

GERONTOLOGICAL ANALYSIS OF THE INTELLECTUAL DEVELOPMENT OF OLD PEOPLE

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Annotation: This article has the opinions and experience of different scientists. Intellectual development features elderly people in gerontology was analyzed by scientists. These studies of age changes in cognitive functions of each researcher were considered and analyzed.

Key words: aging, gerontology, psycholinguistic research, development.

Introduction. With the development of cognitive psychology, research in the field of mental functions of the elderly has become more attractive to scientists. As many authors point out, the relevance of intellectual research in old age is primarily due to the fact that it is intellectual activity that acts as one of the factors inhibiting the growth rate of age changes of the psyche at the later stages of ontogenesis [Cold, Mankovsky 2003:172]. There is currently a slowdown in aging processes, especially in the field of intelligence and the personality of modern people, so data on the decline in intelligence in older persons are criticized. However, there is little doubt that there are significant individual differences in cognitive development rates concerning both general ability and more specialized abilities. The intelligence of the old we can determine how to cope with a wide range of familiar tasks based on rich life experience.

Material and Method. Scientific literature and opinion of scientists around the world were the research materials of this article. In the future, it is planned to conduct an experiment of free associative experiment, where elderly people will participate. The experiment will involve 200 test subjects (100 men and 100 women), the age range of which is from 60 to 90 years. The study will also use the results of associative experiments conducted by other authors with tested different age groups. Descriptive comparative method, observation, quantitative analysis were used as methods of research.

Discussion. According to E.F. Rybalko, the central mechanism of conscious regulation is a speech whose importance increases during the period of gerontology. Throughout the previous life, the speech includes a huge number of associative connections with external and internal irritants. Acting on the principle of distraction and generalization, the speech is characterized by a qualitatively different level of integration and regulation of behavior. A number of studies of the second signal system

show weakening with age of internal braking, development of inertia of irritating process in speech analyzer, weakening of differential braking. This was expressed in the prolongation of latent period of verbal reactions in conditions of associative experiment, in repeatability of responses, echolalia, polytheism. Such symptoms are mainly observed in persons over 60 years of age [Fishman 1990:239]. B.G. Ananyev also played a huge role in speech factor contributing to the preservation of human beings in old age. He wrote that "speech, second-signal functions confront the general aging process and undergo evolutionary shifts significantly later than all other psychophysiological functions" [Ananaev 1980:111].

Anastazi, an American expert in intelligence testing, concludes that age-related intelligence declines only after 60 years [Anastazi 1982]. The results of experimental studies show a close connection of intellectual productivity of people aged 60-80 with education and profession [Alexandrov 1974]. Professional orientation determines the age dynamics of intelligence. The nature of professional activity associated with a wide range of intellectual operations contributes to the high preservation of both verbal and nonverbal intelligence. Tasks related to the use of nonverbal intelligence (picture storytelling tests, drawing from parts) reveal the most noticeable decline with age. Verbal tests (dictionary, information, and general awareness) reveal the greatest variability and tendency to decline with age. According to M.A. Cold, "in the later stages of ontogenesis, those verbal cognitive functions that are related to the stock of knowledge, the ability to categorize and understand the meanings of words remain without any significant changes." 2003:174].

Cattell R.B. and J. Cattell R. Hom J.L. distinguished two types of specific abilities, calling them "crystallized" and "moving" intelligence. Crystallized intelligence estimates the amount of knowledge a person acquires during his or her lifetime. Mobile intelligence tests rely on acquired knowledge to a lesser extent and assess what can be determined as the ability to solve problems that cannot be derived from education or practice. In other words, it is a person's ability to solve unusual problems [Hom, Cattell 1967].

These studies of age changes in cognitive functions show that "crystallized" functions (logical thinking, ability to account, etc.) depend heavily on the aging process, their structure does not change, they can train. As for speed capabilities ("fluid intelligence") they decrease as they age, especially after 60 years. Spatial intelligence remains unchanged also until about 60 years, after which there is a decrease in productivity [Druzhinin 2000:106-107]. A long-term study conducted in Seattle by K.W. Shay found stable sexual differences that lie in the advantages of women's understanding of words and inductive thinking and men's spatial orientation and accounting. For women, deterioration occurs earlier in fluid abilities, while for men - in crystallized abilities. And although fluid capacities begin to weaken earlier,

crystallized ones decrease sharply, which happens by the end of 70 years of age [Shay 2004:376]. Whatever the exact figures, it is important that the decline in mobile intelligence is not inevitable for all people.

According to his research, about 10-15% of the elderly maintain their youthful level of intelligence [Rabbit 1984:101]. Subsequent studies by P. Rabbit demonstrated that the variability in the test results for the elderly is greater than for young people by many cognitive criteria, such as reaction time, and by memory measurement criteria [Rabbit 1993: 385]. It is well known that the reaction time increases as a person ages. According to the review by D. Biren and L. Fisher, this is one of the most reliable characteristics of human age [Birren & Fisher 1995].

Many cognitive problems of older people are associated with significant intellectual defects, especially in memory. Characterizing data on memory examination, B.A. Grekov notes: 1. People between the ages of 70 and 90 experience memory impairment, but this deterioration is uneven. Especially mechanical imprinting. Motor memory is not so noticeable. 2. It is best to preserve the meaning component of logical-meaning memory between the ages of 70 and 89 years. 3. Image-sensitive memory weakens more than meaningful memory components, but still it is better preserved than mechanical printing. 4. The basis of memory strength between the ages of 70 and 89 is internal meaningful connections. 5. At a certain age, more often by 90 years, the internal meaning relationship is also significantly weakened. Memory of any kind becomes unstable, everything new is perceived badly. The structure of the perceived material is violated. 6. Deformation is particularly strong in image memory where perception and memory are not accompanied by the organizational influence of speech. 7. The leading form of memory in old age becomes meaningful, logical memory [Greek 1964:176].

The data confirm the heterochronicity of intellectual development in ontogenesis, demonstrating the existence of organic unity of the evolutionary and evolutionary changes in the character of intellectual activity in the aging process and, on the other hand, the formation of powerful compensatory mechanisms, providing the necessary adaptive effects when re-engineering the intelligence. Traditional intellectual theories did not cover, but often simply ignored the features of devices and functions of intellect in old age (the phenomenon of "wisdom") [Cold, Mankovsky 2003:176]. In the modern stage of cognitive process research in old age, they went beyond traditional psychometric tests of intelligence, covering new experimental and theoretical paradigms, including cognitive psychology and neuroscience. All this time, scientists successfully studied only the intelligence, the success of intellectual activities in those or other specific situations in terms of accuracy and speed processing information in the decisions, originality and diversity of ideas, the depth and pace обучаемости, выраженности personalized ways. With the development of cognitive sciences, this

approach to the problem of intellectual abilities and intelligence as a whole is losing its importance. At the moment, a completely different view of the problem of intelligence is becoming urgent. Referring to some of the features (events) of intelligence in old age, we support M.A. Cold's view that "it is impossible to explain the nature of intelligence at the level of analysis of its properties (events) in principle. To do this, we need to move on to the analysis of the features of the internal structure of this mental education, which predetermines its final (systemic) properties [Cold 2002:79].

In the theory of M.A. Cold key concepts in determining intelligence are mental structures, mental space and mental representations. Mental structures are "similar mental mechanisms in which the object's cash intellectual resources are represented and which, when faced with any external impact, can "deploy a "specially organized mental space". Under mental space, the author implies "a dynamic form of mental experience that is updated in the context of cognitive interaction of the subject with the world". As for mental representation, it represents the "current mental image of a particular event" [Cold 2002:106-109]. Individual differences in the success of psychological tasks explain the peculiarities of mental structures that provide cognitive processes.

Conclusion. When considering the relationship between meaning and intellectual capabilities of a person, the triarchic theory of intelligence by R. Sternberg is of great interest, which gives a comprehensive explanation of the relationship between the intellect and the inner world of an individual, intellect and experience, intellect and the outside world. The author suggests that the process of information processing takes place with the participation of three main types of components: meta-components, executive components and knowledge acquisition components. The direct relation to the problem is that when controlling the selection of lower-level processes to solve a particular problem, the meta-components guide the selection of some strategy and mental representation on which this strategy can act. Based on his experimental data, R. Sternberg concludes that the test subjects tend to prefer some strategies to others, because they require less workload on the working memory, and the choice of mental representation of information is closely related to the strategy adopted. People show flexibility in ways of representation; depending on the age of the experienced mental representations may be more or less holistic. The main question the researcher sees is not how some information is represented, but what representations are used under certain conditions. The test subjects operate with semantic features that potentially relate to solving the problem. R. Sternberg notes that people who are able to apply knowledge components to different situations usually have a more developed vocabulary [Sternberg 1966]. Since the problem of semantic development in old age is at the center of our interests, it seems important to cover some issues related to the consideration of mental representations, namely semantic representations or semantic

systems at the later stages of human development.

Acknowledgement. Various types of changes in old age are ultimately aimed at updating and utilizing the potential, reserve capabilities accumulated during growth and emerging during late ontogenesis. Conservation of meaningful and logical memory in a sufficiently good condition allows elderly people to establish semantic-relevant relationships between stimulus and response. In old age, the ability to establish logical-meaning relationships gradually loses, leading to the production of "weak" surface associations. In any case, and in late adulthood, we can talk about semantic development. The use of the word "development" implies a change both in the direction of evolution and in the direction of evolution. The gradual, inevitable extinguishment of some functions is supported by others - the long-standing preserved; these processes, including semantics, ensure the activity and vitality of the old man. Thus, aging cannot be seen as a simple invasion, extinction, or regression. This is an ongoing development involving many adaptation and compensation mechanisms.

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