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Research Abstracts

The Value of Self-Assessment in Robotic Surgical System Training

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Introduction: Online training courses, while accessible and scalable, face challenges with learner engagement and self-regulated learning. Without structured opportunities for reflection, trainees may overestimate their readiness or engage passively with course material. To address this, a behaviorally anchored rating scale (BARS) self-assessment tool was developed and piloted within a robotic surgical training curriculum.

Methods: This study compared two groups: Naïve (no medical background, n = 6) and ERS (experienced robotic surgeons, n = 12). All participants were assigned an online, self-paced course in the Docebo learning management system consisting of three modules, each followed by a module-specific BARS self-assessment. Naïve participants completed the course with self-assessments. ERS completed the course in preparation for an in-person evaluation. Pairs of surgeons attending the same session were randomly assigned the course with (intervention, n = 6) or without (control, n = 6) self-assessments. Data was collected through Docebo and analyzed in Google Sheets and MATLAB.

Results: Naïve: High variability was observed. Strong correlations ($r \geq 0.66$) existed between Time Spent, Number of Actions, and Number of Sessions. Learning Test Scores and self-assessment ratings were $70.0\% \pm 19.9$ and 4.29 ± 0.409 , respectively.

ERS: A strong correlation existed between self-assessment ratings and Learning Test Scores ($r = 0.87$) in the intervention group. The intervention group's average Learning Test Score was $74.2\% \pm 15.0$. The average self-assessment rating was 3.57 ± 0.956 . Four ERS did not complete the online training.

Conclusions: Learning outcomes and knowledge transfer between online and hands-on learning are influenced by multiple factors. Self-assessment accuracy increased with trainee experience, but engagement with the self-assessment tool decreased. The strong correlation between self-assessment ratings and Learning Test Scores suggests that self-assessment could be a reliable, low-cost measure of knowledge and hands-on ability in experts, supporting progress tracking, targeted learning, and surgical training effectiveness.