Discovering a Unique Talent: On the Nature of Individual Innovation Leadership

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Abstract: How does it happen that some individuals become exceptional innovation leaders and their organizations output a constant flow of innovation? Based on autobiographical and biographical accounts of well-known innovation leaders and integrating a number of independent directions of research, this article presents a theory of innovation leadership. The theory aims to explain the nature of innovation leadership at the individual level, that is, why some individuals are very good at both generating and implementing new ideas into practice in the form of new products, processes, or services.

Keywords:
innovation, leadership, innovation leadership, “vision”, cognitive experience, sensitive periods

Introduction: Integration of Innovation and Leadership – Examination of a Neglected Topic

Today’s economy is innovation-based. Innovation – conceptualised as a transformation of creativity into new products and services – is the key process that characterizes the New Economy (Shavinina, 2003). Successful innovation generates long term, sustainable economic prosperity. Most organizations now recognize that the best way to increase corporate earnings is through top-line growth, and the best route to top-line growth is through innovation. Thus, industrial competition is increasingly harsh and companies must continuously bring innovative products and services to the global market. As such, they need innovative people whose novel ideas are a necessity for the companies’ success. Innovation leaders are especially important here: they foster innovation acting as the linchpins of companies’ innovation process, the ‘evangelists’ of an innovation and entrepreneurship culture. Innovation leaders are mostly senior executives or entrepreneurs – whatever their functions or positions – who successfully instigate, sponsor, and steer innovation in their organizations (Deschamps, 2003). The study of what innovation leadership is all about is therefore of great importance to the whole world.

Despite the obvious importance of innovation leadership in the life of any societal “organism,” one should acknowledge that this phenomenon is far from well understood. Both an expanding leadership literature and a growing body of literature on innovation have not yet studied innovation leadership systematically. For the most part, innovation leadership is discussed either by innovation management researchers in the context of the role of top management in innovation (Bessant, 2003; Hauschildt, 2003; Katz, 2003; Nonaka et al., 2003; Tidd et al., 1997; Van de Ven et al., 1999; Utterback, 1994) or by leadership scholars mostly within the topic of “leadership and organizational change” (Robert, 1991; Schuijver & Vansina, 1999; Shamir, 1999) involving mainly such concepts as “transformational leadership” (Bass, 1998), “effective leadership” (Yukl, 1999), and “creative leadership” (Sternberg, 2003). Innovation management researchers demonstrate how important executives are for generating organizational innovations and...
describe their behaviors (Katz, 1997, 2003; Tushman & O’Reilly, 1997). For instance, Van de Ven et al. (1999) observed that many – not one or a few – top managers were actively involved in the development of innovations and that they performed and often shifted among four roles: sponsor, mentor, critic, and institutional leader. However, not all managers are leaders (Kotter, 1990) and not all leaders are innovation leaders. Likewise, not every organizational change leads to innovation; as well as not every transformational leadership implies innovation leadership.

Psychologists’ contribution to the study of innovation leadership should especially be mentioned. They are mainly working in the two directions: research on creativity as the first step in innovation process (Sternberg et al., 2003), and research on climate conducive to creativity and innovation (Amabile et al., 2002). This contribution was best integrated in the special issues Leading for Innovation of the Leadership Quarterly (Mumford, 2003, 2004).

A third direction of research has recently emerged, which tries to analyze specifically the phenomenon of innovation leadership (Bower, 1997; Deschamps, 2003; George, 2003). But being at its initial stage of development, this line of investigation is mainly descriptive. The phenomenon of innovation leadership thus remains terra incognita from a research viewpoint, being only partially known primarily from some autobiographies and biographies of famous innovation leaders (Branson, 2002; Dell, 1999; Grove, 1996; Lehr, 1979; Morita, 1987). In spite of advances in innovation research, determined mostly by studies of business scholars and management science specialists (Christensen, 1997; Katz, 1997; Tidd, Bessant, & Pavitt, 1997; Tushman & O’Reilly, 1997; Van de Ven et al., 1999), and an increasing literature on leadership, we do not know for certain why it is that some individuals can be exceptional innovation leaders and others not. In other words, why are certain people – at any administrative level – able to take a lead in developing new products and services in their organizations? When can exceptional innovation leadership talent first be identified? How can this talent be developed both in terms of personal and organizational development? Because of all of this, a theory of innovation leadership presented below is an exceptionally timely endeavor: it sheds light on these important issues.

Integrating to a certain extent a number of independent research streams and being based on my studies of successful innovators-entrepreneurs, this article presents the theory aimed at the conceptual explanation of innovation leadership at the individual level. The article thus (a) introduces the concept of individual innovation leadership and provides a unified perspective on this phenomenon; (b) explains those fundamentals of innovation leadership (e.g., leaders’ unique “vision”), which have not been explained by scholars; and (c) extends existing empirical studies on innovation leadership. The theory will therefore advance our understanding of innovation leadership and its multifaceted applications in a wide range of organizational settings.

It should be pointed out that the proposed theory aimed at explaining the nature of innovation leadership at the individual level seems to be very close to what in the area of organizational psychology is known as “trait-theory” or “great man-theory” (Gehring, 2007; Kirkpatrick, & Locke, 1991; Rost & Smith, 1992). However, this is not entirely correct. The proposed theory of innovation leadership seeks to explain the very nature of this phenomenon or its fundamental/inner mechanisms. To understand the inner/fundamental mechanism of innovation leadership means to understand how this phenomenon develops within the individual. Social environment, for instance, is important, but it is only an external factor in the development of innovation leaders. Any external factors or forces do not supply scientific explanations of the phenomenon of innovation leadership at the individual level. The three levels of the manifestations of innovation leadership presented in the model below represent in fact all possible traits of innovation leaders. Nevertheless, the nature of innovation leadership cannot be explained by any possible trait of a great man or even a combination of traits (Shavinina, 1995). Developmental foundation of innovation leadership and its cognitive basis explain the very nature of this phenomenon.
According to the theory presented in this article, individual innovation leadership (which manifests itself in the extraordinary achievements of a person in any field of real activity) is a result of a specific structural organization of an individual's cognitive experience which functions as a carrier of all the manifestations of innovation leadership (i.e., its traits and characteristics). Cognitive or mental experience expresses itself in a specific type of the representations of reality (i.e., how an individual sees, understands, and interprets the world around), that is, in an individual's intellectual picture of the world. The essence of innovation leadership consists in the uniqueness of the individual's intellectual picture of the world. This is the so-called “vision,” which many leadership scholars (Bennis & Biederman, 1997; Robert, 1991; Sternberg, 2003) identified as an important facet of true leaders. In other words, according to the theory presented in this article, innovation leaders’ unique view, understanding, and interpretation of what is going on in the surrounding reality are keys for the scientific understanding of innovation leadership. The internal structure of individual innovation leadership is presented at five levels: (1) a developmental foundation of innovation leadership; (2) the cognitive basis of innovation leadership; (3) intellectual manifestations of innovation leadership; (4) metacognitive manifestations of innovation leadership; and (5) extracognitive manifestations of innovation leadership. These levels are presented in Figure 1 as five layers, each of them is considered in detail below.

Figure 1. Model of individual innovation leadership.
Methodological Issues

Before presenting the theory, it should be noted that from the methodological point of view, I rely significantly on autobiographical and biographical accounts of famous innovation leaders. These accounts are perfectly suited for capturing the special characteristics of innovation leaders. Autobiographical and biographical literature is essential for the research on persons or events distinguished by their relative rarity as is the case with innovation leaders. Often autobiographical and biographical accounts provide a holistic view of the subject (Frey, 1978) allowing researcher to develop and validate theories grounded in a more direct “observation” of the individuals. The use of autobiographical and biographical literature for the study of innovation leaders presents, however, certain limitations, such as:

(1) The possible subjectivity of biographers resulting from their individual interpretations of events, thoughts, and people. These interpretations may be influenced by their personal attitudes towards the person about whom they write, an attitude potentially swayed in part by whether the latter is living or not. Autobiographers can also be very subjective and contradictory in their accounts of their own thinking processes, psychological states, and the surrounding events, which lead up to and follow their particular innovations and/or supporting actions with respect to innovations of other people.

(2) Time of writing the autobiography or biography, normally after an individual has already become a famous personality – often rely on vague memories of one’s thinking processes which may have likely been weakened or altered over time. Hence, the conclusions and reports of autobiographers – and especially of biographers – are not always very reliable. It certainly raises the issue surrounding the validity and reliability of subjective reports when they are used as data. This problem has been addressed extensively in the literature (Brown, 1978, 1987).

However, even with these limitations in mind, the use of autobiographical and biographical literature is probably one of the best sources available for the investigation of innovation leadership since this research direction is at its early stage.

The Concept of Individual Innovation Leadership and Related Issues

It is extremely important to understand the essence of innovation leadership at the individual level because it is always people who “develop, carry, react to, and modify ideas” (Van de Ven, 1986, p. 592), as well as implement them into practice in the form of new products, processes, or services (Shavinina, 2007a). Taking into account that “there has been scant attention paid to innovation at the individual and group levels” (West & Farr, 1989, p. 17), the proposed research direction seems critical. As this article deals with individual innovation leadership, that is, innovation leadership at the individual level (as opposed to corporate or organizational leadership), this concept and related concepts need to be explained.

Many people believe that creativity and innovation are synonymous. This is not entirely correct. Creativity is the generation of new, original, and appropriate ideas. ‘New’ means novel, ‘original’ refers to unexpected, unusual ideas, ‘appropriate’ means useful, applied to real-life contexts. Innovation refers to the generation and implementation of new ideas. That is, innovation includes creativity. Sometimes creativity is termed the ‘fuzzy-front end of innovation.’ Implementation is a very important aspect of innovation. This is the essence of innovation. A person may have great creative ideas, but if he or she is not able to implement them in practice in the form of new products, processes or services, nobody can say that this person is an innovator.

Some researchers believe that innovation leadership and creative leadership are synonymous. See, for example, many articles in the special issues Leading for Innovation of the Leadership Quarterly (Mumford, 2003, 2004). That is, if leaders are able to generate
great ideas, create a culture conducive to creativity and receive a lot of ideas from their employees, then they are innovation leaders. This is not entirely correct. As was mentioned earlier, creativity is the first step in innovation process. Nevertheless, the essence of innovation is the implementation of creative ideas into practice.

The difference between innovation and creativity explains the existence of innovation gaps. The concept of an innovation gap means that people have a lot of creative ideas, but they are not able to implement them due to various reasons. The difference between innovation and creativity also explains why there is a constant tension between creative people in any organization and those, who are responsible for implementation of creative ideas. Everyone knows the traits of a creative individual, such as unlimited imagination, a flow of ideas, independence in thoughts and actions, persistence, and so on (Shavinina, 1995). In contrast, human abilities to implement things often require different sets of traits including discipline and an ability to follow the developed plan.

However, there are some individuals who are very good at both generating creative ideas and implementing them into practice. Examples are Jeff Bezos, Richard Branson, Michael Dell, Bill Gates, Akio Morita, Fred Smith, just to mention a few. This is the case of individual innovation leadership.

Many innovation researchers believe that innovation is a team sport. It means that if anyone wants to implement a new idea into practice, he or she needs to involve many people. This is true, especially when we are talking about organizational innovators such as Apple Computer Inc. or 3M. Nonetheless, some individuals are able to generate great ideas and to create teams, which put those ideas into practice. For instance, Thomas Edison is a good example of an exceptional innovator. At the same time Edison considered his research laboratory, his team as his greatest invention. Again, this is the case of individual innovation leadership.

Based on findings from empirical investigations, it was concluded that innovation leaders are gifted, creative, and talented individuals (Shavinina, 2007a). Innovation leadership belongs to a general construct of high abilities along with creativity, talent, giftedness, and exceptional intelligence. Therefore, psychology of high abilities has an important role to play in explaining the nature of innovation leadership at the individual level. This article thus relies to a significant extent on findings from high ability studies, especially on the cognitive-developmental theory of giftedness (Shavinina, 2007b; 2009a). As it addresses the issue of why only certain individuals are able to instigate, sponsor, and steer innovation, a range of questions arises such as: What is exceptional about the personalities of innovation leaders? Do they have extraordinary minds? Is their exceptionality a result of a combination of their unique minds and personalities? In order to successfully address these questions, one should recognize that those individuals who are able to instigate, sponsor, and steer innovation are gifted, creative, and talented. Individual innovation leadership is therefore a special type of giftedness. Consequently, the cognitive-developmental theory of giftedness (Shavinina, 2007b; 2009a) can be applied to explain the nature of individual innovation leadership.

**Toward a Theory of Individual Innovation Leadership**

**Cognitive Experience as a Basis of Individual Innovation Leadership**

As was mentioned earlier, the nature of innovation leadership at the individual level is still an area of research that has been left relatively unexplored. Although the traits, characteristics, features, properties, and qualities of innovation leaders (i.e., their external manifestations in any real activity) have been described in the literature (Bower, 1997; Deschamps, 2003), the basis (or psychological carrier) of these manifestations has not been investigated. Attempts to understand the nature of any phenomenon based solely on listing and describing its external manifestations, including its characteristics, traits, features, qualities, and properties, are inadequate.
A new research direction is needed that considers individual innovation leadership as the sum of its two important aspects: its external manifestations and its psychological basis. Therefore, there is a need to re-examine the question of the nature of individual innovation leadership. Researchers should not simply answer the question “What is individual innovation leadership?” by merely listing its characteristics and traits (i.e., its external manifestations). Rather, they should answer the question: “What is the carrier (a basis) of the characteristics and traits associated with individual innovation leadership?”

From this fundamentally changed viewpoint, scientists should study an individual’s mental or cognitive experience — more precisely, the specificity of its structural organization. Cognitive experience is defined as a system of the available psychological mechanisms, which forms a basis for the human cognitive attitude towards the world and predetermines the specificity of his or her intellectual activity (Kholodnaya, 2002). The individual cognitive experience is the basis of individual innovation leadership or the psychological carrier of its manifestations (Shavinina & Kholodnaya, 1996). Cognitive experience — the cognitive level in the structural organization of individual innovation leadership or its cognitive basis — is formed by conceptual structures (i.e., conceptual thinking), knowledge base, and subjective mental space.

Conceptual structures are important because conceptual thinking is a form of the integrated functioning of human mind (Kholodnaya, 2002). The more conceptual thinking is the integrated phenomenon of human intelligence, the better structural organization of an individual’s intellectually creative activity is. In this case human mind functions better. Chi & Hausmann (2003) discuss the importance of conceptual structures in the context of their approach to understanding scientific innovation.

The knowledge base is the second component in the structural organization of the cognitive experience. Knowledge base plays a critical role in the development of an individual’s intellectual and creative resources (Bjorklund & Schneider, 1996; Chi & Greeno, 1987; Chi, Feltovich, & Glaser, 1981; Chi, Glaser & Rees, 1982; Pressley et al., 1987; Rabinowitz & Glaser, 1988; Schneider, 1993; Shavinina & Kholodnaya, 1996; Shore & Kanevsky, 1993). Researchers found that the quantity and quality of specialized knowledge play a critical part in highly intellectual performance and in the process of acquiring new knowledge (Bjorklund & Schneider, 1996). For example, productive problem solving cannot occur without relevant prior knowledge (Chi & Greeno, 1987).

The knowledge base can facilitate the use of particular strategies, generalize strategy use to related domains, or even diminish the need for strategy activation (Schneider, 1993). It was demonstrated that intellectually gifted people are distinguished by an adequate, well-structured, well-functioning, and elaborate knowledge base, which is easily accessible for actualization at any time (Kholodnaya, 2002; Rabinowitz & Glaser, 1985). Moreover, this rich knowledge base can sometimes compensate for overall lack of general cognitive abilities (Pressley et al., 1987; Schneider, 1993).

Conceptual structures and the knowledge base generate subjective mental space, the third component in the structural organization of cognitive experience. Individual differences in flexibility, differentiation, integration, and hierarchical structure of the mental space influence a person’s cognitive attitude to the world and, therefore, determine his or her intellectual and creative abilities, which lead to new ideas resulting into innovation. A more detailed review of the influence of flexibility on innovation can be found in Georgsdottir, Lubart & Getz (2003). When we say, for example, that innovation leaders are flexible people (Deschamps, 2003), it means first of all that boundaries of their mental space are flexible. The flexibility of innovation leaders and their minds originates from the flexibility of their mental spaces.

Innovation Leaders’ Unique “Vision”

Cognitive experience expresses itself in a specific type of representations of reality — that is, how an individual sees, understands, and interprets what is going on in the surrounding
On the Nature of Individual Innovation Leadership

reality and in the world around him or her\(^1\). Highly intelligent persons, including innovation leaders, see, understand, and interpret the world around them by constructing an individual intellectual picture of events, actions, situations, ideas, problems, any aspects of reality in a way that is different from other people. Because of that, their individual intellectual picture of the world (i.e., world view or “vision”) is a unique one (Shavinina & Kholodnaya, 1996). This is an explanation of why numerous leadership researchers and innovation leaders have pointed out that “vision” is a central element of leadership. Root-Bernstein (2003) emphasized that sometimes perceiving the world differently is the key to making discoveries. Chi & Hausmann (2003) and Georgsdottir, Lubart & Getz (2003) highlighted the importance of changing perspective for new ideas to appear. For example, Xerox’s great scientists and engineers at its Palo Alto laboratory (PARC) invented the very first computer and a lot of related things. However, neither they nor Xerox top management knew what to do with those inventions. It was Steve Jobs, who during his visit to PARC, saw a prototype of the Macintosh and immediately realized the future of computing. As he recalled in 1996, “When I went to Xerox PARC in 1979, I saw a very rudimentary graphical user interface. It was not complete. It was not quite right. But within 10 minutes, it was obvious that every computer in the world would work this way someday” (quoted in Bunnis & Biederman, 1997, pp. 79-80; italics added).

One aspect of the unique “vision” of innovation leadership is connected with their objectivization of cognition, that is, they see, understand, and interpret everything in a very objective manner (Shavinina, 1996). It is important to note that scholars in the field of innovation point out that innovation does not necessarily imply acceptance and implementation of only objectively new ideas. Ideas can also be subjectively new ones – new only for some individuals or companies, but not for the rest of the world. Innovation leaders are those people, who are able to generate new ideas themselves, recognize and support such ideas in others, and implement those ideas into practice. In this light “new ideas” refer to objectively new ideas, because the very essence of innovation leaders resides in their ability to see the world from an objective point of view. Kaufmann (2003) also pointed out that novelty of ideas must be objective, and not only subjectively novel to its originator. Kholodnaya’s (1990) understanding of human intelligence as the mechanism for structuring specific representations of reality – representations connected with the reproduction of “objective” knowledge – suggests that the degree of development of the ability for the objectivization of cognition determines one’s own intellectual and creative productivity and innovative behavior. She demonstrated that one of the distinguishing features of intelligent individuals’ representations of reality is their objective character. In this respect the most important conclusion is that “…the significance of intellectually gifted individuals in society should be seen not only in that they solve problems well and create new knowledge, but mainly in the fact that they have the ability to create an intellectual (objective) picture of the world, i.e., they can see the world as it was, as it is, and as it will be in its reality” (Kholodnaya, 1990, p. 128; italics added). This is why many innovation leaders – say, Jeff Bezos, Richard Branson, Michael Dell, Steven Jobs, Akio Morita, Sam Walton, just mention a few – are exceptional in “sensing” or seeing new opportunities, which turn out to be highly profitable for their companies. This is because innovation leaders have objective vision, that is, objective representations of reality (for example, market reality). For example, Richard Branson upgraded his fleet at Virgin Atlantic – during an economic down-turn – at rock-bottom prices – because other airlines weren’t buying new aircrafts. His vision was that that economic down-turn was the best time to upgrade his fleet. Also, he sold out from computer game distribution business just in time to miss down-turn in market.

The ability of innovation leaders to see any aspect of the surrounding reality from an objective viewpoint is very important in business settings. Innovation leaders are able to objectively see either hidden consumers’ needs, or potential developments in these needs, or changes in technology, or something else. For example, Akio Morita – a co-founder of Sony and its Chairman – saw a great market opportunity for Walkman. However,
it appeared despite strong marketing input to suggest there was no demand for this kind of product. The marketing department at Sony strongly resisted Akio Morita's idea of the Walkman. Their research demonstrated that nobody would buy this product. Marketing personnel even argued that there is no such word as 'Walkman' in the English language and it would sound very strange to English-speaking people. In this light, senior management at Sony also resisted the idea of the Walkman; but only the powerful intuition of Mr. Morita saved it. At the peak of resistance he threatened the Board of Directors by saying: “I will resign from my position of the Chairman of Sony if we do not sell 100000 Walkmans in the first 6 months” (Morita, 1987). All in all, Walkman became Sony's bestselling product and Mr. Morita was awarded by the Royal Society in the U.K. for his contribution to the development of the English language. That is, he introduced the words Sony and Walkman.

As was mentioned earlier, many researchers believe that innovation in contemporary companies is a team sport, an endeavor of many players. Modern companies have R & D departments, marketing channels, and so on for successful development of novel ideas and their transformation into new and profitable products. This is essentially what allows one to call innovation a ‘team sport’. Nevertheless, one cannot deny that new ideas appear in the minds of certain individuals, which are able to implement those ideas into practice. It may be surprising that innovation is not a very frequent event in today's companies, in spite of its quite evident importance. The main reason is that companies do not have enough innovation leaders with the ability to objectively see every aspect of their business activity. In this light the study of the objectivization of cognition of innovation leaders – who are responsible for new products, processes, and services in today's organizations – is a promising research direction for innovation leadership scholars.

The whole structural organization of an individual’s cognitive experience (i.e., its conceptual structures, knowledge base, and subjective mental space) determines innovators' unique intellectual picture of the world. The objectivization of cognition is one of the important aspects of this uniqueness. Experimental studies demonstrated that the individual cognitive experience of “gifted” individuals and those who were not identified as “gifted” (i.e., “average”) shed light on other aspects of their unique intellectual picture of the world or “vision” (Shavinina & Kholodnaya, 1996). For example, in comparison with “average” individuals, “gifted” people's representations of the reality consisted of a predominance of categorical (generalized) cognition. The “gifted” groups' representations of the future are characterized by the differentiation of the “vision” of future events. “Gifted” individuals were also distinguished by more complex and rich conceptual representations (i.e., their representations are quite unfolded and clearly articulated phenomena). Therefore, “gifted” individuals are characterized by more categorical, differentiated, integrated and conceptually complex individual intellectual picture of the world. As innovation leaders are gifted, creative, and talented individuals, then their cognitive experience is a differentiated and integrated phenomenon. Correspondingly, their representations are generalized, categorical, conceptually rich, and complex (Shavinina & Kholodnaya, 1996). This allows innovation leaders to have a unique intellectual picture of the world or “vision,” which expresses itself in their exceptional performance and achievements (e.g., in their ability to generate new ideas, recognize and support such ideas in others, and implement them into practice).

Up to this point, a few determinants of the uniqueness of innovation leaders' intellectual picture of the world or their “vision,” have been discussed. These are: 1) innovation leaders' objectivization of cognition, 2) their differentiated and integrated cognitive experience, and, as a consequence, 3) their generalized, categorical, conceptually rich, and complex representations.

Thus far, the basis of innovation leadership (i.e., an individual’s cognitive experience) was explained. In other words, the psychological basis of its various manifestations (i.e., traits, characteristics, features, and properties) was considered. The three levels of the manifestations of innovation leadership are presented below.
**Manifestations of Individual Innovation Leadership**

The first level is the *level of intellectual and creative abilities* and it is composed of intellectual and creative productivity of innovation leaders, as well as their cognitive styles. *Intellectual productivity* includes three types of the properties of human intelligence: *level properties, combination properties, and process properties*. That is, all properties of human mind identified by psychological science were categorized into these three types (Kholodnaya, 2002).

Level properties characterize the achieved level of intellectual functioning – both verbal and non-verbal. These properties form a basis for such cognitive processes as rate of perception, capacity of short- and long-term memory, attention, vocabulary, and so on. The ability of leaders to pay more attention to everything around them and pick the most relevant information is based on these intellectual properties. Again, Xerox's corporate research center employed many talented scientists and engineers, however it was an external visitor – Steven Jobs – who got the idea for the Macintosh computer after visiting the center where he saw a prototype model.

Combination properties of intelligence characterize the ability to decipher various links, connections, and relations between different concepts. In general, it is the ability to combine the components of experience in various ways (spatial, verbal, etc.). These intelligence properties underlie the human ability to produce various associations and/or analogies, which are exceptionally important for generating creative ideas by innovation leaders. As Steven Jobs emphasized, “Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they did not really do it, they just saw something... This is because they were able to connect experiences they have had and synthesize new things” (quoted in Bennis et al., 1997, p. 66; italics added). Conger (1995) found that a distinctive characteristic of visionary leaders is their ability “to see parallels outside of one’s industry” (p. 56).

Process properties of intelligence characterize the elementary operations of information processing, as well as strategies of intellectual activity. Conger (1995) concluded that visionary leaders are distinguished not only by an ability to synthesize diverse information, but also by an ability to weed out the irrelevant elements. As Fred Smith of Federal Express noted, “the common trait of people who supposedly have vision is that they spend a lot of time reading and gathering information, and then synthesize it until they come up with an idea” (quoted in Conger, 1995, p. 56).

*Creative productivity* refers to the originality, fluency, and flexibility of thinking, and to the ability to generate new, original and appropriate ideas (Georgsdottir et al., 2003; Lubart, 2001–2002). Although creativity manifestations of innovation leadership seem to be the most appropriate in the context of this article, they will not be considered in detail here, because there is a vast body of literature on this topic (Amabile, 1988, 1996; Runco & Pritzker, 1999). A real novelty of this theory resides in the emphasis that the originality, fluency, and flexibility of thinking are not the basis of innovation leadership. As was discussed earlier, the real basis of innovation leadership is an individual’s cognitive experience, which serves as a psychological carrier of all manifestations of innovation leadership, including the creative ones. That is, the originality, fluency, and flexibility are derivatives from the individual cognitive experience. This means that flexibility, differentiation, and integration of an individual's mental space determine one's own creative abilities. The individual mental space is one of the above-mentioned components in the structural organization of one’s own cognitive experience. In other words, if one says that Richard Branson is a flexible person, it means first of all that the boundaries of his or her mental space are highly flexible.

*Cognitive styles* provide valuable information about individual differences in the functioning of cognitive processes of innovation leaders. For example, reflectivity-impulsivity cognitive style displays individual differences in the speed and accuracy with which people propose and formulate hypotheses and make decisions under conditions of...
uncertainty. Today’s reality, in the fast-paced business world, is that a company’s leaders must be able to propose new ideas and make informed, critical, high-staked decisions under conditions of uncertainty. For instance, Michael Dell was convinced a few weeks before starting his company that, “…this was absolutely the right time to go for it.” Innovation leaders are able to make right decisions under conditions of high uncertainty (Shavinina, 2007a).

Experimental studies showed that gifted individuals are distinguished by a reflective cognitive style: they made fewer errors in the situation of multiple choices (Shavinina & Kholodnaya, 1996). From the viewpoint of basic cognitive mechanisms, it means that the gifted accurately analyze visual space up to the moment of making decisions. In other words, they are more careful in evaluating alternatives, hence making few errors. Individuals, who were not identified as gifted, on the other hand, presumably hurry their evaluations thereby making more mistakes. The active character of visual scanning by the gifted indicates a capacity to delay or inhibit a solution in a situation containing response uncertainty, and also a capacity to differentiate unimportant and essential features of the external stimulus. When I assert that innovation leaders are exceptionally able to generate new ideas, recognize and support them in others, and implement those ideas into practice, it implies that they are able to carefully evaluate those ideas as well as the possible alternatives. Autobiographical accounts of innovation leaders show that they are able to take timely and accurate decisions under conditions of high uncertainty (Branson, 2002; Dell, 1999; Grove, 1996; Morita, 1987). This example of the reflectivity-impulsivity cognitive style demonstrates its significance for understanding innovation leadership. Other cognitive styles (e.g., cognitive complexity-simplicity) are equally important, since they shed light on a wide range of manifestations of the cognitive experience, which is a basis of individual innovation leadership.

The second level of the manifestations of innovation leadership is formed by metacognitive abilities (i.e., metacognitive awareness and regulatory processes). Metacognitive awareness refers to: (a) a system of knowledge about the basic manifestations of intellectual activity in general and about one’s own cognitive processes, (b) the ability to evaluate the ‘strong’ and ‘weak’ aspects of his or her own intellectual functioning and to compensate for one’s own weaknesses and rely on strengths, and (c) the ability to manage his or her mental work by using various stimulation methods. Regulatory processes include planning, guiding, monitoring, and coordinating one’s own cognitive processes.

Researchers found that metacognitive abilities are critical for the productive functioning of the human mind (Brown, 1978, 1987; Butterfield, 1986; Campione & Brown, 1978; Flavell, 1976). Knowledge about one’s own intellectual creative abilities and the whole cognitive set-up, evaluating their efficiency, advantages and limitations, as well as planning, monitoring, and executive control are among important human abilities (Pressley et al., 1987; Shore & Kanevsky, 1993; Sternberg, 1985). Moreover, research showed that less intelligent persons are characterized by a more superficial metacognitive understanding of their own cognitive systems and of how the functioning of these systems depends upon the environment. It is also found that less intelligent people use executive processes that are not complete and flexible for controlling their thinking (Butterfield, 1986).

Innovation leaders are characterized by highly developed metacognitive abilities. For example, Michael Dell recalled that a month before opening his company “I knew in my heart that I was on to a great business opportunity… I knew what I wanted to do: build better computers than IBM, offer great value and service to the customer by selling direct, and become number one in the industry” (Dell, 1999, p.11).

However, it is not enough. Innovation leaders also know what they do not know and how to compensate for what they do not know. This is another important aspect of metacognition. For example, those who knew the co-founder of Apple, said, “Steve Jobs was not just a lucky kid. He knew what he didn’t know, and sought people who did.”
On the Nature of Individual Innovation Leadership

Here we approach a very important problem. Innovation leaders do not possess by all the traits of gifted and creative people, which were identified by researchers. They do not worry about this at all, because they know when, where and how to compensate for their weaknesses and rely on their strengths. Their metacognitive abilities help them to compensate for a lack of creativity, knowledge, or something else.

Innovation leaders’ abilities to implement things – or executive abilities – is very important because innovation is essentially about the implementation of new ideas into practice. A couple of years ago one management book became a bestseller on Amazon.com. Why? Because its authors found that many executives never execute. This is why the topic of innovation gap is a critical one: people have a lot of great ideas, but they are not able to implement them due to various reasons. By definition, our human abilities to implement things – or our executive abilities – are in fact our metacognitive abilities.

Ann Brown and other researchers working in the area of metacognition designed special educational programs aimed at developing children’s metacognitive abilities (Brown, 1994; Brown et al., 1989). Innovation education – aimed at developing talents of innovation leaders – should therefore include the best from the metacognition programs (Shavinina, 2009b).

Finally, the third level of the manifestations of innovation leadership consists of extracognitive abilities (Shavinina, 1994; Shavinina et al., 2004), which refer to four interrelated – and at the same time obviously different – components. These are:

- specific feelings: feelings of direction (in one’s own business activity and in search of mentors), harmony, and style, including senses of ‘new products or services,’ ‘good’ ideas, ‘promising technologies and elegant solutions’; and feelings of “being right, being wrong, or having come across something important;”
- specific beliefs (e.g., belief in elevated standards of performance and in hard work),
- specific preferences and intellectual values (e.g., the “inevitable” choice of the field of endeavor and internally developed standards of working), and
- intuition.

The word “specific” embodies the uniqueness of these components in innovation leaders. Leadership literature and (auto) biographical accounts provide plenty of evidence, which demonstrate that extracognitive abilities predict individual innovation leadership of the highest level. Thus, in his studies of visionary leaders Conger (1995) identified their amazing sense of purpose. Steve Jobs’ feeling of being right and sense for new products expressed in an unalloyed confidence is considered as his defining characteristic. Richard Branson’s “instinctive understanding of what your customer wants” is nothing else but his unique intuition. The new CEO of Shell, Linda Cook strongly believes in hard work.

Michael Dell is distinguished by highly developed extracognitive abilities. Recalling the days before the registration of his company, he wrote, “… at age eighteen… I definitely felt that I was diving into something pretty major… I felt that this was absolutely the right time…” (Dell, 1999, p. 11). His ‘instinct’ is nothing more than his unique intuition: “I believe opportunity is part instinct…” “We had the sense that we were doing something different, that we were part of something special” (Dell, 1999, p. 29).

Extracognitive abilities of innovators drive their exceptional persistence and determination: “… it’s interesting to note that many people told us the direct model would fail in virtually every country… Believe in what you’re doing,” says Michael Dell (Dell, 1999, p. 29). Innovation leadership is therefore determined in part by specific preferences, feelings, beliefs, and intuitive processes, which constitute a whole field of unexplored phenomena in research on innovation leadership.

The next section will address the issue of what might happen in the individual development of innovation leaders, which might eventually make them more open to innovation and consequently able to generate new ideas, recognize and support such ideas in others, and implement them into practice.
Developmental Foundation of Individual Innovation Leadership

Deschamps (2003) research on innovation leadership shows that innovation leaders are extremely fascinated and receptive to new ideas proposed by their colleagues and subordinates, which may potentially lead to new products or services. This fascination by and receptiveness to new ideas motivate them to instigate, support and sponsor innovation. Researchers found that openness to new experience is an important trait of creative people (Shavinina, 1995, 2003). Innovation leaders are open to innovation due to their sensitivity to everything new (Shavinina, 2007a). Thus, Martindale (1999) noted that many creative and innovative people – in any field of human endeavor – point out that sensitivity is one of the essential characteristics of their personalities. Conger (1995) found that visionary leaders experienced something early in their lives that heighten sensitivity to constituents and markets. Saxenian’s (1994) research on Silicon Valley companies and their leaders demonstrated that those leaders were exceptionally good at sensing market opportunities for new waves of high tech products. This ability of leaders was not however explained by researchers.

Sensitivity as a personality characteristic has its roots in the individual development of innovation leaders, particularly in their advanced development during childhood. In other words, if one wishes to know why it is that innovation leaders are able to produce new ideas resulting into innovative products and services, are open to supporting innovation in others, and are able to implement them into practice, then one should look at their advanced childhood and adolescent development. That is, something unique happened to innovation leaders in their childhood and adolescence. This section sheds light on what exactly might happen.

Advanced development can be defined as the development, which leads to the significant expression of an individual’s potential – in the forms of innovation, exceptional creativity, or talent – and results in any socially valuable human achievement or performance (e.g., in new ideas leading to new products, processes, or services). The essence of advanced development in childhood is connected to the uniqueness of a child’s age. In the individual development of a child – including its cognitive, intellectual, emotional, personality, psychomotor, and social aspects – there are certain age periods of heightened sensitivity, which are known as sensitive periods. The underlying mechanism of the advanced development that actualizes potentially high abilities of children and adolescents can be seen in sensitive periods.

Sensitive periods are defined here as special periods during human development when individuals show great openness to everything in the world around them. Sensitivity refers to an individual’s idiosyncratic, personal, and heightened responsiveness to everything going on around him or her (Leites, 1996; Shavinina, 1997; Vygotsky, 1972). Shavinina (1997) distinguished cognitive (i.e., sensitivity to any new information), emotional (i.e., sensitivity to one’s own inner world and to the inner words of other people), and social kinds of sensitivity, which intersect with one another, forming mixed kinds of sensitivity. Innovation leaders are characterized by at least one of these kinds of sensitivity. Vulnerability, fragility, empathy, and moral and social responsiveness are among some of the manifestations of sensitivity (Shavinina, 1999; Silverman, 1997). Cognitive sensitivity is especially important in a child and adolescent’s development: the first years of a child’s life are characterized by the ease and stability of knowledge acquisition and of the development of many abilities, skills, and habits (for example, linguistic abilities; Leites, 1996). Shavinina (1999) suggested that because of cognitive sensitivity, children’s knowledge acquisition is very quick; it may take place even from the very first experience. Sensitive periods therefore provide exceptionally favorable inner conditions (i.e., conditions provided by the process of human development itself) for intellectual and creative development. As Vygotsky (1956) emphasized, “during these periods, certain influences have a big impact on the entire course of individual development by provoking one or another deep changes. During other periods, the same influences might have no
effect or even an opposite impact on child development. Sensitive periods coincide fully with [...] the optimal times for learning” (p. 278).

Sensitive periods during childhood prepare and temporarily conserve favorable inner possibilities for advanced development. Because of age sensitivity learning is more successful in the early years than in the elder ones. This is a key to the explanation of fast knowledge acquisition by gifted children that in turn leads to their advanced development (Shavinina, 1999). Sensitive periods thus mean a qualitatively new strengthening of the possibilities for mental growth, which appear during the early childhood years of innovation leaders. The strengthening of such possibilities leads to the general heightening of an individual’s cognitive resources. This is why innovation leaders are often more than innovation leaders, that is, they possess a few talents and demonstrate more than just one leadership talent. They can be talented engineers such as Andy Grove and Gordon Moore or software developer like Bill Gates. This is because they developed during sensitive periods an exceptional ability to acquire knowledge quickly, to learn faster than others. This is also an explanation why many businessmen in Silicon Valley are able to sense new market opportunities and, as a result, introduce advanced cutting-edge technological products (Saxenian, 1994).

The developmental trajectory of Michael Dell during his childhood and adolescence provides a strong evidence of his heightened sensitivity to everything around him (e.g., to “business opportunities”). For example, being twelve years old, he got into stamp collecting where he soon saw “a commercial opportunity.” That is, he decided to create his own auction where he “could learn even more about stamps and collect a commission in the process” (Dell, 1999, p. 4). He got neighbors to consign their stamps to him, and then advertised “Dell’s Stamps” in Linn’s Stamp Journal. Finally, he typed, with one finger, a 12 page catalog (he did not yet know how to type, nor had a computer) and mailed it out. He made $2,000 on his very first business venture. The roots of the famous “direct model” of Dell Computer Inc. lie here, when Michael first experienced the power and the rewards of being direct (i.e., eliminating the middleman). When he was sixteen, he saw an even greater opportunity: he got a summer job selling newspaper subscriptions to The Houston Post and had made $18,000 that year.

However, even earlier in his life, Michael had been fascinated with the idea of eliminating unnecessary steps. Thus, when he was in third grade, he sent away for a high school diploma. An eight-year-old Michael had seen the advertisement in the back of a magazine: “Earn your high school diploma by passing one simple test,” it said. He liked third grade, but trading nine years of school for “one simple test” seemed like a pretty good idea to him (Dell, 1999, p. xv). When a woman from the testing company came, both she and Michael’s parents decided that he applied to take the test as a joke. But he was quite serious...

Sensitive periods of innovators accelerate their mental development through the actualization of their intellectual potential and the growth of the individual’s cognitive resources. Michael Dell provides a strong evidence of it. Thus, he wrote about his decision at the age of 12 to create his own stamps auction: “It was obvious to me from what I’d read and heard that the value of stamps was increasing, and being a fairly resourceful kid, I saw this as an opportunity” (Dell, 1999, p. 4). Later, at the age of 16 he noticed a pattern in selling newspaper subscriptions. He discovered two kinds of people who almost always bought subscriptions: those who had just married and those who had just moved into new houses or apartments. Michael figured out how to find all these people and targeted them. His pattern led to a profitable business: the subscriptions came in by the thousands.

Sensitive Periods: Developmental Losses and Individual Acquisitions

Nevertheless, the reality is that favorable possibilities for individual development granted by sensitive periods will weaken at a slow or fast rate. The following question then arises:
can sensitive periods experienced by a child be predictors of his or her creative productivity in adulthood, which may lead to innovation leadership? The answer to this question will be “yes” only if two important requirements are fulfilled during childhood. First, all developmental capacities (i.e., new abilities, habits, skills, qualities, traits, etc. acquired during a certain sensitive period) should be transformed into stable individual acquisitions. Second, these acquired individual capacities should, in turn, be transformed into unique cognitive experience (Shavinina, 1999).

Although all stages of childhood can be distinguished by the heightened sensitivity (as compared to that of adults), sensitive periods have their own “life story.” Sensitive periods emerge, exist, and even disappear during a child’s development (Leites, 1996). What is important is what remains in the child at the end of sensitive period(s), as s/he grows older and favorable opportunities for advanced development weaken. It is important to note that although the favorable possibilities opened up by sensitive periods allow a child to advance significantly in his or her development by acquiring new and valuable knowledge, skills, and habits, he or she can also lose these acquisitions when a sensitive period ends. That seeming paradox is at the crux of, and is a real problem of, sensitive periods. Because of that Leites (1988, 1996) differentiates between developmental and individual aspects of sensitive periods.

If, at the end of a sensitive period a child loses almost all the exceptional capacities that he or she acquired during the given period, then one can assert that these capacities were mainly a developmental phenomenon (i.e., developmental capacities that disappear with age). This is key to understanding why so many creative and talented individuals who demonstrated exceptional abilities in childhood, for example, leadership, become ordinary adults who do not display extraordinary talents or outstanding creativity. Gifted children lose their unique abilities and talents in the process of their own individual development (Shavinina, 1999). This is why significantly more innovation leaders were lost than were developed by society.

At the same time, sensitive periods are a good foundation for powerful individual gains. If new extraordinary capacities acquired during a certain sensitive period remain in the developing child after this period, then one can assert that these capacities have been transformed into individual acquisitions. Only in this case one can suppose, to a great extent, that the child has the potential to be an intellectually creative adult, potential innovation leader.

**The Nature of Advanced Development in Innovation Leaders**

The analysis of the gifted at sensitive periods demonstrated the following tendency: their sensitive periods usually are linked sequentially or in chains (although the periods may overlap; Shavinina, 1999). This means that these individuals are always at sensitive period(s). In other words, their sensitivity does not disappear completely. In contrast to the previously mentioned opinion that sensitive periods emerge, exist, and disappear during childhood development (Leites, 1985, 1988), the chain of sensitive periods in the development of highly able individuals testifies to the lasting sensitivity. Research supports this conclusion. Thus, Silverman (1993) pointed out that “extraordinary levels of sensitivity and compassion do not disappear with maturity. A capacity for rich, intense emotions remains in the personality throughout the lifespan” (p. 642). Probably, this depends on the kind of sensitivity (i.e., cognitive, emotional, or social). Perhaps emotional sensitivity, more than any other kind, remains in the individual during his or her life, whereas cognitive sensitivity changes periodically; but definitely it does not disappear in creative and talented people. Such characteristics as sensitivity to a new experience and openness of mind – which are mentioned by many contributors to *The International Handbook on Innovation* (Shavinina, 2003) as essential traits of innovators – can be regarded as evidence of this tendency of cognitive sensitivity. The availability of cognitive sensitivity throughout the lifespan determines the exceptional mental abilities of an individual. That is, if sensitivity remains in the gifted for a long time, then it is quite
reasonable to state that new capacities acquired during a certain sensitive period will also remain for a long time. These capacities are fortified and developed later, and finally they are transformed into stable individual acquisitions that have a potential to remain in the person throughout the lifespan. In this case one can predict to a certain extent the transition of a talented child to an innovation leader who will be able to excel.

Moreover, the revealed chain of sensitive periods in the development of the gifted indicates a natural overlapping of age sensitivity. It means that they are always in sensitive period(s). The overlapping of sensitivities is one of the keys to explaining the inner nature of advanced development. Such an overlapping of age sensitivities means that a child's sensitivity originates from different (i.e., previous, current, and subsequent) childhood periods. Furthermore, the overlapping of an individual's sensitivity determines duplication and even multiple strengthening of the foundations for the rapid intellectually creative growth that results into advanced development of potential innovation leaders. If they are always in sensitive periods, then the likelihood of the transformation of all developmental capacities into the individual abilities is getting significantly high. Being permanently in sensitive periods also implies the actualization of the gifted's immense cognitive potential and acceleration of their mental development. The latter implies rapid accumulation of the gifted's cognitive resources and the construction of those resources into the unique cognitive experience that continues to enrich itself in the process of the further accelerated development governed mainly by heightened cognitive sensitivity (Shavinina & Kholodnaya, 1996). Their unique cognitive experience means their unrepeatable intellectual picture of the world or unusual “vision.” All the above written concerning sensitive periods demonstrates that they are not a factor, condition, characteristic, feature, or trait in the development of innovation leaders. Such periods are an inner mechanism of advanced development of innovation leaders. Conger (1995) is right in this context when he concluded that visionary leaders experienced something early in their lives that allowed them to sense new opportunities later.

Sensitive periods therefore constitute a developmental foundation of innovation leadership in that that they provide a basis for an extremely accelerated mental development. This intellectual acceleration leads to fast actualization and development of one's own mental potential and its transformation into the unique cognitive experience that, in turn, forms a cognitive basis of individual innovation leadership. There is a lot of evidence of the advanced, accelerated mental development of innovation leaders. For instance, Jeff Bezos, Warren Buffett, Bill Gates, and Mike Lazaridis, just to mention a few, were intellectually gifted children. To be more precise, Warren Buffett was a mathematical prodigy, Jeff Bezos and Mike Lazaridis demonstrated unusual scientific talents, Bill Gates was an exceptionally intellectually advanced child.

**Summing-up**

In light of ever increasing importance of innovation in contemporary society, one should acknowledge that innovation leadership was not a focus of intensive research. Individual innovation leadership is an almost uncharted territory on the map of innovation studies. This article presented a theory of innovation leadership, thus filling an apparent niche in the field. The theory explored an issue of exceptional significance necessary for a scientific understanding of the nature of innovation leadership, namely: how does it happen that some individuals become innovation leaders. In order to successfully address this issue, it was argued that mainly psychological mechanisms should be taken into account, specifically developmental and cognitive processes. The theory explained (1) the developmental foundation of individual innovation leadership, (2) its cognitive basis, and its (3) intellectual, (4) metacognitive, and (5) extracognitive manifestations. They constitute the first, second, third, fourth, and fifth levels, respectively, of the internal structure of individual innovation leadership.

The developmental foundation of individual innovation leadership is related to the advanced childhood development of innovation leaders that manifests itself in their
accelerated mental growth, beyond which there are periods of heightened sensitivity. In other words, during the childhood years of innovation leaders, certain “temporary states” or sensitive periods emerge which provide significant opportunities for advanced development. Sensitive periods accelerate a child’s mental development through the actualization of his or her intellectual potential and the growth of the individual’s cognitive resources resulting in the appearance of a unique cognitive experience. Such accelerated development further facilitates rapid and deep knowledge acquisition, intellectual functioning, and the creation of something new and original. This leads to advanced development of future innovation leaders. This is an explanation why innovation leaders are often ahead of their times in, say, developing new products and/or services. They advance their fields of endeavor. Innovation leaders are able to do this because their advanced development during childhood and adolescence put them ahead of others thus giving them advantages. In turn, cognitive experience of innovation leaders expresses itself in their unusual intellectual picture of the world, that is, in their unique “vision.” This “vision” is responsible for their exceptional achievements and performance (e.g., generation of new ideas, recognition and support of such ideas in others, and their implementation into practice).

To sum-up, innovation leadership at the level of an individual is a result of a specific structural organization of an individual’s cognitive experience. This organization is a consequence of the protracted inner process of the actualization, growth, and enrichment of one’s own cognitive resources and their construction into an unrepeatable cognitive experience during accelerated mental development. The direction of this process is determined by conceptual structures, knowledge base, and mental space, which are the components in the organization of a person’s cognitive experience. The unique structure of the mind of innovation leaders is being formed on the basis of this process. The uniqueness of their minds expresses itself in specific, objective representations of reality – that is, in their unique intellectual picture of the world or “vision” – which can manifest itself in a wide range of intellectual, metacognitive, and extracognitive manifestations.

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Notes

1 Kholodnaya’s (2002) research on human intelligence has demonstrated that one of the basic phenomena (i.e., a proto-phenomenon) of an individual’s intellectual life and his or her experience as a whole is his or her representations. She found that the main function of human intelligence is the construction of adequate representations of the world around. Many scholars have viewed representations to be important in understanding the nature of mind (Chi & Hausmann, 2003; Chi et al., 1981; Oatley, 1978). In cognitive science, the expert-novice research paradigm also gives credence to the importance of the phenomenon of representations in the understanding of the nature of human abilities (Chi et al., 1981; Schneider, 1993; Shore & Kaneovsky, 1993). For example, Chi et al. (1981) demonstrated that the main difference between experts and novices in physics has to do with their problem representations. They found that experts classified problems according to underlying principles and rules, but that novices tended to use superficial meanings of words and diagrams in their own classification of the same problems.

2 "When he co-founded Apple in 1976, Mr. Jobs bet that there would be a mass market for computers. And there was. The launch of the Macintosh in 1984 was predicated on the
notion that giving computers a graphical interface, controlled with a mouse (then a real novelty), would broaden their appeal. He was right again... Mr. Jobs's decision in 1999 to launch a range of iMac computers in different colours was also derided, but proved popular enough to turn Apple's fortunes around. Another bold move came in 2003. With the launch of the iTunes Music Store, Mr. Jobs dared to suggest that there might be a way to get people to pay to download music from the Internet rather than steal it. Once again, his nose for a new market proved accurate: Apple now sells millions of songs every month" (Economist, 5 February 2004).

Richard Branson is convinced that “an innovative business is one which lives and breathes ‘outside the box.’ It is not just about ideas. It is a combination of good ideas, motivated staff and an instinctive understanding of what your customer wants, and then combining these elements to achieve outstanding results” (quoted in Clegg, 1999, p. 96). Conger (1995) noted that visionary leaders’ ability to foresee future events is an intuitive process.

“There is no substitute for hard work and delivering on promises... I always think of the Chinese proverb that says, ‘I got where I am because of luck and the harder I work the luckier I get” (quoted in Walmsley, 2003, p. 30).

For example, Ross Perot, the founder of Electronic Data Systems (EDS), began his career selling computers for IBM. In his job, he noticed that many of his customers could not use their computers effectively because of inadequate software provided by IBM. Ross Perot also "sensed a tremendous but unfulfilled demand for software to process state and federal medical claims" (Conger, 1995, p. 56; italics added).

Research has demonstrated that human development is not a smooth process. Instead, it contains certain stages or periods, that is, it is ‘periodical’ in its essence (Case, 1984a, 1984b; Flavell, 1976; Vygotsky, 1972). Investigations into sensitive periods in developmental psychology indicate a periodical nature of human development (Bornstein, 1987a, 1987b; Colombo, 1982; Leites, 1978; Lewis, 1988; Oyama, 1979). Psychologists working in the field of high abilities also point out the periodical essence of gifted development (Feldman, 1986; Leites, 1985, 1996; Morelock, 1992; Shavinina, 1997, 1999; Silverman, 1997). For example, Feldman (1986) sees giftedness as the "movement through the stages that leads to performance superior to that of most others" (p. 302). The Columbus Group's (Morelock, 1992) approach to the understanding of giftedness as asynchronous development also provides strong evidence for the ‘periodical’ nature of development of the gifted, creative, and talented.

Such definitions of sensitivity and sensitive periods might seem rather general; however, they appear to be expedient on the contemporary level of the study of these phenomena in innovation leaders, where the research is restricted. The literature provides clear indications that age sensitivity takes an important place in the advanced development of the creative and talented (Leites, 1996; Kholodnaya, 1993; Piechowski, 1986, 1991; Silverman, 1995, 1997). For instance, Piechowski (1991) considered sensitivity to be an individual’s heightened response to selective sensory or intellectual experiences – asserting that unusual sensitivity reveals the potential for high levels of development, especially for self-actualization (Piechowski, 1988). Sternberg (1986) viewed “sensitivity to external feedback” as one of the components of his theory of intellectual giftedness.

The years over which a child acquires language are one of the best-known examples of sensitive periods (Leites, 1996). Over a very short period of time, young children easily learn different forms and constructions of languages, but it becomes increasingly more difficult to do this in later years. It is fascinating and seems paradoxical that at a time when children are learning and speaking foreign languages with relative ease in the appropriate environment, adults who have a more developed mind – and therefore seem to be able to easily manage any linguistic difficulties – cannot do as well.
Everyday life provides many examples of the difficulty with which adults learn and speak foreign languages. It seems clear that a certain age or age range – for instance, early childhood – is best suited for the specific mental activities involved in language acquisition.

It is not therefore surprising that he started a company based on eliminating the middleman (i.e., bypassing the dominant method of computer distribution). Dell Corp. sells computers directly to customers, deals directly with its suppliers, etc., all without the unnecessary and inefficient presence of intermediaries.

This was his first experience with “segmenting the market,” one of Dell Corporation’s “most significant strategies for success” (Dell, 1999, p. 5).

References


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Over the years Dr. Shavinina’s research has expanded to encompass innovation. Her bestselling *International Handbook on Innovation* (1171 pages), published by Elsevier Science in 2003, was the first and only book of its type, and is considered the beginning of innovation science. It is aimed at unifying the field of innovation: at merging psychological, management, and business perspectives together. She introduced innovation education as a new direction in gifted education. Innovation is also an important element in Dr. Shavinina’s research on giftedness and economy.

Her publications have appeared in *Gifted Child Quarterly*, *Journal for the Education of the Gifted*, *High Ability Studies*, *Creativity Research Journal*, *Review of General Psychology*, *New Ideas in Psychology*, and others. She co-edited *CyberEducation and Beyond Knowledge*. Her *International Handbook on Giftedness* (1539 pages) has been recently published in 2 parts by Springer Science & Business Media. This Handbook sets a new standard for the field and will be essential to scholars’ knowledge base for years to come.