

Teaching and Learning Strategies for First-year Medical Students

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Dear Editor,

We read with great interest the article “Graph Constructors Versus Graph Interpreters Versus Non Graphers: A Search towards Better Cognitive Performers in Biochemistry among First-Year Medical Undergraduates,” published by Gunanithi K et al., in the July 2023 issue (BC01-BC04) of Journal of Clinical and Diagnostic Research [1].

As a professor of biochemistry, I am aware that present teaching approach is a time-consuming process. The number of biochemistry lectures has been reduced for the academic year (2023-2024) in accordance with new The National Medical Commission (NMC) standards. Although this reduction has been promptly reversed, it will still take place [2]. Creating intricate graphic representations of complicated metabolic pathways or chemical structures requires a significant amount of time. Sometimes, graphs and diagrams may not be suitable for explaining biological processes. Additionally, graph constructors might be more concerned with the aesthetic appeal of their diagrams than the accuracy of the content.

In biochemistry, to improve cognitive performance, teachers must consider different teaching and learning styles. Based on individual variability in learning preferences, I believe we should adopt a more effective multimodal teaching approach rather than simply categorising students into specific learning styles, such as graph constructors. We can incorporate crucial strategies like “Active Learning Strategies,” including case studies, group discussions, and problem-solving exercises, to encourage student participation and critical thinking, as these abilities may aid in understanding biological concepts and applying knowledge in actual clinical settings.

We can motivate students to discover their preferred learning methods by guiding them and encourage peer-to-peer interactions, which can enhance overall comprehension and build teamwork skills. Additionally, we can consider connecting theoretical concepts to real-life medical scenarios, using virtual simulations and online resources, among other methods.

We experimented with a fresh approach last year. For first-year Bachelor of Medicine and Bachelor of Surgery (MBBS) students, we organised a Biochemistry Fun Day on July 29, 2022, in honour of the birth anniversary of “Carl Alexander Neuberg, a father of modern biochemistry.” As a part of this event, a variety of activities were conducted based on Competency-based Medical Education (CBME) competencies, such as a treasure hunt for clinical diagnosis, a culinary competition for nutrition, crossword activities for metabolic pathways, role plays, and many more [3].

The program was well-received by the students, who were able to recall information and apply it in exams, as well as to enhance their understanding of higher education learning studies.

In conclusion, as medical educators, it is our responsibility to recognise the significance of various learning approaches among

first-year medical undergraduates. I genuinely hope that the present conversation sparks further curiosity and encourages additional study in the area of cognitive function in biochemistry instruction. By consistently exploring and improving our teaching methods, we can develop our students to become competent and well-rounded medical professionals.

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AUTHOR'S RESPONSE

Dear Reader,

The study has not generalised that graphing is the only and best option for improving cognitive performance in all circumstances and scenarios of biochemistry teaching. It rather conveyed only for appropriate contents that can be graphed to facilitate teaching learning process and improving cognitive performance related to those contents.

Further, regarding the time consuming nature of teaching sessions using graphs and distractions due to graph aesthetics. When contents are appropriate for graphing, facilitators should find their time in graph construction, if they are really concerned about improving cognitive performance. Regarding comment on aesthetics, graph appeal appears aesthetic only when the details

of data are clear and well understood. It all depends on facilitators unless the sessions are conducted by primary school drawing teachers in medical schools.

Finally, the study groups were categorised as per study design only for the study. It doesn't mean to be generalised that pupils need to

be categorised in any way during implementation of any teaching learning strategy in medical colleges.

Regards,

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