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## Strategic Thinking

Its nature and dynamics

### Abstract

The chapter presents the characteristics of strategic thinking in terms of the major components of the problem and the solution. A survey of the main five approaches to problem solving – the problem space, the steps or phases, modelling, gestalt and bag of skills – shows that none of them provides comprehensive information about the cognitive processes necessary for implementing strategic thinking. A new approach to the study, assessment and training of strategic thinking is described. This approach is based on identifying the relevant cognitive processes by means of the meaning system and of the relevant motivational processes by means of the cognitive orientation approach. The study of the cognitive and motivational profiles indicates that strategic thinking is based on a rich and complex set of processes characterized mainly by a reality orientation, a functional-operational and factual approach, sticking to the goal, attention to concrete situations, and flexibility coupled with abstract, logical and comparative thinking.

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## Strategic Thinking: Its nature and dynamics

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The objective of this paper is to present a new approach to strategic thinking from the perspective of psychology. In recent years the importance of strategic thinking in a variety of domains has been recognized, as for example, health care, economy, management, games, business, politics, army, litigation, and education. As a result a large body of studies about strategic thinking has accumulated which led to a proliferation of apparently similar constructs, including critical thinking, strategic planning, prospective thinking and organizational strategic thinking. Additionally, strategic thinking has been studied in different populations, including children, and mentally sick individuals. Hence, it became advisable to clarify the nature and dynamics of strategic thinking from the psychological point of view.

### The components of strategic thinking

The basic approach to defining strategic thinking includes three major components: identifying the trigger, defining the goals, and describing the solution to the problem, which includes the means for attaining the goal.

#### *The problem*

The trigger for strategic thinking is a problem. In general, a problem is grounded in personal, mainly emotional or evaluative-judgmental reactions to a situation. In subjective terms a problem is defined as a matter or situation regarded by the individual as unwelcome or harmful and needing to be dealt with and overcome, or simply as a difficulty, trouble, worry, complication or mess. The more objective definitions of problem emphasizes the fact that the situation is characterized by deviation from some accepted, or expected, or normal, or regular, or common rule. The rule may be moral, behavioral, military, financial etc. It may be generally accepted or a private rule. In view of the fact that strategic thinking is a generally accepted cognitive construct implemented in a variety of public domains, it seems appropriate to define the triggering problem as generally recognized issue characterized by deviation from a generally recognized rule considered as being of public importance for a large section of the population, a community or a company. The rule may be deviation from expectation in regard to public safety, economic development, health of a large segment of the population, or winning a war.

#### *The goal*

The goal of strategic thinking is to construct a strategy that would enable and guarantee the attainment of the desired situation or state of affairs. This objective is manifested usually in terms of a goal which is mostly not one goal but a set of goals, which may be ordered hierarchically or in a

sequence. For example, if the objective is improvement in the state of health, then the goals could be establishing more hospital, and employing more doctors in the different branches of medicine.

### *The solution*

The conception of what is considered as the problem and the definition of the goals have implication in regard to the kind of adequate solution in the framework of strategic thinking. In general, the solution of problems may consist in gaining deeper understanding of the situation; in resolving a kind of riddle; in reducing an apparent contradiction or inconsistency; in bridging opposing poles or attitudes; in reducing an unpleasant emotion; in explaining some event, such as one's behavior or the occurrence of an unexpected situation; in constructing an explanatory model (general or specific); in devising a course of action; in constructing a plan for action. In view of the fact that the problem that triggers ST is of general import for the public or a large community, the solution that would be considered as appropriate for ST is of a general and comprehensive nature.

### *Characteristics of the solution in strategic thinking*

A survey of the solutions considered in the framework of strategic thinking shows that they are characterized by the following features:

1. The solution refers to the attainment of some future state which is different from the present state and presents improvement in major relevant respects, such as quality of life, financial situation, or safety. The overall future state may be represented in terms of one or more specific goals. Sometimes there is a major goal which includes several sub-goals. In other cases, there is a set of several goals, related sequentially.
2. The solution refers to a plan for action. The plan specifies concrete actions or operations that are to be implemented in a temporally-shaped sequence. It is often a high-level plan based on action units and complex operational patterns that can be translated into one or more chains of specific steps.
3. The solution includes mostly reference to resources supporting or enabling the implementation of the plan; the reference to the resources may be explicit or implicit
4. The plan which constitutes the solution includes some construction of the future, it refers to a future situation
5. The plan considers a situation of uncertainty and hence includes sections that may be changed, selected, or restructured in view of changing circumstances. Sometimes the sections are

options which may be of a large-scale nature, i.e., parts of the plan may be decoded into more specific acts or plans.

6. When the solution is elaborate and multi-levelled, it may be assumed that it is based on a kind of master scheme, or a general design that lends coherence to the whole structure.
7. The solution is based on a broad, inclusive image of reality, as envisaged by the planners
8. The plan includes specification of relations with other plans and goals in the relevant sphere of action (e.g., military, business)
9. The plan is based on a policy, often supported by guiding principles, values and generally accepted interests.
10. The solution is rooted in a general theory in regard to the relevant domain (e.g., theory of military action, economic or socio-economic processes, management).
11. The solution may be of a dynamic nature, namely, it may develop or undergo changes over time, and may even include parts designed to be elaborated in the future in view of the prevailing circumstances.
12. The solution is often the result of cooperation between different contributors, who may have been cooperating from the very start or have joined the project in different phases, in line with their expertise or availability.

The mentioned characteristics describe a fairly clear and kind unique kind of solution to a problem. The list includes two major features (1. and 2. above) further elaborated and explicated by the additional ones (3.-12.). The problem solution in strategic thinking seems to be based on higher-level cognitive processes and is marked by complexity that considers flexibility too. How can a solution characterized by the described features be attained? The first attempt will be by surveying the existing models of problem solving.

## Major approaches to problem solving

There are five major approaches to problem solving. They differ mainly in the described processes and suggested means of attaining the solution. These approaches will be described briefly.

### *The problem space approach*

It is based on the conception that dealing with the construction of the solution is inseparable from dealing with the problem so that both form the problem/solution space. The shape and contents of the problem/solution space are a function of assigning meaning to the situation by the individual. The assigned meaning enables the construction of the problem/solution space by drawing as it were the boundary between the exterior environment and what is included in the problem/solution space but also identifying the objects within the problem/solution space, such as solution trajectories, and barriers. The solution process consists in devising different steps, viz. "operations" creating reorganizations in the problem/solution space, called "knowledge states", which minimize and finally cancel the gap that exists originally between the present state and the target. Experientially the operations resemble a kind of moving around, or free "floating" in various directions and on various levels thereby trying out various alternatives and solutions until the right one is identified (Newell & Simon, 1972). The major means of problem solution are meaning assignment and insight following experiencing and exploration of the problem/solution space.

### *The approach of steps or phases*

It is based on organizing the whole procedure of problem solving in terms of separate sequentially ordered steps. The organization of the steps may differ from one case to another but essentially the sequence is the same, running from the definition of the problem or the gap between the given and the expected. Common examples of steps are problem definition, identifying alternative solutions, selecting one solution, applying the selected solution, validating the situation. Similarly, the following four principles for the solution of mathematical problems express the same procedure: understand the problem, devise a plan, carry out the plan, look back (Polya, 1957). The definition, contents and applied procedure in each step depend on the former one but can be handled independently. The sequence is temporally defined and there is no freedom to move in directions other than from the beginning to the end. There is some evidence for support of this approach by neurophysiological data (Anderson & Fincham, 2014). The major advantages of this procedure are the systematic character of the whole procedure and the possibility to assign each step to a different person or team who are best qualified to address the issue of the particular step. The major means of problem solving are organization and expertise (e.g., McCalla, 2003; Lorenzo, 2005).

### *The modelling approach*

It is based on applying to the problem a model that includes a schematic blueprint of the solution. The three difficulties of applying this approach are first, when no adequate model is available, it is necessary to construct a model; second, when adequate models are available, identifying and selecting the right kind of model for the present problem situation; and third, when the adequate model has

been identified, adapting it to the present problem by making the required changes or inserting the right kind of values in the given parameters. Constructing a model is a kind of problem solving task in its own right and requires specific expertise, for example simulation techniques. Modelling is usually undertaken for particular domains, such as business, bridge construction, biological systems, teaching of mathematics, or ecological issues (Blum & Niss, 1991; Ceric, 2005; Pidd, 2004). Models are as a rule schemes that may be situated midway between the abstract and the concrete. Selecting the right kind of model is based largely on analogical thinking. Adapting an existing model to a given problem situation is based on integrating the general with the specific, the abstract with the concrete. The major means of problem solving are constructing or selecting a model and adapting it to the problem.

### *Gestalt approach*

It is based on organizing the elements of the problem in terms of the best possible gestalt. The more elements are organized and the better is the gestalt the more adequate is the solution. A good gestalt is defined in terms of criteria such as symmetry, balance, ease of perception and tight organization. Problem solution consists in restructuring a given set of elements or components in a new way. The solution is often characterized as manifesting insight. Arriving at the solution depends both on the individual and on the situation. The individual's contribution consists mainly in his or her motivation to find the solution (viz. intrinsic motivation), in the ability to free oneself from an existing organization that is not optimal and to overcome functional fixedness, and the talent of restructuring the given state of affairs in an optimal manner. The situation's role consists in exposing to the individual the maximal number of components in a form that enables or facilitates reorganization. The major means of problem solving is insight (Duncker, 1945; Koffka, 1935; Kohler, 1925; Ohlsson, 1992; Wertheimer, 1959).

### *Bag of skills approach*

It is based on searching in one's bag of skills for a method or skill that could be applied for solving the problem. Some of the better known skills are divide and conquer, trial and error, brainstorming, means-end analysis, work backwards, look for a pattern, solve a simpler similar problem, root cause analysis, Triz, and lateral thinking. Each of these or similar skills specifies a certain method or principle, limited or sometimes even extended, which may be applied in problem solving separately or in conjunction with any other of the listed skills. The skills represent practical methods for approaching a problem in search of a solution, but they do not guarantee being optimal, logical or particularly efficient. However, they mostly enable doing something about the problem so that there is a chance that eventually some kind of a solution may be reached. The skills are rarely related to any theory but are rather based on practical past experience. The selection of any of the skills is random and is not related in any particular way to the problem at hand (Lorenzo, 2005; Saygili, 2017). The skills approach

consists in selecting one or more of the skills and applying it to the problem at hand. If the particular selected skill does not lead to a solution, other skills may be applied until some favorable change in the situation signaling a solution is detected. Thus, the major means of problem solving is applying skills that have proved to be useful in the past.

## A new approach to exploring strategic thinking

Examining the five described approaches to problem solving shows that some of them include cognitive processes or skills which are likely to contribute to strategic thinking, such as trial and error or insight. However, they do not suffice for accounting for the whole of strategic thinking theoretically or practically. Singly or together they do not provide guidelines for strategic thinking that are sufficiently inclusive and precise to identify the major processes underlying strategic thinking. The new approach proposed in the present context is based on the assumption that any cognitive operation is grounded in two major components: the cognitive and the motivational (Kreitler, 2013). Hence identifying, assessing and training of strategic thinking requires consideration of the cognitive processes that contribute to that operation and the motivational tendencies that support it. Further, each of the two components is grounded in a different theory and methodology which provide the tools for identifying the relevant processes for that components. Notably, each of the two components is supported by a set of processes rather than one salient process.

The relevant aspects of cognition and of motivation that will be described are based on a preliminary empirical examination of 15 individuals from the USA and Israel who have been identified as good strategic thinkers in the military, politics or business.

### *The cognitive profile of strategic thinking*

The cognitive profile of strategic thinking is based on the meaning system which enables assessing cognitive processes typical for specific tasks (Kreitler & Kreitler, 1990; Kreitler, 2014). The methodology consists in analyzing the meaning communications of basic terms provided by the respondents. The results show which cognitive processes play a role in the thinking of the respondents. The major identified cognitive processes refer to contents, types and forms of interrelations between the content items, and forms of expression.

In terms of contents, individuals with good strategic thinking use superordinate categories identifying the context to which a theme belongs; analysis which helps in identifying components or steps; actions, functions and manner of operation which deal with the dynamic aspects in situations and themes; causes and consequences, often referring to "if... then" possibilities; spatial and temporal qualities; specification of who is involved and what is affected; structure which contributes to



organization; state which refers to considering present situations; judgments and evaluations. Notably, the salient contents in the cognitive profile of strategic thinking do not include references to emotions and to sensory qualities (e.g., colors, forms).

In terms of types and forms of relation, individuals with good strategic thinking refer primarily to facts; use comparisons, noting similarities, analogies and difference; refer to examples and illustrative situations, including concrete details; use both positive and negative connections, emphasizing qualifications, such as sometimes, mostly, quite rarely, maybe, probably; and applying conjunctive and disjunctive connections. They tend to focus on the major theme, shifting from it to some extent so as to consider related issues, but do not shift too far away and do not dwell on barely related associations. They use both verbal and non-verbal forms of expression (e.g., schematic drawings, movements). On the other hand, they refrain from dwelling on metaphors, on absolutistic generalizations and normative thinking forms (e.g., it must be like A and B; things should develop that way).

The following tendencies characterize the cognitive profile of individuals with good strategic thinking:

First, cognitive profiles in general can include an interpersonally-shared part focused on reality and a subjective-personal part focused on one's inner life and experiences. The cognitive profile of strategic thinking includes both aspects but is based predominantly on the reality-focused part and is expressive of the personal-subjective aspects only to a small degree.

Second, the cognitive profile of strategic thinking includes both the tendencies for abstract thinking as well as concrete thinking, focused on dynamic aspects of actions and attention to concrete details.

Third, the cognitive profile of strategic thinking includes the components necessary for supporting a reality based, complex kind of thinking, which considers a broad range of aspects, is integrative, logical, critical, evaluative, and operatively-oriented.

Fourth, the cognitive profile of strategic thinking is complex and rich in terms of the many components it includes. Hence, it may be assumed to be adequate for supporting complex and variegated tasks of strategic thinking. This feature is of particular significance since in any specific task of strategic thinking only specific components of the cognitive profile are involved and not the whole of it. A cognitive profile that is rich enough enables the choice of components adequate for different tasks and enables flexibility also to the individual.

Finally, this cognitive profile resembles the cognitive profile that has been identified for planning (Kreitler & Kreitler, 1986, 1987a, 1987b) and to a certain extent also the profile for innovative thinking but it differs from that of creative thinking (Kreitler, 2019).

It is of interest to note that the described cognitive profile of strategic thinking includes several cognitive processes mentioned by other investigators, mainly analogy (Gavetti & Rivkin, 2005; Gibson & Mazur, 1995), analytical thinking (Ghildiyal, 2015), critical thinking (Pless & Clayton, 1993; Reynolds, 2011), focusing on the target or goal setting (Roberts, Wilson, Skultety, & Lyons, 2018), flexibility (Clark & Boissoneau, 1995) and attention to concrete details (Pinto et al., 1999; Dörner & Pfeifer, 1993). Although the contribution of identifying single processes to understanding strategic thinking is more limited than that of the cognitive profile, the similarity in findings enhances the validity of the described cognitive profile of strategic thinking.

### *The motivational profile of strategic thinking*

The motivational profile of strategic thinking represents information essential for understanding strategic thinking. It complements the cognitive profile in shedding light on the personality aspects that motivate strategic thinking. Several studies found that personality tendencies, such as impulsivity (Kräplin et al., 2014), difficulty in delay of gratification (Lombardi et al., 2017) and in impulse control (Albert & Steinberg, 2011) may lower the ability for strategic thinking. Hence, it seemed likely that further personality tendencies may be involved in promoting strategic thinking.

The motivational profile that will be described is based on the theory of cognitive orientation which provides the tools for identifying the components of the motivations for particular behaviors (Kreitler, 2004). The major theoretical assumptions are that motivation is determined by beliefs that represent the meanings underlying the specific behavior. The motivational vector consists of four types beliefs: about oneself, about rules and norms, about goals, and general beliefs about reality and others. The beliefs refer to themes identified in previous research. The themes constitute the core of the motivational disposition. The themes identified for strategic thinking are the following:

Creating something functional; improving something that already exists rather than producing something completely new; readiness to take risks; perseverance (focusing on the goal); being flexible (even at the cost of seeming unsteady/unreliable); not to be afraid of failure; controlling the situation; functioning well also in uncertain conditions; relying not exclusively on logic; being free to act as one considers fit; readiness to take one's time in doing something; readiness to consult and to cooperate.

The listed themes differ markedly from those characterizing creativity but resemble those characterizing individuals who are considered as good in regard to innovation and entrepreneurship

(Kreitler, 2019). If creative individuals are motivated to improve what exists in the world, strategic thinkers are motivated to improve the functioning of that which already exists. Strategic thinkers do not strive for perfection nor for breaking the boundaries of what already exists. The emphases on self expression and enhancement of self identity which are important in the framework of the motivation for creativity are replaced in the framework of strategic thinking by the emphases on reality and functioning in reality for the sake of improving the well-being of a larger or smaller community of people. This does not necessarily imply that strategic thinkers may not be creative but that their creativity is not designed to produce something completely new and unique but is rather designed to subserve the major goal of functionality.

## Some conclusions

The theoretical and empirical explorations of strategic thinking support the major conclusion that strategic thinking is a unique form of problem solving. It is unique because it is characterized in terms of a cognitive profile and a motivational profile, each of which includes a variety of components that are particular to strategic thinking. The cognitive profile of strategic thinking is characterized by cognitive processes that support reality orientation, factual approach, focusing on the target, organization and structuring, operational-functional thinking, attention to concrete situations, coupled with abstract, logical and comparative thinking, preserving a modicum for change and flexibility. Notably, the motivational profile is in concordance with the cognitive profile. The motivational tendencies are also characterized by focusing on the goals, reality orientation in terms of improving what exists rather than creating something completely new, functionality and flexibility.

The results of the exploratory studies indicate that strategic thinking is not a specific process or tendency but a cognitive operation that manifests a specific and unique case of problem solving.

The cognitive and motivational profiles include sets of different processes. In each case of applying strategic thinking only a specific cognitive and motivational processes are activated. The selection depends on the context of the task, the situation and the individual. The fact that there exists a choice of processes enables flexibility in handling the task at hand, adaptation to changing circumstances and perspectives and approximating optimal achievement.

The demonstration that strategic thinking is a function of a cognitive and a motivational profile does not imply that every individual may be able to use all relevant processes. There are probably individual differences in the degree to which individuals are able to use the different processes of strategic thinking. Some individuals may not have learned or mastered all the different processes at all or sufficiently for application, and even if they have mastered them, it is possible that they have not

learned to use them jointly in the service of strategic thinking. The degree to which one has at one's disposal the relevant processes can be assessed.

However, it is important to emphasize that cognitive processes as well as motivational processes can be trained. There are standard procedures for the training if it is deemed necessary or desired to acquire expertise in any behavior or cognitive operation. Since strategic thinking is an important tool in a great variety of domains, it may be of interest to be aware of the possibility to acquire or enhance one's ability and expertise in this domain (Kreitler, 2004, 2014).

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Born 1938 Tel Aviv; Professor; 1960: Bachelor of Arts, Bar Ilan University; 1964: Doctor of Philosophy, Bern University; since 1986: professor of psychology at the Tel Aviv university; 1995 - 2007, Head of Tel Aviv Sourasky Medical Center; since 2007 Head of the Psychooncology Research Center at the Sheba Medical Center. Published over 200 articles and 18 scientific books.

