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Problem-solving capacities of spiritual intelligence for artificial intelligence

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Abstract

Spiritual intelligence (S-intelligence) is able to engage with problems of meaning and value in order to solve them. In the present work, we studied the S-intelligence capacities that can be used to solve artificial intelligence (AI) problems. For this purpose, we proposed a new definition of problem solving that can manipulate spiritual aspects of the problems and conform to the requirements, conditions and capacity of S-intelligence models. Also we provided the definitions of S-intelligence, S-problems and S-methods for problem solving.

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1. Introduction

Artificial intelligence (AI) is an endeavor to endow mechanical artifacts with human-like intellectual capacities. The strong AI hypothesis avows that “an appropriately programmed computer is really a mind”. In the AI, the problem solving process (PSP) is a framework that creates a problem and solves it. A problem *P* in the PSP framework is defined so that its characters are requirements, conditions and structure. A strategy is applied, as a function of characters, to generate all the answers attained by this strategy.

Unlike the artificial (or rational) intelligence, S-intelligence is a new paradigm that conveys different conceptions (Emmons, 2000). If we are willing to give a definition for S-intelligence, we should solve many challenges and select one from among various insights. What can help us is to clarify the conceptions in order to provide an accurate representation of S-intelligence. The transformative power of S-intelligence distinguishes it from intelligence quotient (IQ) and emotional intelligence (EQ). Recently, some scientists have used S-intelligence to address and solve the problems of meaning and value. For example, some psychologists have suggested that S-

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intelligence has the ability to utilize S-resources* to solve problems by describing S-intelligent people model (Zohar & Marshall, 2000).

In this paper, we used experimental and psychological results (Nasel, 2004; Sisk, 2002; Zohar & Marshall, 2000; Emmons, 2000), underlying some philosophical assumptions, without attending to the basic challenges of the definitions and conceptions of S-intelligence. To accomplish this, we separated different kinds of problems and found out how one can use S-intelligence capacity to solve such problems. We further tried to continue the problem-solving process by S-intelligence, which is similar to AI, and provided a new definition of S-intelligence problems. Then, we confirmed all steps and objects with the components of new kind of PSP that can be used to solve the complex problems of AI. Finally, we tried to approach humanistic methods and machineries.

2. Spiritual Intelligence

Intelligence is the ability to analyze cognitive complexities. It applies knowledge to manipulate or satisfy conditions of problems in order to reach the goals or to attain answers. It is the capacity of performing abstract reasoning, which involves the mental transformations carried out via established rules (Mayer, 2000). Also it facilitates flexibility in challenging situations for any environmental context (Sternberg, 1997). Fundamentally, the nature of intelligence in humanistic perspective is related with recognition of problem, determination of aspects of problem, construction of strategy to solve the problem, mental representation of information about the problem, the use of appropriate mental resources for problem solving, monitoring of implemented solution, and evaluation of effectiveness of solution (Sternberg, 1997). The fact that intelligence is comprised of many different abilities is supported by the current trends in neurology and cognitive psychology, but our view of intelligence in this paper has two dimensions:

- Intelligence refers to the capacity of distinguishing truth from illusion, which implies more than just being sensitive to subtle ability. It is rooted in our cognitive ways as an evolutionary experience of life
- Neurologically, everything that bears on intelligence is routed through, or is controlled by the brain and its neural extensions into the body. On the other hand, neural organization enables logical and rule-bound thinking of our rational intelligence.

Several kinds of intelligences have been proposed so far: rational, emotional and spiritual intelligences are more popular and considered as the main divisions of intelligence. If rational intelligence is about thinking and solves logical problems and emotional intelligence is deals with feeling and allows us to judge the situation, then S-intelligence is about being that allows us to ask whether we want to be in present situation. However, at the first view, it is linked with the modes of information processing or problem solving is not clear but it holds various components of cognition and experience (Csikszentmihaly & Rathunde, 1990), so that S-intelligence can access to S-information by skills and aptitudes for processing and expressing such information effectively. From this perspective, spirituality may be conceptualized in cognitive-motivational terms to represent the set of adaptive skills and resources that facilitate problem solving and goal attainment (Sisk, 2002; Wolman, 2001). Nevertheless, Gardner (2000) resists against accepting S-intelligence as a specific intelligence.

Sisk and Torrance (2001) have developed a foundation for S-intelligence theory that suggests in many ways that S-intelligence encompasses all of intelligences. Although there is little agreement about the different definitions of S-intelligence, this study is based on the stable definitions which are more acceptable for researches.

The view of brain as an information-processing device is a principal characteristic of cognitive psychology (Anderson, 1980). There is one question left: *Which kind of intelligence may or may not be associated with different areas of the brain?* We know that S-intelligence is concerned with the inner life of the mind and spirit and their relationship to “being” in the world. So, it is certainly suggested that a spiritual gift may be associated with specific areas of the brain. The fact that S-experience has physiological correlates in the brain do not necessarily means that they are caused by the brain (Nael, 2004). To some extent, S-intelligence may be seen as a brain-based potential to utilize S-abilities and S-resources for solving problems of ultimate concern (Emmons, 1999). S-intelligence can be thought of as a super-process integrating stimuli to the left- and right-brain with perspectives that cross-cue each other, and also question about the meaning of present situation (Zohar & Marshall, 1994). This does not suggest that

* S stands for spiritual throughout the text. For instance, S-resources is equal to spiritual resources.

S-experiences can be reduced to physiological structures and functions in the brain, although neurophysiology may possibly play a role in their function and application as contributors to S-intelligence (Vaughan, 2002).

S-intelligence encompasses a whole spectrum of perspectives and multiple modes of knowing. It can be in the form of one of the following four modes:

- It applies a capacity for a deep understanding by existential questions,
- It creates insights into the multiple levels of consciousness,
- It implies the awareness of spirit as the ground of being,
- It forces evolution for creativity.

S-intelligence has different ways of knowing the complete form of thinking. We reframed and transformed our previous thinking appropriately within the boundaries of the situation, allowing the situation to guide us. Our S-intelligence allows us to ask if we want to be in this particular situation in the first place. S-intelligence is beyond both IQ and EQ, which can develop our capacity for vision, meaning, value, intuition, beliefs and subsequent actions.

3. Problems of S-Intelligence

The definition of a problem is the beginning of problem solving process. This assumption that S- intelligence can be applied for all areas is not confirmed and nevertheless it does not mean that S-intelligence is irrelevant to any problem and experience. The endeavor of separating out spiritual issues and other problems is to apply different problem solving strategies challenged. Ideally, based upon our brain design, our three basic intelligences (IQ, EQ and S-intelligence) work together and support one another, but each of them has its own area of power and can function in a stand-alone mode.

AS-problem is defined when it uses the S-resource such that full fill some of its requirements or its conditions. S-intelligence is alone when it tries to find the answer of S-problem for example, existential questions, and explore the meaning of questions such as “Who am I?” “Why am I here?” and “What really matters?” It seems that special capability of S-intelligence is about question rather than answer. The ability of S-intelligence is revealed when the problems of meaning and value are solved in the context of a bigger picture. More sensitive is about the reality and deepening our inquiry, which includes subjective as well as objective perspectives. It depends on the capacity to see things from more than one perspective and to recognize the relationships between perception, belief and behavior that may be pursued in just about any life event or experience.

4. S-Methods for Problem Solving

S-intelligence offers a viable tertiary brain process for synchronous neural oscillations that unify data across the whole brain, which in turn, unifies, integrates and has the potential to transform material arising from the two other processes: reason and emotion. S-intelligence facilitates the dialog between mind and body, as well as between reason and emotion. S-intelligence is at the boundary of chaos and order briefly “chaorder”, between the known and the unknown. It also self-organizes the frontier for information creation (Selman, Selman, Selman, & Selman, 2005). Some of the abilities and qualities of S-intelligence such as wisdom, self-awareness, creative reasoning, integrity and asking ‘why’ questions (Sisk & Torrance, 2001), can be argued and related to a much broader range of problems and issues apart from existential or S-matters (Emmons, 2000). For example, they can be applied to the conceptualization and resolution of relationship problems. They may also be used in applied contexts for planning and formulating the policies of solving and complex statements.

To solve an S-problem, it is important to distinct between requisition and reason. S-intelligence emerges as consciousness that evolves into an ever-deepening awareness of matter, life, body, mind, soul and spirit. S-resources and expert systems are related with other, and both can guide to start an effective line among several choices. S-intelligence is an essential context of a holistic approach to solve such problems.

Who are searching for clues to the relationship between mind and material phenomena? Creative reasoning is a capacity to think and explore “outside the problems box” as over peculiarities of problem, and the ability to see connections between the seemingly disparate phenomena. Some of the capacities of S-intelligence strategies are:

- Solitude strategy is essential for activation of S-inquiry and discovering the answer of mind challenges such that it can often help a person come to terms with the existential realities of aloneness, freedom and death when there is no natural ways available.
- S-experience strategy: Such experiences can offer significant insights; yet interpretations are inevitably shaped by beliefs and successful integration is dependent on both cognitive and emotional factors. S-intelligence can be followed up from the patterns to distinguish reality from illusion, e.g., the collection of successful experiences of the famous people.
- Wisdom strategy includes knowing the limits of your knowledge.
- Inner voice strategy is the ability to use a multi-sensory approach to problem solving, while learning to listen to his/her inner voice.
- Integral practice strategy refers to the activities derived from many suppositions that integrate body, emotions, mind and spirit. These practices expand the awareness of wholeness and the intimate relationship among the mind and matter, body, soul and spirit.

4.1 Problem Solving Process

Although the problem solving process can be defined in different ways, in the literature of artificial intelligence (AI), it has been defined as a sequence of sections that fit together depending on the type of problem to be solved. On the whole, we have: problem definition, problem analysis, generating possible solutions, analyzing the solutions, selecting the best solution(s) and planning the next course of action. Thinking about the process is only a guide for problem solving. It is useful to have a structure to follow in order to make sure that nothing is overlooked. It may be ignored or reinforced. A problem P in the PSP framework has considered as structure (r, c, s, m) , so that r is the set of requirements, c is the set of conditions, s and m are strategies and our model, respectively. At the PSP, we can create $ans_p = \{s_i(r, c, m) \mid s_i \in s\}$ that consists of all answers attained by the set of strategies. We proposed new definition of PSP called PSP_{SI} which can manipulate S-aspect of problems and is consistent with the requirements, conditions and capacity of S-intelligence model. The PSP_{SI} applies new kind of strategies in order to realize S-aspect problems as requirements and conditions to create a set of desired answers. We transformed some of these new strategies of PSP_{SI} that can be used in the PSP.

Unlike rational intelligence that is linear, logical and quantifiable, S-intelligence cannot be quantified, but we may have high S-intelligence vs. its normal form. The realization and the cognition of r_{SI} , we should be deeply honest with ourselves. The conditions, c_{SI} , are to face choices and realize that sometimes the right choices are difficult ones since they are hidden. High S-intelligence demands that we stand open to experience and recapture our ability to see life and others afresh, as a powerful means of using our inner knowing to make a difference. It further demands that we cease to seek refuge in what we know and constantly explore and learn from what we do not know. It also requires that we live with the questions rather than with the answers.

4.2 Spiritual Path

Suppose a person who tackle with deep challenges such that all his/her rational intelligence and abilities have stopped, then a spark happens immediately, then he/she asks for his/her personal beliefs about many “who” and “what” questions, as important components of S-path. It is drawn to deeper contemplative practices by a longing for wholeness and understanding S-path unfolds, leading gradually to spiritual maturity. Some qualities that tend to be associated with spiritual maturity include honesty, tolerance, open-mindedness and inner peace or equanimity in the face of life’s existential challenges.

The S-path is a metaphor for the development of spiritual qualities, which includes S-intelligence. Emphasize of S-path has ascent to higher states of consciousness and self-transcendence or decent communion with nature and body awareness (Wilber, 1995).

At conventional levels of development, the unfolding of the S-path requires self-awareness and familiarity with different ways of perceiving reality. Although the basic intuition of spirit can be discerned at any stage, this awareness is more easily integrated with rationality as a person grows into S-maturity (Wilber, 1997).

4.3 PSP of S-Intelligence

There are many differences between the human brain capacity and our definition from its neural structures. When try to provide the model of brain behavior to solve a set of strict problems, we observe that aspects of mental,

emotional and S-intelligence have not similar challenges. Also the thinking process is not just IQ because our thinks have emotionality, EQ (as our bodies), and S-intelligence (as our unifying sense of meaning and value). Neither IQ nor EQ, without S-intelligence, is enough to explain the full planning of human intelligence. Then computers with high IQ do not have similar human work in all conditions. They know what the rules are and how to follow them without making mistakes, but they do not know how to respond appropriately or why we have these rules or this situation. They work within boundaries, playing a “finite” game.

Although there are many aspects of human intelligence that no computer has been built yet, we do not agree these capacities named S-intelligence. At comparing humans and artificial agents, humans have essentially S-beings, evolved and/or programmed to ask fundamental questions while computers, doing their duty, may or may not have difficulty with paradox and deadlock when they are safe physical boundaries. For a full automatic problem solver, when there is a paradox, two things may appear to be opposite, both of them can be true or ignored.

Table1. Applng S-question for problem solver agent

S-question	Agent-question
Who am I?	Where is paradox?
Where am I going?	How is a goal?
What do others mean to me?	What are the alternative answers?

To bring the define of awareness to the transformational process, true change agents seek the S-center to comprehend the awesome oneness of the multi-relationship of body, mindset, emotions and spirit and also to readily access the creative power for optimizing the human potential. This goal requires a major change in PSP, the process of transforming perceptions and fine-tuning quantum protocols for personal as well as S-growth and awareness.

Table 2. Partial list of knowing methods: S-strategies and S-paths

Knowing methods	S-paths	S-strategies
Self-awareness	Tolerance	Solitude
Creative reasoning	Open-mindedness	S-experience
Integrity	Inner peace	Wisdom
Why-questions	Equanimity	Inner voice
		Integral practice

5. Conclusion

This paper surveys that S-forms of problem solving that can be used appropriately and effectively in various non-spiritual contexts under this basic assumption that “Are these kinds of problems oriented primarily toward S-problem form?” We suggested S-intelligence methods to solve some problems when there is only one question about S-resources. Since S-intelligence has the ability to engage problems of meaning and value to solve them, we can use its capacities to solve AI problems. Significantly, view S-resources would be less appropriate or useful for problems as mathematical formulae.

We showed that S-intelligence has the abilities and competencies for every personal and social problem without limitation, which is the constituent of a person's knowledge base or expertise. Difficult situations need S-intelligence capacities for simplifying or solving the problems. We suggested that there are general approaches in S-intelligence as PSP and realized some effective parameters of S-intelligence that help to increase the power of a traditional PSP. PSP_{SI} can be enhanced by a process that involves completing or making whole of the objects and is affected by bringing together a variety of aforementioned insights. The valuation problems that are defined in the PSP can now be expressed at PSP_{SI} and solved by S-intelligence strategies. Overall, some answers of PSP_{SI} are better than those of PSP. Future works should make plans for testing and implementing ideas by simulation of PSP_{SI} .

We now have some data on the mapping between some areas of the brain and the parts of the body that they control or from which they receive sensory input. However, we do not fully understand how other areas can take over functions when one area is damaged. There is almost no theory on how an individual memory is stored.

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