensible planning (7). Laying out a path to follow will result in increasing the chance of positive outcome. Training people to control their own minds processes and managing the situation variables leads to increased performance and achieving goals while minimizing risk which results in success.

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