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Bridging the Gap between Teaching and Learning: A 3-S (Strength, Stamina, Speed) Model for Medical Education

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Abstract : Medical Education must focus on bridging the gap between teaching and learning when training pre-clinical year students in skills needed to keep up with medical knowledge and to meet the demands of health care in the future. The authors were interested in showing that a 3-S Model (building strength, developing stamina, and increasing speed) using a bridged curriculum design helps connect teaching and learning and improves students' retention of basic science and clinical knowledge. The authors designed three learning modules using the 3-S Model within a systems course in a pre-clerkship medical curriculum. Each module focused on a bridge (concept map) designed by the instructor for specific content delivered to students in the course. This with-in-subjects design study included 304 registered MSU osteopathic medical students (3 campuses) ranked by quintile based on previous coursework. The instructors used the bridge to create self-directed learning exercises (building strength) to help students master basic science content. Students were video coached on how to complete assignments, and given pre-tests and post-tests designed to give them control to assess and identify gaps in learning and strengthen connections. The instructor who designed the modules also used video lectures to help students master clinical concepts and link them (building stamina) to previously learned material connected to the bridge. Boardstyle practice questions relevant to the modules were used to help students improve access (increasing speed) to stored content. Unit Examinations covering the content within modules and materials covered by other instructors teaching within the units served as outcome measures in this study. This data was then compared to each student's performance on a final comprehensive exam and their COMLEX medical board examinations taken some time after the course. The authors used mean comparisons to evaluate students' performances on module items (using 3-S Model) to non-module items on unit exams, final course exam and COMLEX medical board examination. The data shows that on average, students performed significantly better on module items compared to non-module items on exams 1 and 2. The module 3 exam was canceled due to a university shut down. The difference in mean scores (module verses non-module) items disappeared on the final comprehensive exam which was rescheduled once the university resumed session. Based on Quintile designation, the mean scores were higher for module items than non-module items and the difference in scores between items for Quintiles 1 and 2 were significantly better on exam 1 and the gap widened for all Quintile groups on exam 2 and disappeared in exam 3. Based on COMLEX performance, all students on average as a group, whether they Passed or Failed, performed better on Module items than non-module items in all three exams. The gap between scores of module items for students who passed COMLEX to those who failed was greater on Exam 1 (14.3) than on Exam 2 (7.5) and Exam 3 (10.2). Data shows the 3-S Model using a bridge effectively connects teaching and learning

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