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EVALUATING THE EFFECTIVENESS OF INNOVATIVE BIOPHYSICAL APPROACHES IN HIGHER MEDICAL EDUCATION

Rakhimov Bobur Turgun ogli
PhD Student, Department of Biomedical Engineering, Informatics and Biophysics, Tashkent State Medical University E-mail: bobur_raximov@inbox.ru

Abstract
This thesis discusses how innovative biophysical approaches can be evaluated in higher medical education. It focuses on comparative knowledge-acquisition rates, the interpretation of group differences, and the methodological limitations of using aggregate performance indicators.

Keywords. Biophysics education; teaching effectiveness; pedagogical experiment; knowledge acquisition; evaluation.

Introduction

Teaching biophysics effectively requires more than delivering conceptual knowledge. The learning process must allow students to apply physical principles to biological processes and clinical problems. The dissertation abstract proposes a methodology integrating interactive instruction, clinical cases, and digital resources.

Methodological approach. A pedagogical comparison reported in the research materials involved 740 students: 240 in the control group and 500 in the experimental group. Successful knowledge acquisition was recorded for 196 control students and 484 experimental students. The following summary presents

the reported descriptive outcomes; percentages use the full group sizes as denominators.

Table 1. Structured comparison

Group	Students	Successful	Acquisition rate
Control	240	196	81.7%
Experimental	500	484	96.8%
Difference	—	—	+15.1 pp

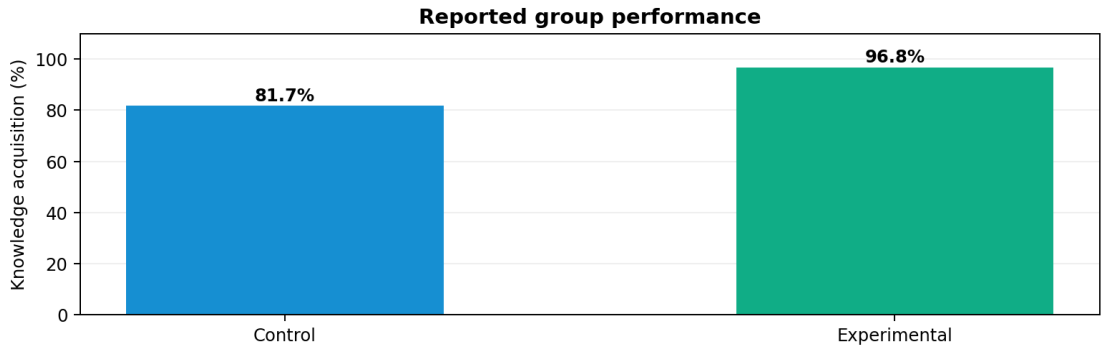


Figure 1. Learning workflow or outcomes

$\Delta p = (484 / 500 - 196 / 240) \times 100 \approx 15.1$ pp

Δp expresses the absolute percentage-point difference between the reported group acquisition rates. It does not, by itself, establish a causal effect.

Conclusion

The experimental group had a higher observed knowledge-acquisition rate than the control group (96.8% versus 81.7%). These descriptive findings are consistent with the potential value of innovative instruction. Strong causal claims require information on baseline comparability, allocation, and statistical design.