

LETTER TO THE EDITOR



Present Day Deviations of Thinking of the Internship Doctors

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Dear Editor!

Within recent years, we have conducted a series of investigations on the diagnostics of mosaic thinking since presently, the process of substitution of the fragmented (mosaic) thinking for the medical judgment is progressively going on among the individuals getting the postgraduate medical education (Yekhalov, Yehorov, Pavlysh, & Barannik, 2020). For the purpose of verbal estimate of the quality of thinking of the internship doctors, we have used a modified test of thinking and creativity, which was created by Bruner, an American psychologist. Over three years, an anonymous testing has been held in four peer groups of the 1st year internship doctors majoring in Anesthesiology, Stomatology and Neurology (exactly 100 respondents in each group). The test questionnaire was focused on the preference of the textual or pictorial information; on the character of the representation of information (i.e., as a text, as a visual imagery, or both these characters equally); on the using of the symbolic information coding; on the selection of a solution as for the representation of pictorial information; on the interrelation between the actions themselves and the discussing of such actions; on the extent and rate of the information handling; on the way-finding in a non-homogenous informational space; on the fatigue level, and so on.

The quantity of the internship doctors with a high level of the theoretical (elastic) thinking has equally ranged in the aforesaid study groups (that is, 25%, 24% and 26% respectively); thereat, among the internship doctors majoring in Stomatology, the rate of these doctors with

a medium level of the elastic thinking was by 11% lower than such rate among the internship doctors majoring in Anesthesiology and Neurology; and the rate of the internship doctors with a low level of the theoretical thinking among the doctors majoring in Stomatology, was higher by 8% and 9% respectively than such rates among the doctors within two other aforesaid study groups. Whilst, the a-priori knowledge enables to apperceive the factual information, to tease out the certain facts from the general observations, to provide general insight into the certain phenomena (i.e., to reveal the essence of such phenomena), to answer the questions in relation thereto how and why these or those processes occur in the human body. First of all, the true professionalism of a doctor is aligned with the theoretical (reflective) mode of thinking. And exactly such mode of thinking (but not an algorithm) provides tremendous advantages to a doctor when solving the job tasks related to the diagnosis, medical treatment and prevention.

A high level of the imaginative (creative) thinking of the internship doctors majoring in Anesthesiology and Neurology, was identical to the level of their theoretical thinking; while the same level among the doctors majoring in Stomatology, was by 5% lower. A medium level of the creative thinking prevailed, and it amounted almost to 50% in all the groups of respondents; and a low level of the creative thinking was observed as for 25% of all the respondents.

The creativity characterizes the creative abilities of an individual, his/her readiness to the creation of the fundamentally-novel ideas which diverge from the

conventional or currently-accepted schemes of thinking; as well as it characterizes the problem-solving ability as to the problems arising within the static systems. The present-day researchers have proven that the internship doctors with a high level of the creative thinking manage the solving of the clinical case problems twice as fast, and what is more, they advance and convey more various ideas under certain specific conditions, and offer the various types of the health care services (Melnyk, Yekhalov, & Sedinkin, 2020).

As compared to our investigations conducted three years ago (under the test technique created by Litvinova), we have experienced a 20-27% growth in the number of the persons with the fragmented thinking among the internship doctors. Thereat, a high level of the mosaic thinking was observed among the internship doctors majoring in Stomatology twice as often as among such doctors majoring in Anesthesiology and Neurology. A medium level of the fragmented thinking was registered almost for one half of all the respondents; and such level prevailed among the internship doctors majoring in Stomatology, being observed among them by 11% more often. Meanwhile, to the contrary, the quantity of the persons with a low level of this type of thinking has ranged in favor of the internship doctors majoring in Anesthesiology and Neurology. An internship doctor with mosaic thinking faces the difficulties in comprehension of the gross appearance, and consequently, he/she perceives only the fragmentary pieces of data, and is not capable to correlate them to other ones. At the mosaic thinking, the uptake of information proceeds by way of the increase in quantity due to the depreciation of quality. It has been proven scientifically that only 2% of the human subjects are capable to make use of the multitasking efficiently and in a maximally-qualitative manner. Thus, not the practicable medical conceptions are formed by such future doctors, but only the imageries of separate pathologic features, what results in the diagnostic reasoning based on the formal comparison operations (that is, the reasoning on the basis of analogy). As a rule, a present-day secondary school leaver is ill-trained for the solving of the tasks related to the handling of the written information, and therefore, such a leaver does not have either the skills of the reading of the texts in a qualitative manner and of the interpretation of such texts, or the skills of the oral and written representation of the reads. Consequently, the training methods created for the persons with the conceptual thinking, are senseless for the persons with the mosaic thinking.

The healthcare system needs the creative professionals no less than other fields of the social and economic sectors. This translates to the transition to the new educational standards in the system of medical education, which are focused on the competency-based approach and assume the development of the reflective and creative learning technologies. Within the framework of the pre- and postgraduate education, there is observed a conflict between the cognitive style of the information uptake and the conventional, conceptual presentation of the information. Therefore, an up-to-date valid adaptation to the deviations of thinking of the persons receiving training, is needed. Thereupon, the

hands-on trainings and workshops, the drawing of the mental maps, the gamification, and the maximum use of the visual content formats are of considerable importance (Tsarevskaya & Iudalevich, 2020). The logic of content of the education programs in the medical fields of study must correspond to the logic of the data source relations in terms of the genesis and development of a pathogenic process. Such architecture of content of a student course will be aligned with the principle of transition from the abstract to the concrete (that is, from the moment of interaction of the pathological factors with the certain systems of the human body to a specific nosological entity). When focusing on the logo in the process of training, there appears an opportunity for the solving of the entire class of the job tasks covered by a certain medical field. Such method of determination of the content and techniques of the professional training of a doctor will enable to develop the doctor's theoretical thinking, and thus, to develop the doctor's abilities not only to solve the routine tasks concerning the diagnosis, medical treatment and prevention, but also to solve the non-routine tasks concerning the same problems.

Conclusions:

1. The level of the fragmented thinking among the internship doctors majoring in various special fields, is presently almost the same as the level of their theoretical and creative thinking, what is more than by one fourth higher as compared to the findings of our investigation conducted three years ago.
2. The architecture of an up-to-date training process in correspondence with the requirements of the relevant education program must pay due consideration to the educational tasks against the background of the progressive changes in terms of the shift in mindset within the society.
3. Under present-day conditions of a total deviation of the individuals' thinking, there is needed an up-to-date valid adaptation of the logic and content of the education programs within the framework of the pre- and postgraduate medical education.

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Ethical Approval

The study protocol was consistent with the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a prior approval by the Institution's Human Research Committee.

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