



## INTEGRATION BETWEEN BASIC AND CLINICAL SCIENCES

Shadmanov M.A.

Andijan State Medical Institute

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**Annotation.** The use of the “Project-Design” method in addressing issues studied on the basis of knowledge and skills in the field of urology helps students develop creative competencies, that is, the ability to obtain information from evidence-based sources, solve problems in non-standard and urgent situations, and apply innovative methods in practice.

**Keywords:** innovation, students, learning, topic, new technology, effectiveness.

**Аннотация.** Использование метода «Проектирование» при решении вопросов, изучаемых на основе знаний и навыков в области урологии, помогает студентам развивать творческие компетенции, то есть способность получать информацию из доказательных источников, решать задачи в нестандартных и неотложных ситуациях, применять инновационные методы на практике.

**Ключевые слова:** инновации, студенты, обучение, тема, новые технологии, эффективность.

All medical disciplines should be aimed at providing the opportunity for students to conduct independent medical practice based on acquired knowledge and skills. In this context, clinical disciplines play a crucial role. The study of all clinical sciences is not limited to the accumulation of separate pieces of knowledge, but rather focuses on creating a scientific picture of medicine in the minds of students, forming a holistic understanding of physiological and pathological processes observed in the body.

Integration refers to the teaching of various subjects in a coordinated manner within interdisciplinary connections, ensuring the mutual influence and interaction between them through innovative teaching methods. Such integration has been described in methodological literature, where concepts, representations, and images from related disciplines are utilized. In other words, effective use of knowledge from other subjects on the basis of one particular subject enhances the educational outcome.

**The aim of the study** is to explain the interdisciplinary integration of fundamental and clinical sciences using the example of the urology discipline.

**Object and methods of the research:** To develop students' interest in scientific research and to form research skills, it is important to use the “Project-Design” method during the educational process.

This method enables students to develop the following abilities:

1. Development of research skills – assessing situations, identifying problems, selecting necessary information, and making conclusions.
2. Enhancement of communication skills – being able to express personal opinions, listen to others, provide constructive criticism, and suggest alternative solutions.

To evaluate the effectiveness of this teaching method, an experimental study was conducted involving 165 students in the experimental group and 147 students in the control

group. The “Project-Based Learning” pedagogical technology was applied to the experimental group.

### Results of the study:

During the research, students’ feedback and questionnaire results were collected after conducting practical classes using the “Project-Design” method, with special attention given to the level of skill acquisition (Table 1).

**Table 1.**

Students’ motivation, knowledge, and skill acquisition levels under the “Project-Design” method (%)

No	Questionnaire	Patient group (n=147)	Main group (n=165)	$\chi^2$	P
1	Was the topic and its relevance interesting?	67	87	11,29	<0,001
2	Satisfied with the presentation of the material on the chosen topic?	68	84	7,02	<0,01
3	Was the amount of work done sufficient?	59	77	7,44	<0,01
4	Was the result satisfactory?	52	75	11,41	<0,001
5	Have your presentation skills improved during the teaching process?	46	78	21,73	<0,001
6	Has the ability to analyze the results been expanded?	45	86	37,19	<0,001
7	Have your speaking and writing skills improved?	57	78	10,05	<0,01
8	Are you interested in evaluating others?	68	84	7,02	<0,01
9	Do you like analyzing your mistakes?	62	79	6,95	<0,01
10	Did you remember the topic while using this method?	58	90	26,61	<0,001



**Figure 1.** Students' attitudes towards the design method (%)

According to the results, the use of the “Project-Design” method increased students’ interest in the topic and its relevance by 20% (from 67% to 87%), satisfaction with presentation quality by 16% (from 68% to 84%), adequacy of work volume by 18% (from 59% to 77%), presentation skills by 32% (from 46% to 78%), analytical ability by 41% (from 45% to 86%), and memorization of the topic by 40% (from 58% to 90%).

Thus, applying the “Project-Design” method to study issues in the field of urology based on knowledge and skills contributes to the development of students’ creativity, evidence-based thinking, and the ability to use innovative methods to solve problems in non-standard and urgent situations.

**Conclusion:** Considering the specific features of medical education, the use of the “Project-Design” pedagogical technology in the educational process based on interdisciplinary integration develops the professional competence of teaching staff and increases students’ activity during classes, as well as their theoretical and practical knowledge acquisition indicators from an average of 58% to 90%.

**References:**

1. Kramer-Johansen J., Myklebust H., Wik L., Fellows B., Svensson L., Sorebo H., Steen P.A. Quality of out-of-hospital cardiopulmonary resuscitation with real time automated feedback: a prospective interventional study. *Resuscitation*. 2016; 71:283-292.
2. Quality Assistance in Higher Education in the Russian Federation. UNESCO, Bucharest. 2011.
3. Jarvis P. Globalization, the Learning Society and Comparative Education. *Comparative Education*, 2010, Vol.36, No.3.
4. Learning for Tomorrow's World: First Results from PISA 2003. OECD, 2004. Lisbon Council Policy Brief. The economics of knowledge: Why education is key for Europe's success by Andreas Schleicher. (13 March 2006).

5. Maher J.E., Kleinman G.E., Lile W., Tolaymat L., Steele D., Bernard J. The construction and utility of an amniocentesis trainer. *American Journal of Obstetrics and Gynecology*. 1998 Nov;179(5):1225.
6. Malathi S., Hwang J.C., West D., Yellowlees P.M. Assessment of clinical skills using simulator technologies. *Academic Psychiatry*. 2016 Nov-Dec;30(6):505-15.
7. Okuda Y., Bryson E.O., DeMaria S.J., Jacobson L., Quinones J., Shen B., Levine A.I. The utility of simulation in medical education: what is the evidence? *The Mount Sinai Journal of Medicine*. 2019 Aug;76(4):330-43.
8. Rodgers D.L., Securro S.J., Pauley R.D. The effect of high-fidelity simulation on educational outcomes in an advanced cardiovascular life support course. *Simulation in Healthcare*. 2019 Winter;4(4):200-6.
9. Martin A.J. et al. Risk assessment to guide prostate cancer screening decisions: a cost-effectiveness analysis. *Med J Aust*. 2013; 198(10):546-550.
10. Savoldelli G.L., Naik V.N., Joo H.S., Houston P.L., Graham M., Yee B., Hamstra S.J. Evaluation of patient simulator performance as an adjunct to the oral examination for senior anesthesia residents. *Anesthesiology*. 2016 Mar; 104(3):475.
11. Saad F., Kamischke A., Yassin A. et al. More than eight years' hands-on experience with the novel long-acting parenteral testosterone undecanoate. *Asian J Androl*. 2017; 9(3):291-297.
12. Serrano D.P. The burden of LUTS and BPH in Asia. *The 1st Congress of Asian Pacific Prostate Society: the official presentation of the report*. Seoul, Korea, 2011. 47 p.
13. Srinivasan M., Hwang J.C., West D., Yellowlees P.M. Assessment of clinical skills using simulator technologies. *Academic Psychiatry*. 2016 Nov-Dec;30(6):505-15.
14. Stross J.K. Maintaining competency in advanced cardiac life support skills. *JAMA*. 2003; 249:3339-3341

