

## Hot Off the Press

Huckaby, L.V., Cyr, A.R., Lee, K. and Steiman, J.G., 2020. The Life After Surgical Residency (LASR) Curriculum for Surgical Residents: Addressing the Nonclinical Barriers to Preparedness for Independent Practice. *Journal of Surgical Education*, 77(2), pp.254-259.

## READ INSIDE

"All residents were surveyed to ascertain their self-reported preparedness on a variety of nonclinical topics (teaching, finances, contract negotiation, real estate, etc.).

"Residents report low levels of preparedness in many nonclinical topics that may represent potentially modifiable stressors that can impact career success. Implementation of a directed curriculum improves sense of preparedness and may promote wellness among surgical trainees."



## Project Highlight: Training Residents in Robotic Surgery

Kevin O. Garrett, MD, FACS, Chair of the Passavant Department of Surgery shares his special focus as an educator: teaching robotic-assisted surgery.

"I have, for the last 6 years, been building the robotic experience for the residents at PAS. We have completed upwards of 1200 cases and have trained PGY II, PGY III, PGY IV, and PA students. I have also proctored 7 staff attendings and 2 PAs. Some of the graduates have fed back stating that they landed fellowships on the strength of their robotic training. That is my main teaching/training thrust apart from the teaching obligations that should otherwise be expected of each of us."

## This issue

News

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New in Education Research

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## Educator Highlight: Dr. Hamad Professor of Surgical Education

Giselle Hamad, MD, FACS, FASMB has been appointed as the Charles G. Watson Professor of Surgical Education. Before her, the late Peter F. Ferson, MD and Emeritus Professor of Cardiothoracic Surgery held the position. Dr. Hamad has also been appointed as an Advisory Dean of Students by the School of Medicine. In this role, she advises a subset of medical students over the course of their time at Pitt. She will continue her roles as Director of General Surgery Education in the PUH residency program; Associate Program Director of the same residency program; and Director of the Fourth Year Medical Student Clerkship program in surgery in the School of Medicine. Dr. Hamad has been widely recognized for her contributions and innovations in medical education.

## Education minute...

### You can "kaizen" your teaching and assessment goals one at a time.

Kaizen is a continuing process of small improvements. To improve and document your teaching, write down one goal for your learners. Write the "what, when, who,

where, how, why" details of the goal. Give learners a heads-up that this is something you want them to learn. Include the details of this goal. Teach it when the opportunity arises. Observe the learner's attempt. Finally, ask the learner to write your feedback down and send it to you so you can both keep track of their learning.

## Good reads in education

Books for educators in the general population de-mystify evidence-based ways to improve your teaching.

James M. Lang's "Small Teaching" (Jossey-Bass 2016) shows how a small change in your teaching can make a big improvement in learning. For instance, use the first minutes of a teaching interaction to set one goal for what the learner should focus on. At the end, recap a learning interaction for the learner. These things focus the mind and make information stick.

Lang also published "Small Teaching Online" (Jossey-Bass 2019) which you may find more useful for helping your own children as schools put more learning online.

For a general lay-audience account of learning science itself, readers often enjoy "How Learning Works: Seven Research-Based Principles for Smart Teaching" (John Wiley & Sons, 2010). The first two chapters cover the cognitive reasons why learners make the same mistakes, despite what appear to be clear instructions. The book helps teachers re-think the content they're teaching. The last few chapters explain why learning environments make or break learning.



## What's new in surgical education research?

### Can machines assess surgical performance?

Laparoscopic simulators like the Symbionix platform in the Charles Gray Watson Surgical Education Center\* measure technical skills like dexterity and efficiency. But what about non-technical skills like surgical judgment and decision-making?

The field of surgical data science is positioned to monitor surgeons' context awareness, support their decision-making, act as an automated coach, and give feedback. Healthcare engineers at Johns Hopkins [report](#) current technologies that can be leveraged for these things.

Another approach is brain activity monitoring. A study at UPMC is examining whether surgeons' brain activity while operating shows signs of inexpert versus expert mental focus. Participants wear a cap while doing tasks in the Watson Center's surgical simulator. The cap's sensors measure deoxygenated blood flow in the frontal lobes. The method could detect mental overload and shifting awareness for steps in a procedure.

\* 6<sup>th</sup> floor of UPMC Presbyterian

### Why does learning take so long? What can educators do to make it efficient?

Neurological surgeons and bio and electrical engineers at Pitt's Brain Institute [report](#) in *Nature Neuroscience* that "the activity patterns [of the brain] are even more constrained than previously thought and might explain why it is often *difficult to quickly learn to a high level of proficiency.*"

### "Learning requires the brain to change"

If learning is even harder than we think, how can we make learning as efficient as possible? Education research says almost unanimously: get your learners to "actively" engage, but don't overwhelm them.

Cognitive research shows that the mind does not hold onto new ideas—even tiny details—more than three to five at a time. Educators often have to reduce, focus, and space instruction.

One example is the [evidence-based model](#) of (1) Brief, (2) Intraoperative teaching, (3) Debrief.

First, brief the learner immediately before a teaching session about one learning goal. Give them a question they will need to answer at the end of the session or teaching case. Give them an skill to focus on.

Second is operative teaching. Remember you can demonstrate, coach, ask questions, explain, and do more active things than lecture.

Last, debrief the learner at session's end. Remind them what the goal was. Tell them what they can work on. Ask them how they plan to work on these things.

In conclusion, brain research, cognitive research, and education research point to one thing you can do to help learners: focus their attention on one thing at a time by giving them an educational heads-up, some active guidance, and a wrap-up at the end.

Send us your education news to be included in this newsletter:

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Dr. Littleton consults in education and learning research. She mentors and connects Pitt faculty, residents, and students in surgical education.

# Surgery Department Education Scholarship 2019-2020\*

- **Huckaby LV, Cyr AR, Lee K, Steiman JG.**

The Life After Surgical Residency (LASR) Curriculum for Surgical Residents: Addressing the Nonclinical Barriers to Preparedness for Independent Practice. *J Surg Educ.* 2020 Mar-Apr;77(2):254-259. doi: 10.1016/j.jsurg.2019.09.017. Epub 2019 Nov 11. PMID: 31722845.

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\* Any additions or corrections to this list are encouraged.

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