

Researching the Current Situation and Proposing Some Basics Solutions for the Intellectual Development of Medical Students at Le Huu Trac University of Medicine and Pharmacy

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Abstract— *The Fourth Industrial Revolution has been having a profound impact on all aspects of social life, placing humans at the center of each country's development. Intelligence is an invaluable asset that enables individuals to think and act wisely, especially in this era of information explosion with multi-dimensional sources, including misleading ones. For medical students at Le Huu Trac University of Medicine and Pharmacy, intelligence plays a crucial role in their learning and training processes, helping them master knowledge while enhancing their abilities in thinking, analyzing, and solving professional tasks. However, in reality, students at the university still exhibit certain limitations, particularly in language thinking skills and information processing capabilities when tackling new tasks. These shortcomings significantly affect their academic performance as well as their ability to fulfill their professional duties after graduation. Therefore, the development of students' intelligence is an urgent requirement to meet the demands of healthcare and public health protection in the current context. Based on this reality, the research team has conducted a study to accurately assess the current situation and propose several fundamental solutions aimed at developing the intelligence of students at Le Huu Trac University of Medicine and Pharmacy today.*

Keywords— *Intelligence, the current state of intelligence, Le Huu Trac University of Medicine and Pharmacy*

I. BACKGROUND AND OBJECTIVES OF THE RESEARCH

In this day and age, the fourth industrial revolution has profoundly affected every aspect of life, and humans have become a determining factor in every country's development. Human intelligence plays a central role in improving the quality of human resources, enhancing development potential and promoting social progress. Therefore, nurturing and developing intelligence is an urgent task that every country—specially in the field of medicine, should pay special attention to.

In recent years, Le Huu Trac University of Medicine and Pharmacy has trained a cohort of medical students with the necessary qualities and competencies to meet the fundamental requirements of caring for and protecting public health. Throughout the training process, students' intellectual abilities have shown development, as demonstrated by their acquisition of basic knowledge in fundamental sciences, social sciences and humanities, basic medicine, and clinical medicine; their ability to analyze, synthesize, and reason; and their initial

application of learned knowledge to professional practice. However, alongside these strengths, there are still some limitations, such as the generally low and uneven level of intellectual development among students, as well as their limited language thinking skills and information processing capabilities when addressing new tasks.

From the issues mentioned above, this study was conducted with two main objectives: first, to survey and assess the current state of intelligence among the military medical students at Le Huu Trac University of Medicine and Pharmacy; second, to propose some solutions for developing the intelligence of these students.

II. SUBJECTS AND METHODS OF RESEARCH

2.1. Subjects of the research

We implemented a research project on the intellectual status of 439 military medical students at Le Huu Trac University of Medicine and Pharmacy, covering cohorts from Class K53 to K58, that are currently studying from the first to the sixth year. Due to the training program that combines theoretical learning in the classroom with clinical practice in hospitals, the students of the university not only share common characteristics with other Vietnamese students but also possess distinctive traits that clearly reflect the specific nature of the medical profession.

2.2. Methods of the research

* *Methods for developing the theoretical framework*

To develop the theoretical framework for this study, we employed methods such as analysis, synthesis, and generalization of existing research works related to the intellectual development of medical students at Le Huu Trac University of Medicine and Pharmacy.

* *Methods of assessing the current situation*

We conducted a survey on the intellectual levels of 439 military medical students from first to sixth year at Le Huu Trac University of Medicine and Pharmacy, using a system of multiple-choice exercises. Scores were calculated for individual questions, subscales, and the overall average for each scale. Based on these results, students' intellectual levels were categorized into five groups as follows: Very low ($0 \leq \text{Mean}$

Score ≤ 1.74); Low ($1.74 < \text{Mean Score} \leq 2.12$); Average ($2.12 < \text{Mean Score} \leq 2.88$); High ($2.88 < \text{Mean Score} \leq 3.26$); Very high ($3.26 < \text{Mean Score} \leq 5.00$).

For the scale measuring the factors influencing the intellectual development of medical students at Le Huu Trac University of Medicine and Pharmacy, we used a questionnaire-based survey method. The contributing factors were categorized by the level of impact as follows: Very weak ($1.00 \leq \text{Mean Score} \leq 2.36$); Weak ($2.36 < \text{Mean Score} \leq 2.68$); Moderate ($2.68 < \text{Mean Score} \leq 3.32$); Strong ($3.32 < \text{Mean Score} \leq 3.64$); Very strong ($3.64 < \text{Mean Score} \leq 5.00$).

III. RESEARCH RESULTS AND DISCUSSION

3.1. Research findings on the current intellectual development levels of military medical students at Le Huu Trac University of Medicine and Pharmacy

The medical students' intelligence is expressed through four fundamental aspects: verbal reasoning ability, spatial reasoning, memory, and information processing capacity. To assess the current state of students' intellectual development, we conducted an in-depth analysis of the levels of expression across these components.

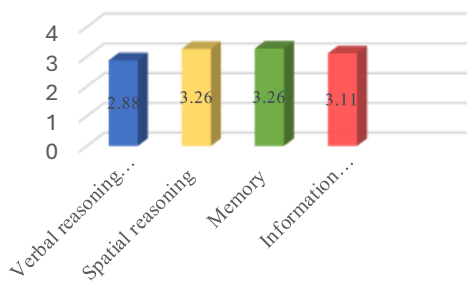


Chart 1: Levels of different aspects of intelligence in students at Le Huu Trac University of Medicine and Pharmacy.

3.1.1. The current state of verbal reasoning ability among students of Le Huu Trac University of Medicine and Pharmacy

The following table shows the findings from our assessment of verbal reasoning ability:

TABLE 1: Levels of verbal reasoning ability among students of Le Huu Trac University of Medicine and Pharmacy

No.	Verbal Reasoning Indicators	Mean	Standard Deviation
1	Verbal analytical and reasoning ability in learning contexts.	2.90	0.43
2	Capacity to convey generalized concepts and terms in academic contexts.	2.74	0.52
3	Social knowledge.	2.98	0.43
Overall mean score		2.88	0.38

The results that are indicated in the survey show that students' verbal reasoning ability remains at an average level, making it the lowest among the components of their overall intelligence (mean = 2.88). Among the most critical indicators of verbal reasoning are the ability to analyze and reason logically and coherently in speaking and writing (Mean = 2.90), and the ability to generalize and express terminology in

academic activities (Mean = 2.74); both of which are rated at near-average and average levels.

Practical research conducted at Le Huu Trac University of Medicine and Pharmacy has revealed that during examinations and assessments, most students experience significant difficulties in articulating, analyzing, and reasoning through issues. Their responses often lack logical structure, coherence, cogency, and tend to be lengthy and unclear. Most exam papers primarily reproduce content from textbooks, lecture notes, and teaching materials, with limited analysis, reasoning, generalization, or practical application. Students' ability to apply acquired knowledge to new problem-solving situations remains limited. As a result, the academic performance of some students remains low, with a number failing to meet the required standards.

3.1.2. The current state of spatial reasoning ability among students at Le Huu Trac University of Medicine and Pharmacy

TABLE 2: Levels of spatial reasoning ability among students at Le Huu Trac University of Medicine and Pharmacy

No.	Indicators of Spatial Thinking	Mean	Standard Deviation
1	Spatial diagnostic ability in identifying symptom relationships in military medicine.	3.27	0.61
2	Spatial visualization and reasoning of clinical symptoms in military medical settings.	3.25	0.58
Overall mean score		3.26	0.54

Overall, it can be observed that the spatial reasoning ability of the students has developed to a relatively high level throughout their studies at Le Huu Trac University of Medicine and Pharmacy. Students have demonstrated relatively good abilities in observation, creative imagination, and reasoning in their learning processes, along with the capacity to apply knowledge and solve new spatial and practical situations encountered in their academic activities. Survey results indicate that students' spatial thinking improves across academic years and is currently at a high level (mean score = 3.26). Specifically, the ability to identify relationships among pathological signs and symptoms during learning (mean score = 3.27) and the ability to imagine and reason about pathological signs and symptoms during learning (mean score = 3.25) are also at correspondingly high levels.

3.1.3. The current state of memory functions in students at Le Huu Trac University of Medicine and Pharmacy

TABLE 3: Levels of memory ability among students at Le Huu Trac University of Medicine and Pharmacy

No	Memory	Mean	Standard Deviation
1	Memory retention of information during perception.	3.31	0.60
2	Reproduction of stored information in the problem-solving process.	3.22	0.65
Overall mean score		3.26	0.58

The survey results illustrated in TABLE 3 indicate that the memory and information recall ability of the students is at a prominent level and represents the most developed aspect of their intellectual capacity (Mean = 3.31). This is considered a

fundamental strength in their cognitive profile, primarily attributed to age-related psychological and physiological characteristics. At this stage of young adulthood, students exhibit heightened neural activity, which contributes to strong memory retention and the efficient formation of conditioned reflexes.

3.1.4. The current state of information processing ability among students at Le Huu Trac University of Medicine and Pharmacy

TABLE 4: Information processing ability of students at Le Huu Trac University of Medicine and Pharmacy

No.	Information processing ability	Mean	Standard Deviation
1	Rapid retrieval of relevant knowledge and experience pertaining to new issues in military medical activities.	3.18	0.56
2	Swift comparison and evaluation of existing and emerging situations in military medicine	3.04	0.54
Overall mean score		3.11	0.43

The survey results indicate that the students at Le Huu Trac University of Medicine and Pharmacy possess a moderately high level of information processing ability (Mean = 3.11). They demonstrate good speed in retrieving relevant knowledge and experience to address the latest problems (Mean = 3.18). This competence stems from typical age-related psychological and physiological characteristics of young adults—such as a highly flexible nervous system and strong short-term memory. At this stage of development, students are capable of quickly forming conditioned reflexes, especially complex ones, and are efficient in short-term knowledge retention and mobilization. These attributes serve as a solid foundation for students to quickly access and apply relevant knowledge to solve problems.

3.2. The current state of the influence of various factors on the students' intelligence at Le Huu Trac University of Medicine and Pharmacy

3.2.1. The current state of the influence of subjective factors on the military medical students' intelligence at Le Huu Trac University of Medicine and Pharmacy

The survey results on the current state of the influence of subjective factors on the intelligence of students are presented in the following table:

TABLE 5: Influence of subjective factors on the students' intelligence at Le Huu Trac University of Medicine and Pharmacy

No.	Subjective factors	Results		Rank
		Mean	SD	
1	Biological predispositions of students	3,32	0,33	2
2	Students' active learning attitude	3,50	0,36	1
Overall mean score		3,41	0,33	

The students' active learning attitude (Mean = 3.50) is the most influential subjective factor affecting the military medical students' intelligence. This indicates that the higher the level of students' activeness in learning, the more proactive and creative they become in academic activities, self-study, and in acquiring and applying knowledge and experience—would ultimately enhance their intellectual capacity. Active learning fosters better memory, concentration, perception, and analytical

reasoning, which are essential for students to effectively solve cognitive problems.

The biological predispositions of students (Mean = 3.32) were found to have a strong influence on the military medical students' intelligence. In practice, the admission process for medical students is characterized by a rigorous selection based on cognitive competencies to ensure adherence to educational standards.

Thus, among the subjective factors, "students' active learning attitude" has the most significant and apparent influence on the students' intelligence. In contrast, "biological predispositions of students" have a comparatively weaker impact. These findings suggest that, in order to enhance the intellectual development of students at Le Huu Trac University of Medicine and Pharmacy, it is essential to foster active learning, and to strengthen educational efforts aimed at building proper learning motivation throughout the training process.

3.2.2. The current state of the influence of objective factors on the students' intelligence of Le Huu Trac University of Medicine and Pharmacy

TABLE 6: Influence of Objective Factors on Students' Intelligence

No.	Objective factors	Results		Rank
		Mean	SD	
1	Instructional content for students	3,38	0,36	2
2	Teaching methods used by instructors	3,48	0,37	1
3	Educational environment	3,34	0,35	3
Overall mean score		3,40	0,35	

The instructional content for students (M = 3.38) is a strongly influential factor on the students' intelligence. It serves as the foundational material for students' intellectual activities and provides essential knowledge for professional practice and forms the basis for effective analysis, reasoning, and problem-solving, thereby directly contributing to the enhancement of students' intellectual capacity.

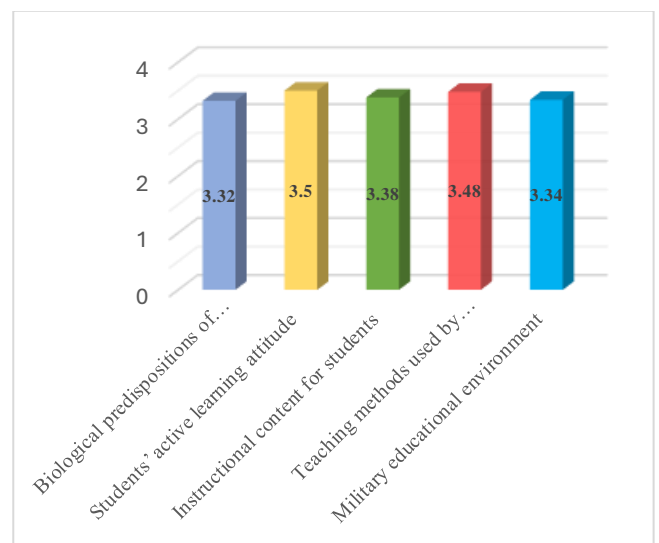


Chart 2. Current status of the influence levels of various factors on the intelligence of students at Le Huu Trac University of Medicine and Pharmacy

The educational environment (M = 3.34) is a factor that greatly affects the intellectual development of students. Survey

results have indicated that aspects of the educational environment such as “Encouragement of creative ideas” ($M = 3.65$) and “Democratic student management” ($M = 3.59$) have exerted a strong influence on students’ intellectual capacity. However, elements like “Availability of facilities and learning materials” ($M = 3.05$) and “Instructors’ respect for students’ opinions” ($M = 3.06$) were rated as having only a moderate impact on their intellectual development.

Overall, the influence of subjective and objective factors on the students’ intelligence varies in magnitude. Among these, students’ learning motivation and instructors’ teaching methods are considered to be the most influential. Therefore, it is essential to foster students’ active and self-directed learning, as well as their perseverance in overcoming challenges during their academic and training processes. Relevant departments at Le Huu Trac University of Medicine and Pharmacy should regularly implement educational measures aimed at enhancing students’ motivation and sense of responsibility in learning, while addressing attitudes of complacency and academic dishonesty. Concurrently, instructors should consistently innovate and apply active teaching methodologies to improve knowledge acquisition and promote cognitive development among students.

3.3. Proposing solutions for enhancing the intellectual development of the students at Le Huu Trac University of Medicine and Pharmacy

Based on the research findings and issues identified through the investigation of the current situation, we propose five fundamental solutions to enhance the intellectual development of the students at the Le Huu Trac University of Medicine and Pharmacy in the present context as follows:

Solution 1: Promoting active learning among students. Students’ active engagement in learning plays the most critical role in their intellectual development. To foster students’ learning engagement, the university’s stakeholders could effectively implement several key measures: First, departments and faculty members must continuously educate students to fully understand and fulfill the university’s central missions of education, scientific research, and clinical practice. Second, lecturers should actively nurture and develop students’ learning needs and interests, thereby contributing to enhancing their learning engagement. Third, it is necessary to build a positive and supportive relationship between lecturers and students. Fourth, the university’s training department should ensure adequate learning conditions and facilities to enable students to maintain active and self-directed learning.

Solution 2: Innovating instructional content to foster comprehensive competency development. Teaching content constitutes a fundamental and essential component of the educational process. To innovate teaching content toward the comprehensive development of student competencies, several key measures should be implemented: First, the teaching content must be attractive, fundamental, and practical, closely aligned with real-world requirements. Second, lecturers should design teaching materials that introduce appropriate cognitive conflicts, thereby stimulating students’ curiosity and encouraging active problem-solving efforts. Third, the training

department and faculty members must develop curricula and teaching content that are scientifically updated, practically oriented, and free from outdated or redundant material.

Solution 3: Integrating diverse teaching methods with an emphasis on case-based learning. At Le Huu Trac University of Medicine and Pharmacy, instructional methods employed by faculty members exert a significant influence on students’ learning motivation, concentration, and engagement. To implement situation-based teaching methods effectively within the university, several key measures should be undertaken: First, lecturers should design cognitive situations that are typical and closely aligned with the content of the lectures. Second, lecturers should combine situation-based teaching methods with other teaching approaches to enhance students’ active engagement in learning. Third, the university should innovate the methods of organizing examinations, assessments, and evaluations of students’ academic performance.

Solution 4: Organizing activities effectively to foster cognitive strategies and thinking techniques for students. Cognitive strategies and thinking techniques play a crucial role in students’ intellectual activities. To carry out the above solution effectively, several key measures should be taken: First, lecturers should regularly cultivate a variety of thinking methods suitable for the learning environment among students. Second, the teaching staff and administrative personnel should provide guidance, support, and encouragement to students throughout their learning process.

Solution 5: Developing a military educational environment aligned with training objectives and enhancing infrastructure investment for Le Huu Trac University of Medicine and Pharmacy. A standardized educational environment constitutes a system of values that exerts continuous and direct influence on students’ daily lives, activities, and learning. To put this solution into practice effectively, several key measures should be taken: First, the university should organize diverse and engaging learning activities in lecture halls, laboratories, clinical practice facilities, and self-study settings. Second, the management of student affairs should be innovated and its quality enhanced. Third, lecturers should foster a democratic atmosphere in the classroom, encouraging students to actively participate in addressing cognitive problems, with as many contributions as possible. Fourth, the university should continue investing in the improvement of learning facilities and infrastructure.

IV. CONCLUSION

The research findings reveal that the students’ intelligence at Le Huu Trac University of Medicine and Pharmacy is developing at a relatively elevated level. There are statistically significant differences in students’ intelligence levels across academic years and regions. Among the components, spatial reasoning and memory are more developed, while verbal reasoning and information processing abilities are at comparatively low levels. The extent to which various factors influence students’ intelligence differs. Notably, learning activeness and the teaching methods employed by instructors exert the strongest influence. Based on the findings, we propose five psychological solutions to foster the intellectual

development of the students at Le Huu Trac University of Medicine and Pharmacy. The findings have fulfilled the research objectives and offer a practical basis for advancing the training curriculum and improving the quality of the medical workforce in the current period in Vietnam.

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