Medical Biochemistry: Enhancing Achievement in Learning Outcomes through Alternative Assessments

**Highlights**
Conventional teaching and learning method in Medical Biochemistry was reported to be less effective in achieving its objectives, therefore interactive learning serves as a nuanced approach to enhance the learning outcomes among students. In relevance to Education 4.0, students are guided to determine their self-learning process by utilizing digital technologies. In our current practice, we are testing students’ comprehension towards Medical Biochemistry through various online platforms such as: online quizzes (Kahoot! and iFolio), OSPE-based practical session, team-based learning, Educreations and Padlet. Subsequently, the learning outcomes are holistically assessed through students’ formative performance (group–based assessment) and reflection (self-based assessment).

**Key words**
Digital technologies, interactive learning, learning outcomes, online platform, formative assessment

**Description of assessment method / design / process**
For the interactive learning in Medical Biochemistry, first year medical students are grouped in a small group consists of 8 to 10 students based on the total students. Depending on the modules taught in Medical Biochemistry, there are 6 different types of interactive learning that currently being implemented throughout the course:

1. Meet-the-expert
2. Online quizzes
3. Team-based learning
4. OSPE based practical
5. Digital canvas (padlet)
6. Interactive whiteboards

**Advantages of Assessment Methods**
Continuous feedback is important for improvement in order to produce graduates who are reflective critical thinkers, good team players and assertive in communication

**Challenges**
Students not assertive enough in learning
Not knowing the right references, only limited to suggested textbooks

**How to overcome**
A proper guide by lecturers on how to refer the credible references and probe students to become active learners

**Importance towards Education**
Produced reflective and critical thinker
Enhanced soft skills
Improved multitasking ability
Familiarity with digital learning

**How it applicable to other academic disciplines**
Team-based learning: ONE content expert to hundreds of students
Heutagogy and peeragogy approaches: to benefit all students regardless in different academic backgrounds
OSPE-based learning: can replace wet lab practical for more interaction with students

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