

Examination of participant preferences in the design and delivery of simulation-based education programmes

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Surgical education has changed; the classical ‘see one, do one, teach one’ philosophy has become increasingly hard to practice. Simulation-based education (SBE) has evolved as an effective tool to address the learning needs of healthcare professionals while maintaining the health and safety of patients. The quality and size of published evidence showing the utility of SBE and its role in the acquisition of both technical and non-technical surgical skills continues to increase. However, although many simulated skills courses have proven to be beneficial,^{1,2} the optimum format for the delivery of laparoscopic simulation training is still unclear.

To better understand the role of training formats in SBE, the Royal Australasian College of Surgeons (RACS) implemented the Laparoscopic Simulation Skills Program (LSSP). The aim of the LSSP was to determine the best format for delivery of simulated laparoscopic skills training. The LSSP delivered a technical skills training programme in metropolitan and regional Australia. As part of this programme, a questionnaire was used to record participants’ perceptions on the utility of laparoscopic simulation training, barriers and motivators for attending training, as well as preferences for SBE delivery. The results of this survey are presented in this article to examine how participants’ opinions and choices direct their participation in the programme.

A postcourse questionnaire was used to record perceptions on each of the aforementioned topic areas. This questionnaire included a combination of Likert scale, multiple choice and ranking questions, as well as short answer sections. Ethics and governance approvals for all sites were obtained prior to site access. A total of 156 of the 207 enrolled participants completed the postcourse questionnaire: medical students (n=105), interns (n=23), resident medical officers (RMOs) (n=21), trainees from the RACS Surgical Education and Training (SET) programme and The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) (n=7). Medical students were one cohort (MS) with interns, RMOs, SET trainees and RANZCOG trainees grouped into the second cohort (DR).

Participants used a Likert scale (from 1: ‘strongly disagree’ to 5: ‘strongly agree’) to indicate their level of agreement with statements regarding the ‘utility of SBE’ as well as the ‘ideal elements’ of an SBE programme. Results indicate a positive perception of the utility of simulation-based laparoscopic

training in both groups. The DR group indicated with more certainty that skills learnt in simulation laboratories are transferable to the operating theatre. This enthusiasm has some restraint, as it was identified that participants do not perceive simulation training alone as the only answer (table 1).

Similarly, participants were asked to rank (from 1: ‘most important’ to 8: ‘least important’) factors that may influence their decision to participate in a simulation skills programme. Interestingly, both cohorts identified ‘timing of sessions’ as the most important and the ‘Eligibility for Continuing Professional Development points’ as the least important.

Two multiple-choice questions were used to identify participant preferences for the timing and frequency for scheduling simulation training. Half of the DR (48.5% 33/68) and one-third of the MS group (33.3% 48/145) would prefer SBE sessions ‘after work’. The ‘weekend’ was the least preferred option (4.4% DR and 4.1% MS). Participants were asked to identify what they believed would be the optimum frequency for this type of training. Participants preferred ‘fortnightly’ sessions (50% DR and 50.47%); this was followed by ‘weekly’, ‘monthly’ and, lastly, by ‘per rotation’ sessions in both groups with similar proportions.

Participants also indicated what they believed constituted an ideal laparoscopic skills course. The top three elements were consistent across both cohorts: location of training, structured training programmes and weekly or fortnightly mandatory sessions (see table 1).

Participants were asked to select one or more barriers that they believe would affect participation in SBE. Overwhelmingly, availability of free time was reported as the greatest barrier for attendance for both groups with 82% of MS (86/104) and 91% of DR (45/49) selecting this option. Relatedly, interruptions seemed to be more for important for DR (32%: 16/49), identified as the second most important barrier to participate.

In surgery, SBE has proven to be effective with skills acquired in a simulated environment being transferable to the operating theatre.^{1,3,4} The utility of simulation, especially for laparoscopic skills training, is now widely recognised,¹ and the above results indicate that participants of this study support these views.

This research identified that the timing of sessions was considered as the most important factor



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Table 1 Participants' perspectives of laparoscopic simulation-based education. DR, Doctor; MS, Medical student.

Statement	Likert scale average DR	Likert scale average MS
Surgical trainees and consultants should be required to demonstrate proficiency on a laparoscopic simulator before operating on patients when it comes to using new instruments and technologies (ie, staplers, graspers, implants and other devices) (DR=51; MS=104).	3.921	4.134
Surgical trainees should be required to demonstrate proficiency on a laparoscopic simulator before being allowed to operate on a patient (DR=51; MS=104).	3.823	4.086
Laparoscopic skills learnt in the simulation laboratory are transferable to the operating theatre (DR=51; MS=104).	4.137	3.875
Laparoscopic skills learnt in the simulation laboratory are comparable with those learnt in the operating room (DR=51; MS=104).	3.588	3.528
Time spent participating in laparoscopic simulation can replace time spent in the operating room (DR=51; MS=103).	2.352	2.495
Ideal elements		
I would be more likely to attend simulation training when held at my site of employment/training.	4.68	4.47
When learning new technical skills, I prefer structured teaching and feedback.	4.34	4.20
Having weekly/fortnightly mandatory sessions would be useful as part of my employment and training.	4.22	3.94

influencing motivation to participate in SBE. Similarly, lack of available time was seen as the greatest barrier. Tight schedules, busy shifts and time constraints are also often reported in the literature as having a negative impact on training attendance.^{5 6} For the DR group, 'time' was the paramount concern. As time constraints inhibit participation when simulation training is held on site, busy surgical trainees are even less likely to be able to spare time to attend training held off site. It is perhaps not surprising that participants preferred training format revolved around minimising interruptions and maximising availability: rostered rather than ad hoc sessions; scheduled after work

rather than during a shift; and structured teaching with feedback (which may improve training efficiency). In addition, attendance at fortnightly sessions is more likely to be achievable than weekly sessions while still providing regular practice time.

The benefits of SBE are widely reported. However, its utility is not the only factor required for its effective implementation. Thought needs to be given for the structured implementation of training sessions. The results reported herein show that fortnightly, mandatory sessions held within protected time is preferential. These perspectives and preferences need to be acknowledged and adopted to ensure access and success.

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