



# Factors determining individual success in Life-long learning

## Factores que determinan el éxito individual en el aprendizaje permanente

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#### ABSTRACT:

*Introduction.* The aim of the research is to analyze the essence of the notion "intellect" and to determine which intellectual abilities are the most important in the achievement of an individual's successfulness in the process of lifelong learning. *The tasks of the research* are 1) to conduct the theoretical analysis of the scientific literature on the given problem; 2) to work out recommendations for successful individual's lifelong learning. *Methods.* The method of the research is the scientific analysis of theoretical literature on the given problem. First, general definitions of the intellect are presented. Then more detailed definitions are studied, which underlie certain theoretical approaches. *Results.* The authors of the article conclude that an individual's intellect is an active component of forming the environment offering him/her the possibility to react flexibly to challenges and situations occurring in the contemporary world. This efficient adequate adaptation, forming and choosing the appropriate environment includes the process of lifelong learning which starts since infancy and continues during the whole human life. *Discussion.* It is confirmed that in order to use intellectual abilities to learn in an optimal way, an

#### RESUMEN:

*Introducción.* El objetivo de la investigación es analizar la esencia de la noción "intelecto" y determinar qué habilidades intelectuales son las más importantes para lograr el éxito de un individuo en el proceso de aprendizaje permanente. *Las tareas de la investigación* son 1) conducir el análisis teórico de la literatura científica sobre el problema dado; 2) elaborar recomendaciones para el aprendizaje permanente de personas exitosas. *Métodos.* El método de la investigación es el análisis científico de la literatura teórica sobre el problema dado. Primero, se presentan las definiciones generales del intelecto. Luego se estudian definiciones más detalladas, que subyacen a ciertos enfoques teóricos. *Resultados.* Los autores del artículo concluyen que el intelecto de un individuo es un componente activo de la formación del entorno, ofreciéndole la posibilidad de reaccionar de forma flexible a los desafíos y situaciones que ocurren en la palabra contemporánea. Esta adecuada adaptación eficiente, formando y eligiendo el ambiente apropiado incluye el proceso de aprendizaje permanente que comienza desde la infancia y continúa durante toda la vida humana. *Discusión.* Se confirma que para usar las

individual should have the possibility to adapt efficiently his/her own particular learning approach (learning style) to the environment by forming or choosing them.

**Conclusion.** The ability to learn and the ability to adapt efficiently to environmental changes are the most important and significant factors of human intellect determining an individual's successfulness in the process of lifelong learning.

**Keywords:** Human Intellect, Individual Success, Life-Long Learning, Intellectual Abilities

habilidades intelectuales para aprender de manera óptima, un individuo debe tener la posibilidad de adaptar eficientemente su propio enfoque de aprendizaje particular (estilo de aprendizaje) al entorno formándolo o escogiéndolo.

**Palabras clave:** Intelecto humano, Éxito individual, Aprendizaje permanente, Habilidades intelectuales

## 1. Introduction

The Conception of "Lifelong Learning" is the Conception the essence of which one can determine as "it is not ever late or early to learn", it is the philosophy of our contemporary life which has ruled thousands of people's minds all over the world. The conception of lifelong learning is oriented to the integral development of an individual as a personality for the whole lifelong time, the promotion of his/her possibilities for successful further work and social adaptation in the rapidly changing contemporary world.

This Conception suggests that any individual – independently of his/her age, social position and the colour of skin – should be open to new ideas and skills. She/he should be offered an equal possibility for obtaining qualitative education in any sphere he/she is interested in (by all accessible channels of education, but not only at schools and higher schools). Such forms of education also could be carried out through such forms of offered educational services as the Internet, distance education, home education, different educational courses for obtaining corresponding education... The Conception of Lifelong Learning also includes the possibilities of obtaining different education programs for those who want to increase the level of their own qualification after obtaining the diploma of his/her higher school or sometimes to get the second or the third higher education.

The main statements of the Memorandum of Lifelong Learning confirmed in Lisbon in 2000 are the following: 1) to make lifelong learning accessible for each individual all over Europe; 2) to provide the possibility for obtaining and improving necessary knowledge and skills for each individual to make him/her a member of the society based on knowledge.

The Aim of Lifelong Learning is: 1) the development of active civil life position of an individual; 2) the development of intellectual abilities and professional skills of an individual; 3) the improvement of the quality of individual life. (A Memorandum of Lifelong Learning, 2000).

The main reason why lifelong learning is so vital nowadays is the acceleration of scientific and technical progress. Although people spend more time receiving secondary and higher education (about 14–18 years), the obtained knowledge and skills are usually not efficient for a professional career during next 30–40 years. Let us analyze which intellectual abilities are the most important for successful lifelong learning. What is the notion of "intellect"?

The given research is devoted to the analysis of factors, exactly, intellectual abilities, determined individuals' successfulness in lifelong learning.

The **aim** of the research is to analyze the essence of the notion "intellect" and to determine which intellectual abilities are the most important in the achievement of an individual's successfulness in the process of lifelong learning.

The **tasks** of the research are 1) to conduct the theoretical analysis of the scientific literature on the given problem; 2) to work out recommendations for successful individual's lifelong learning.

## 2. Methods

The method of the research is the scientific analysis of theoretical literature on the given problem. First, general definitions of the intellect are presented (formulated by Russian and foreign scientists). Then more detailed definitions are studied, which underlie certain theoretical approaches. They are reviewed in a chronological order – from the 1920s (Spearman) to the 1980s (Gardner, Sternberg). A particular attention is given to the structure of intellect proposed by Guilford. Modern literature (the 1990s – the 2000s) is also analyzed, including works by Wright, Petrovsky and Merlin.

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### 3. Results

There are many definitions of the notion “intellect” in scientific literature.

Intellect is-

- the mental ability, the mental top of an individual (Ozhegov, 1998);
- the form of individual mental experiential arrangement in the image of existed mental structures, mental space of reflection generated by them and mental representations of what is happening, which are constructed within this space. It is the system of mental mechanisms that lead to the possibility of building the subjective picture of reality reflected inside an individual (Holodnaja, 1997);
- the mental ability to understand notions and interrelations, to implement analysis and evaluation, to learn and think, discuss and argue on the base of real facts, knowledge obtained or transferred (Finnegan, 1989);
- the level of mental experience arrangement determined by general ability for brain work (Дружинин, 1996);
- the mental ability to classify objects and phenomena; the ability for the adaptive change of behavior, the ability for deductive, inductive thinking and generalization; the ability to work out and implement conceptual ideas, the ability to comprehend (Nickerson, Perkins & Smith, 1985);
- a primary adaptive mental mechanism representing typical patterns of individual variability (Scarr, 1981)...

Let us analyze these definitions in more detail. The mental ability to classify means that an individual with normal intellect can divide non-identical stimuli into classes. This ability is especially important and fundamental for categories of thinking and language, as words by themselves mean categories of information.

Many theoreticians, such as Bandura (1977), Binet & Simon (1905/1916), Carrol (1993), Sternberg (1985), consider that the adaptation to one’s own social environment is the most essential ability of human intellect.

The ability of deductive thinking gives an individual the possibility to make an authentic conclusion through logical deductions on the basis of existing confirmations, the ability for inductive thinking gives an individual the possibility to go beyond the obtained information limits and to come to general idea by analyzing separate facts.

The ability to work out and implement conceptual models helps an individual to comprehend and interpret events on the basis of his/her previous mental experience by drawing analogy to similar objects and events. The individual’s ability to comprehend is connected with his/her ability to perceive and analyze interrelations among objects and events in order to solve a certain problem.

The evaluation of human comprehension is one of the most contradictory issues in the area of intellect investigation. The researcher Spearman (1927) believes that intellect consists of two factors, an underlying general factor (*g*), and a series of very specific factors (*s*’s).

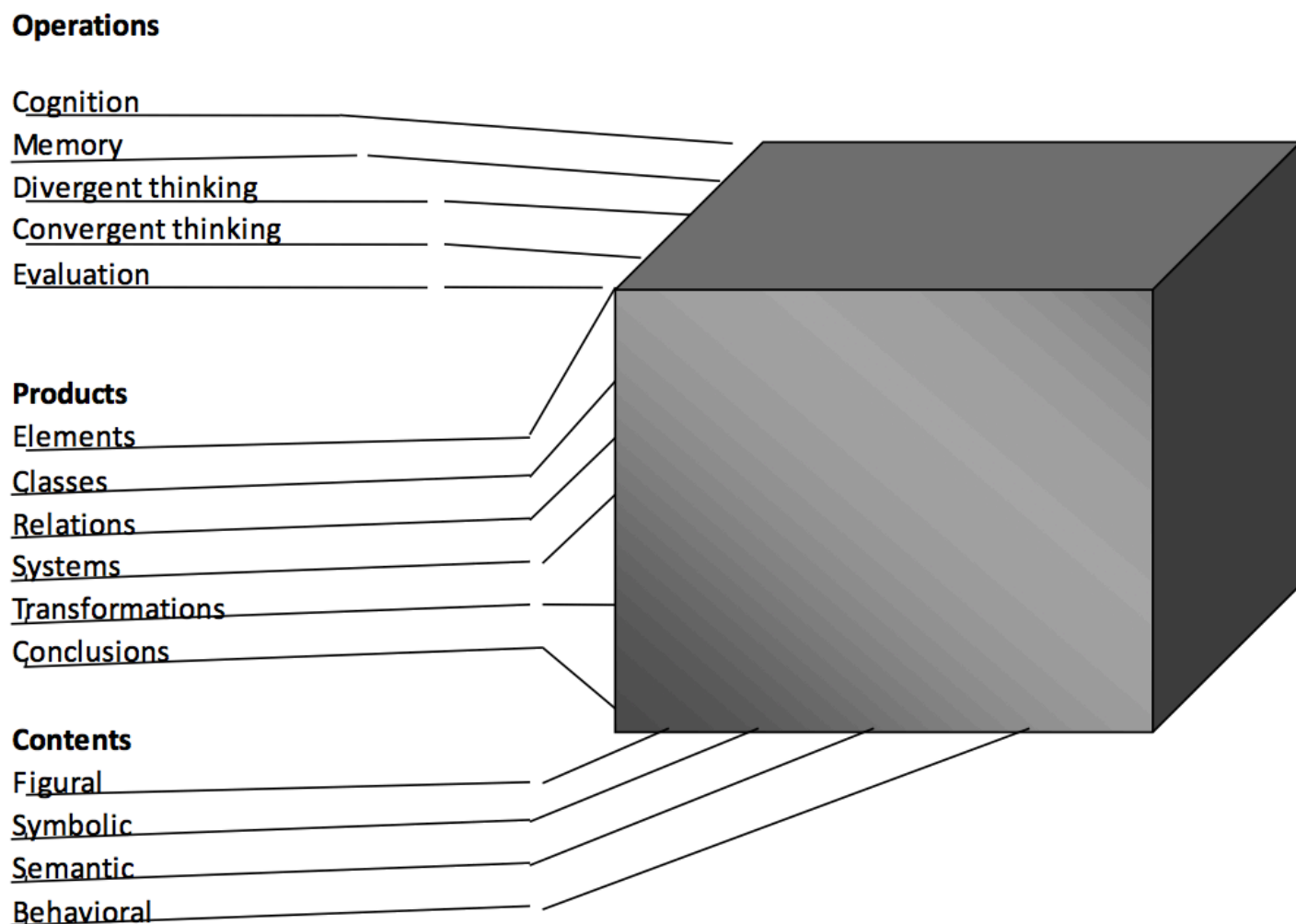
According to Spearman’s Factor Approach, the *g* factor acts as a driving force that would power a set of special skills unique to specific situations, such as verbal ability, mathematical ability, and even musical ability. The *g* factor provides the main trust for activating the *s*-factors. Spearman (1927) confirms that *g* is a form of dynamic brain energy that sets in motion the “specific engines” of ability, so an individual can have an extraordinarily high ability for one or

several concrete factors and to show the low level of abilities for other factors. Spearman (1927) believed that  $g$  is mostly inherited.

Thurstone (1938) suggests that intellect is a composite of special primary mental factors, each peculiar to a specific task. He identifies seven different “vectors of the mind”, or major components of intellect: verbal comprehension, word fluency, numerals ability, spatial visualization, associative memory, perceptual speed, and reasoning.

Guilford (1966), in the structure of intellect elaborated by him, points out that intellect may be represented as composed of 150 separately identifiable traits represented in the form of a cube, or a tree-dimensional net included 150 factors. The operations needed for implementing divergent and convergent thinking, memory and cognition are located on one axis; connections, systems, transformations and conclusions are located on the second axis; concrete contents of tasks-symbolic, semantic, behavioral or figural are located on the third axis (Fig. 1).

**Figure 1**  
Structural Representation of Intellect (Guilford, 1966)



Cattell (1965) believes that the general intellect of an individual consists of two sub-factors – “agile abilities” and “glacial abilities”. “Agile abilities” are manifested in an individual’s comprehension of abstract and new relations, inductive conclusions, analogies, in implementing tests of succession completion. “Glacial abilities” are represented in the individual’s ability to accumulate facts, knowledge, in implementing tests on vocabulary and general awareness.

More recently psychologists Howard Gardner (1985) and Robert Sternberg (1985) created new theories of intellect. Gardner (1985) identifies seven kinds of intellect (intelligence): linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal (knowing how to deal with others) and intrapersonal (knowledge of one’s Self).

Gardner (1985) believes that intellect must entail a set of skills of problem-solving enabling the individual to resolve genuine problems or difficulties that he/she encounters and, when appropriate, to create an effective product.

Sternberg (1985), in his Triarchic Theory of Intelligence, believes that intellect consists of three major components:

- meta-components used in planning, monitoring and decision-making;
- performance components used in the execution of a task;
- knowledge-acquisition components used in learning new information.

And what abilities are the most efficient for lifelong learning?

The research on the area of intellect conducted by the group of scientists in 1921 showed that the most mentioned components in offered definitions of the essence of intellect were the following:

- the high development level of such abilities as abstract thinking, mental representation, problem solving, decision making;
- the ability to learn and efficient adaptation to environmental changes

(Intelligence and Its Measurement: A Symposium, 1921).

The authors of the research conducted in 1986 (Horn, 1986) believe there are the following major components of intellect:

- the high level of abilities' development;
- the ability to learn on the basis of one's own previous experience;
- the ability to adapt to the environmental changes.

Thus, one may conclude that from the very early research on intellect conducted by scientists Binet & Simon (1905/1916), then continued by Wechsler (1939), Barkow, Cosmides & Toobey (1992); Wright (1994), and others, the most important components of intellect are the ability to learn and the ability for efficient adaptation of an individual to environmental changes (and not simply adaptation but forming and choosing a more appropriate new environment) (Jerison, 1982; Buss, 1995; Sternberg, 1995).

Thus, an individual's intellect is an active component of forming the environment offering him/her the possibility to react flexibly to challenges and situations occurring in the contemporary world. This efficient adequate adaptation, forming and choosing the appropriate environment includes the process of lifelong learning which starts since infancy and continues during the whole human life.

In order to form an appropriate environment or to make the selection of necessary one, the individual should learn how to adapt efficiently to the social environment, and only after that he/she can decide which characteristic features of the environment he accepts, which ones he rejects, and which ones he should change (Milgram 2000; Sternberg, 1995; Bandura, 1977; Petrovsky, 1999; Merlin, 1986).

Thus, intellect is a key factor of an individual's efficient adaptation to environmental changes determining his/her successfulness in the process of lifelong learning.

## 4. Discussion

An individual's ability for learning has always held a central position in the definitions of intellect. But what happens to that intellectual ability with age? Baltes, Dittmann-Kohli & Dixon (1984) believe that elderly people learn to implement abilities, which they have but have not used before. At the same time, these people learn to compensate those abilities, which were lost in the process of lifelong learning.

According to the Theory of Learning Styles, Dunn (1999) and Milgram (2000) affirm that when individuals learn by the way allowing them to use their intellectual strengths and compensate weaknesses of their intellect, the results of their learning are significantly higher in comparison with their standard way of learning.

Thus, to use intellectual abilities in order to learn in an optimal way, an individual should have the possibility to implement a wide range of learning programs, methods, instructions, tasks, ways of obtaining new information and learning tasks' fulfillment, to adapt efficiently his/her own particular learning approach (learning style) to the environment by forming or choosing

them.

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## 5. Conclusion

The ability to learn and the ability to adapt efficiently to environmental changes are the most important and significant factors of human intellect determining an individual's successfulness in the process of lifelong learning.

People should know their intellectual strengths and weaknesses in order to adapt successfully to the changes in the learning environment, to form it and select the most appropriate one. Any individual should develop his/her own ability to learn by being aware of his/her own intellect's strong influence on the successfulness of her/his lifelong learning. An individual should have a wide range of possibilities to choose learning programs, tasks, methods, instructions, ways of obtaining new information and fulfilling learning tasks according to his/her approach to learning (learning style) for efficient adaptation to environmental changes and successful lifelong learning.

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