A Gaming Approach for Reinforcing the Study of Genetic Code and Mutations: What Do Undergraduate Medical Students Feel?

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Abstract

***Objective**: The objective of this study was to introduce a gaming approach to reinforce learning of topics of genetic code and mutation in Biochemistry for undergraduate medical students and thereafter evaluate learner's perceptions of this method.*

***Methodology**: The study involved 93 first year MBBS students (Batch 34) at Melaka Manipal Medical College for whom selected topics of Biochemistry (genetic code and mutation) were taught using lectures. Following one week, the students were divided into eight teams and a puzzle game was administered that included the same topics. This game was consisted of a long nucleotide sequence for each team from 5' to 3' direction and task was to decode this sequence by giving the final word. Six long sequences were given to each team to revisit different types of mutations. Each letter of this word represents the first alphabet of the amino acid coded by the nucleotide sequence in the continuous manner. Thus by deciphering the code, they will form a word which completed the task. Students had an opportunity to discuss the answers with peers and faculty after the game. Subsequently, student perceptions about the activity were collected using a validated questionnaire with few open ended questions and focus group discussion (FGD).*

***Result**: While 87 (93.54%) students opined that this method reinforced their learning, 91 (97.84%) students felt that this activity made learning process in biochemistry enjoyable (86.02%). 84 (90.32%) students mentioned that this method increased their interest in knowing more about genetic code and mutation. 72 (77.41%) students believe that the approach had improved the long term memory of the topics discussed. Three main themes that emerged from FGD, support the above findings. These themes identified were breaking the monotony, fostering a healthy environment and promotion of critical thinking.*

***Conclusion**: The results of this novel study revealed that gaming approach using puzzles for revisiting Biochemistry topics has helped in creating an environment which fosters learning and critical thinking. Regular use of these approaches in classrooms can generate interest in basic concepts which are otherwise considered abstract and challenging to recollect.*

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