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modern science and education:  
problems and ways of development»

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Plovdiv, Bulgaria

**PROSPECTS FOR THE DEVELOPMENT  
OF MODERN SCIENCE AND EDUCATION:  
PROBLEMS AND WAYS OF  
DEVELOPMENT**

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## **THE INFLUENCE OF PREVIOUS EXPECTATIONS OF DENTAL STUDENTS ON THE STUDY OF MEDICAL BIOCHEMISTRY**

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The current stage of development of higher medical education in Ukraine is unfolding against the backdrop of multidimensional challenges and complicating (and sometimes tragic) circumstances. The transition to a distance and blended form of the educational process since 2020 has prompted the active development of teaching tools and methods using distance communication platforms. Higher education institutions began to develop new aspects of the educational environment, and academic staff, together with higher education students, began to master work in distance learning at an accelerated pace. With the beginning of a full-scale war in Ukraine, such skills of participants in the educational process helped to quickly adapt to changes, and even helped to develop and implement a number of supporting measures to improve learning at various levels. At the O.O. Bogomolets National Medical University, a distance interactive learning platform LIKAR.NMU has been created, which allows for the most effective use of information technology achievements in combination with scientific and pedagogical developments of departments to maintain a high level of quality of education both during periods of forced distance learning and during periods of offline learning. Scientific and pedagogical staff of the Department of Medical Biochemistry and Molecular Biology actively use the interactive learning platform LIKAR.NMU when teaching core and elective subjects, and also study the latest technological opportunities to improve the educational process. [1-5].

In particular, in the summer of 2024, an anonymous survey was conducted of higher education applicants in the specialty 221 "Dentistry" of the 2nd year of study in order to identify the psychological and pedagogical characteristics of their expectations before starting to study the discipline "Medical Biochemistry, including oral

biochemistry". It is clear that students' expectations before studying a discipline are significantly influenced by such factors as:

- reviews of senior students who studied the discipline;
- experience of studying similar disciplines at the previous level of education;
- general commitment to the learning process at a higher education institution;
- psychological state, mood, etc.

And if the department cannot control most of these factors, then the first of them - the feedback from senior students about studying the discipline - is the image and reputation of the department, which are formed by years of hard and dedicated work of the team. This factor of influence largely determines the attitude of higher education students towards studying the discipline, and is certainly subject to correction if necessary, although not in the short term.

At the same time, students' initial expectations regarding the study of the discipline form a kind of "Pygmalion effect" or Rosenthal effect, or self-fulfilling prophecy, which is described in the literature [6,7]. This effect works because an individual's expectations about something determine the nature of the person's actions and the nature of the interpretation of events, which in the case of the prior expectations of higher education students before studying the discipline corresponds to the scheme (Fig. 1):

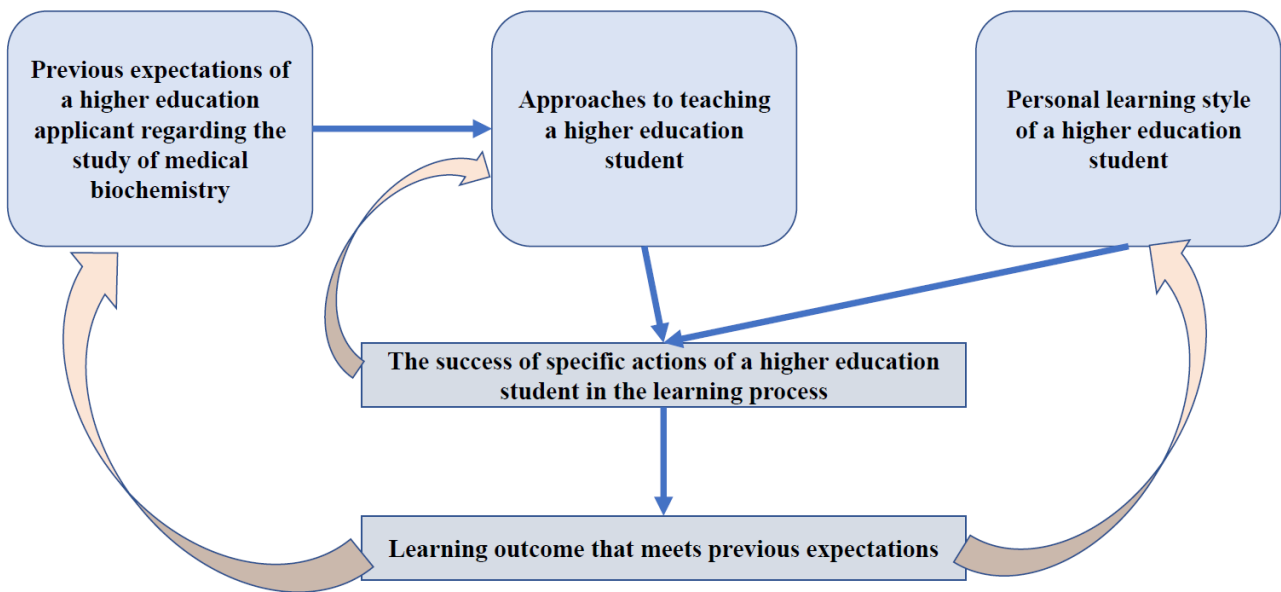


Figure 1. Diagram of the influence of higher education applicants' prior expectations regarding the study of medical biochemistry on learning outcomes.

Analysis of the results of an anonymous survey of 2nd-year students of specialty 221 "Dentistry", which was conducted after they studied the academic discipline "Medical Biochemistry, including oral cavity biochemistry", shows that among 149 respondents, 94.6% study on a contract basis, 5.4% - on a budget basis. Among those surveyed, 71.1% entered the Bogomolets National Medical University immediately after school, lyceum or gymnasium and had no personal experience studying biochemistry. However, about a third of respondents (28.9%) may have had previous



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experience studying disciplines that are similar in content: 24.8% of them previously received education in medical colleges (schools), 1.3% managed to work in medical institutions, 2.0% studied at another non-medical institution of higher education, and 0.8% studied at another faculty (specialty) of a higher medical institution of education. The questionnaire contained an open-ended question, "What were your expectations regarding the content and benefits of studying medical biochemistry?", to which 62.1% of respondents responded. Among those who answered this question, 72.3% expressed positive expectations overall. Of these, 41.5% gave simple short answers (such as "Positive", "High", "Super", etc.), and 30.8% provided detailed explanations of their expectations that had a positive emotional connotation (expectation of interesting material about the body, information about biochemical processes in the oral cavity, expectation of learning more about the human body and the structure of the surrounding world through the prism of medical biochemistry knowledge, a lot of research, practice, etc.). Another 21.3% of respondents provided answers regarding their expectations from studying medical biochemistry, which had a neutral emotional tone ("nothing special", "I don't remember", "I had no expectations", "I didn't expect anything, I treated it like all subjects"), or somewhat wary, with fear, which was then adjusted when studying the discipline ("all my expectations were met, everything was great", "there was a fear of difficult formulas, topics and that there would be no explanation, but in pairs we analyzed everything in as much detail as possible", "I expected the worst").

Among those who answered the open-ended question about expectations, 6.4% gave negative answers ("I thought it would be a very difficult subject, because I didn't like chemistry since school", "I expected hard work on the subject", "I expected it to be difficult, and it turned out that way", "I expected it to be difficult to study medical biochemistry and that I wouldn't need most of the knowledge in the future", "I thought there would be fewer topics"). From these answers, it becomes obvious that the negative impact on the expectations of the higher education applicant is due to his previous experience in studying disciplines of a similar profile (from school), or the inconsistency of the level of requirements or the volume of the workload with the usual established forms of educational behavior and personal learning style (too many topics, it is difficult to teach, it will be difficult, hard work on the discipline), which could have been formed under the influence of a long period of distance learning at the previous level of education.

To the final question "Can you say that your expectations from mastering medical biochemistry were met?" 79.9% of 149 respondents answered affirmatively (37.6% of answers "yes" and 42.3% of answers "rather yes"), "rather no" - 6.0% and "no" - 5.4%, 8.7% were undecided ("difficult to answer").

Thus, the analysis of the psychological and pedagogical characteristics of the expectations of applicants for higher medical education in specialty 221 "Dentistry" provides valuable information regarding the preliminary attitude towards the study of medical biochemistry. Most second-year dental students have positive expectations about studying medical biochemistry, and these expectations are mostly met. Negative expectations may be related to previous experiences studying chemistry at school or to

the specifics of distance learning. It is important to consider students' previous experiences and expectations to improve the effectiveness of teaching medical biochemistry. The results of the analysis of the respondents' answers can be further used to improve the approaches of the Department of Medical Biochemistry and Molecular Biology to create additional educational and methodological support for studying the academic discipline "Medical Biochemistry, including oral cavity biochemistry", to create special additional micro-courses within the discipline to deepen knowledge of basic concepts in order to facilitate the mastery of the educational material.

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