

## Twelve Tips for Enhancing Student Learning Experience in the Operating Room

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### ABSTRACT

Student learning within the Operating Room (OR) is complex and challenging especially for the medical students who heavily rely upon structured learning plans. Presently, medical students' OR-based surgical learning experience is heterogenous, unstandardized and inadequate owing to many reasons. There is a growing need to evaluate the learning modalities and models that we currently use for medical graduates' OR-based learning process, create a balance between structured and opportunistic learning encounters and incorporate previously identified factors that have been known to positively influence the quality of OR-based learning. In continuation with our previous work on OR-based learning, here we argue for a structured OR-based learning plan that embodies appropriate learning models and teaching methodologies and focuses on a comprehensive plan that justifies a local needs analysis, and addresses factors influencing the quality of OR-based student learning to produce enhanced learning outcomes.

**Key Words:** Operating Room, Operation Theater, Learning, Student, Resident, Simulation Lab, Quality of Learning Experience, Structured Learning, Structured Clinical Encounters, Structured Surgical Encounter Template

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### INTRODUCTION

Operating Room (OR), focuses on almost all learning forms such as spatial, aural, verbal, physical, logical, interpersonal and intrapersonal.<sup>1,2</sup> Currently, various models of teaching and learning are being used for residency training in the OR setting. It is necessary to customize them according to their perspectives, needs and the graduates' learning outcomes.

OR-based student learning is influenced by a number of factors which include organizational, socio-environmental and emotional factors apart from factors related to educational relevance and surgical educators.<sup>1,3,4</sup> Weinberg et al. and Lyon et al. have previously stressed the need for a student-driven learning process, however, a

standardized learning process in the OR- setting where the teacher has a more responsible role despite the learning process being student-centered may be more practical.<sup>5,6</sup> Here, we aim to provide an overview of some of the measures that can be taken to enhance the theatre experience for our future undergraduate medical students.

### **Structure and standardize course and lesson plans: Tie up loose ends!**

Lyon et al. and Weinberg et al. have proposed for student-driven measures, however, they are neither standardized nor ensure the acquisition of knowledge and skills in all graduates.<sup>6,7</sup> Therefore, Roberts et al. have argued for a more deliberate and structured learning process in the operating room setting.<sup>8</sup> Structured learning positively influences student learning within the OR environment.<sup>9</sup> The learning within the OR-based environment should be structured and not opportunistic. The lessons, teaching/learning methodologies, and the assessment process should be planned before introducing the course. There is a consensus among experts that there should be a collaborative content selection by the teacher and the student, keeping in view the required skill set for a standardized graduate.<sup>10</sup>

### **Construct 'SMART' Learning Objectives through a shared approach:**

The learning objectives of OR-based learning should be clear, practical, synchronized with concomitant teaching, and need to be defined and circulated prior to sessions in an effective manner.<sup>11,12</sup> The teacher/s should develop the learning objectives with student input for essential components of standardized learning. However, the students should be given the liberty to follow their learning objectives for enhanced learning at an individual level.<sup>13,14,15</sup>

### **Teacher's pivotal role: Train your faculty!**

Students value surgeons as positive role models, which may influence their career choices.<sup>16</sup> Zundel et al. have identified six effective strategies that an educator can employ to

enhance the student-learning experience in the OR, which include:

1. Clarifying who the teacher is
2. Signposting so the theater staff knows when teaching is happening and applying time frames
3. Acknowledging when critical incidents are happening
4. Clarifying expectations of students
5. Providing a continuous commentary and asking students questions.<sup>12</sup>

Because of the demanding situations and time constraints faced by senior surgeons, the junior faculty were more effective teachers within the OR setting, according to many students.<sup>17,18</sup>

### **Transform Operating Room learning with technology: Synchronize operating Room learning with a simulated environment!**

Organizational support remains a critical component of OR-based learning.<sup>19</sup> Lack of adequate visualization of procedures has been cited as the most detrimental aspect of OR-based learning.<sup>19</sup> The theatre complex should be transformed into a learning hub for medical students, with enhanced visualization of procedures through technology (e.g., LED Screens, simulated operating suite (SOS) and microscopes etc.<sup>1</sup>

### **Focus on psychomotor skills through a simulated environment:**

The operating room's pressurized dynamics, expanding class sizes, and ethical concerns curtail students' opportunities to practice psychomotor skills in the OR setting. A simulated environment can therefore be quite helpful.<sup>20,21,22</sup> A range of simulations from low fidelity to high fidelity is available and has been found to be productive.<sup>23,24</sup>

### **Choose appropriate assessment & render constructive feedback:**

Surgical skill development requires time and practice. Appropriate evaluation involving the assessment of psychomotor and affective skills apart from cognitive skills remains a high

priority.<sup>25</sup> Furthermore, receiving feedback has been shown to promote skill development and higher levels of expertise. OSCEs, formative objective structured clinical exams (F-OSCEs) and other such methods of evaluation can facilitate the acquisition of psychomotor skills.<sup>25</sup>

#### **Focus on individualized interaction with students:**

The students aspire for an individualized interaction to have a more meaningful learning process.<sup>5</sup> Students achieve the highest participation levels when they are involved in actual tasks within the OR and other clinical settings.<sup>26</sup> Schwind et al. in their study, demonstrate that students highly value consultant-led interaction with students.<sup>16</sup> Adequate and individualized interaction is key to enhanced OR-based learning.

#### **Arrange an orientation Session- sensitization with the environment:**

An orientation session about the theatre complex, staff, teaching provisions, theatre working, basic concepts of sterilization and biomedical ethics should be arranged to alleviate student's anxiety and nervousness.<sup>27</sup>

#### **Prime your students with relevant educational material:**

Priming students with pertinent educational material prior to lessons improves students' participation and understanding.<sup>28</sup> This cognitive portion, in the form of videos, vignettes, and other educational innovations should be executed.

#### **Ensure effective skill training in the Operating Room setting:**

Training to handle the OR environment through affective skill training is essential for students' optimal participation in OR lessons. The students should be oriented and trained to overcome their anxieties to improve their participation within this dynamic environment. For effective skill training in OR the strategy of role modeling can be used.

#### **Provide a welcoming environment for the students: Extend support!**

Bullying, intimidation, victimization and a harsh attitude negatively affect the students' participation in OR learning.<sup>1</sup> It is important to train our faculty to avoid such conduct and ensure a mechanism for accountability.<sup>29</sup>

#### **Train your students for Self-regulation**

Students seek out "student-friendly" surgeons, whereas surgeons look for students capable of promoting themselves to create a symbiotic relationship. Students who manage this interaction establish credibility, become recognized as legitimate team members and are eventually encouraged to participate in the team's "community of practice".<sup>30</sup>

#### **CONCLUSION**

The application of OR-based learning models should be realistically achievable, effective, and aligned with the methodology, assessment and outcomes. Faculty training remains a high priority. Adequate organizational support and OR enhancement through simulation and technology can create abundant and valuable learning opportunities.

#### **Conflict of interest:**

The authors report no conflicts of interest.

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