

A Study on Anatomy Question Making and Performance Improvement in Undergraduates

W.G.K.I. Ranasinghe^{1*}, H.A.A.U.S. Hettiarachchi¹, S.M.K.G.H. Samarakoon¹,
G.R.Y.A. Gunathilake¹, H.M.D.N. Angammana², J.A.C.K. Jayawardana¹,
B.M.H.S.K. Banneheka¹, H.M.R.W. Angammana¹

¹*University of Peradeniya, Peradeniya, 20400, Sri Lanka*

²*University of Sri Jayewardenepura, Nugegoda, 10250 Sri Lanka*

**ranasinghekasuni3@gmail.com*

In contemporary education, student-centered active learning has emerged as a favored approach over conventional teaching methods. Making questions demands precise subject knowledge. Creating practical examination questions using cadavers needs good dissection skills and precise identification of structures. Based on this, a group activity was given for first year dental undergraduates for the head and neck anatomy course. The objective was to determine whether making questions would lead to an improvement in students' performance. A total of 120 students were divided into groups A and B, each of which had five cadaver groups. A pre-test was done using Extended Matching Questions (EMQ). A preparation time was given for studying, dissection and creating an Observed Structured Practical Examination (OSPE) using their cadaver and an EMQ on a given topic. Two groups did the activity on separate days. EMQs were displayed to all, followed by rotation among pre-prepared OSPE stations within the given time. Following a discussion time, each group submitted their answers. They delivered a presentation elaborating the answers to their own questions. During this time, both teachers and a designated peer group evaluated them on the question quality and presentation skills, alongside random exchange and marking of answer scripts. On the following day the questions formulated by Group A and B were exchanged using a Learning Management System (LMS) for an individual post-test. Analysis of student performance revealed a significant improvement after the activity, with a mean score difference of 2.420 ($p = 1.095531 \times 10^{-9}$). Students' online feedback revealed that making questions was more beneficial than presentation and discussion. All respondents rated 3 and above in Likert scale for soft skill improvement. Majority (86%) had favored group/self-directed activities over lectures. This study showcases the potential of collaborative and active learning methods to improve knowledge retention, application and soft skills.

Keywords: Anatomy, EMQ, OSPE, Question making, Students' performance