

Educación basada en Competencias

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Disclosures

Medtronic – Speaker/Proctor

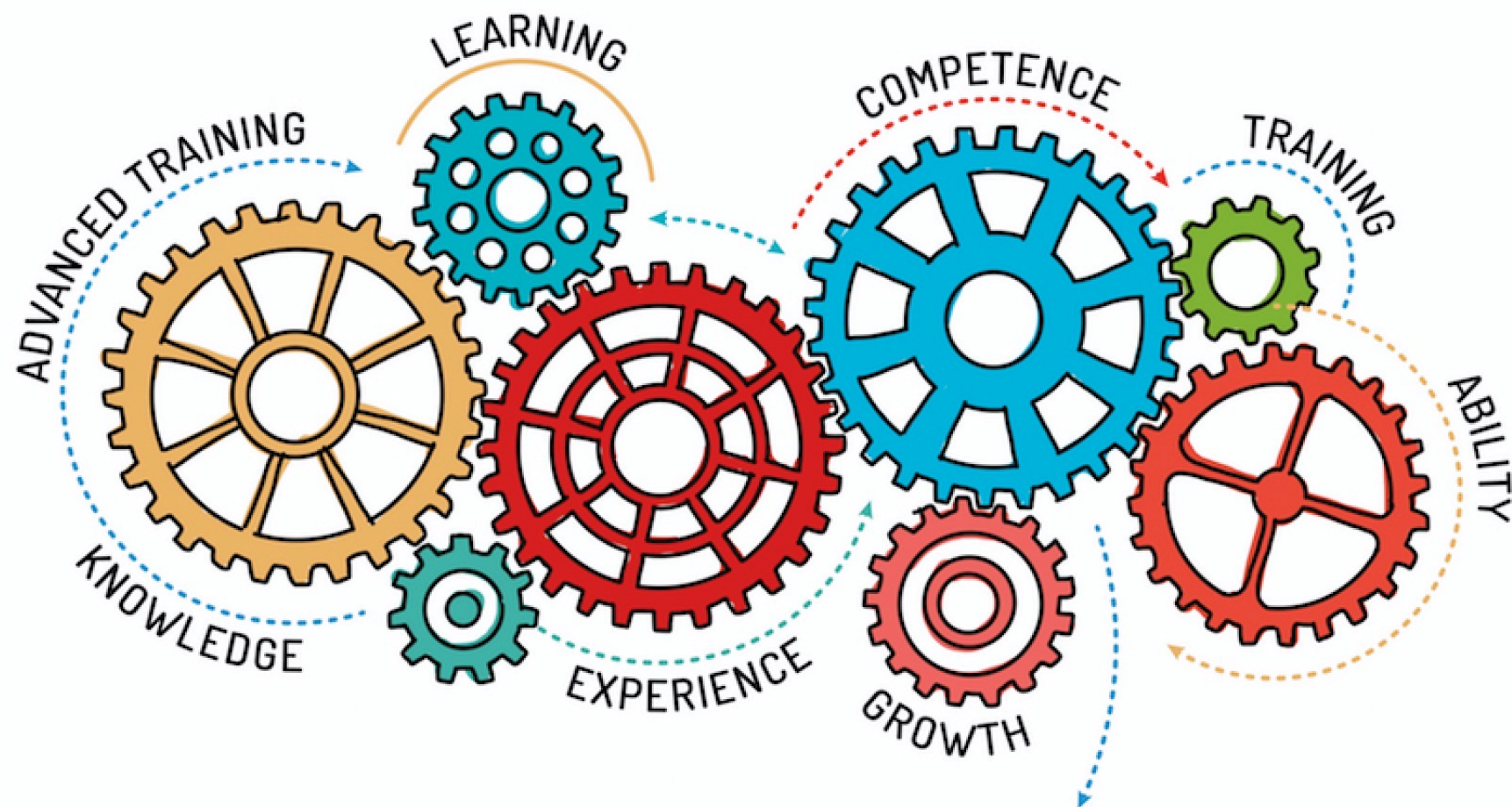
BD – Speaker/Proctor

JnJ – Proctor

MSS - Speaker

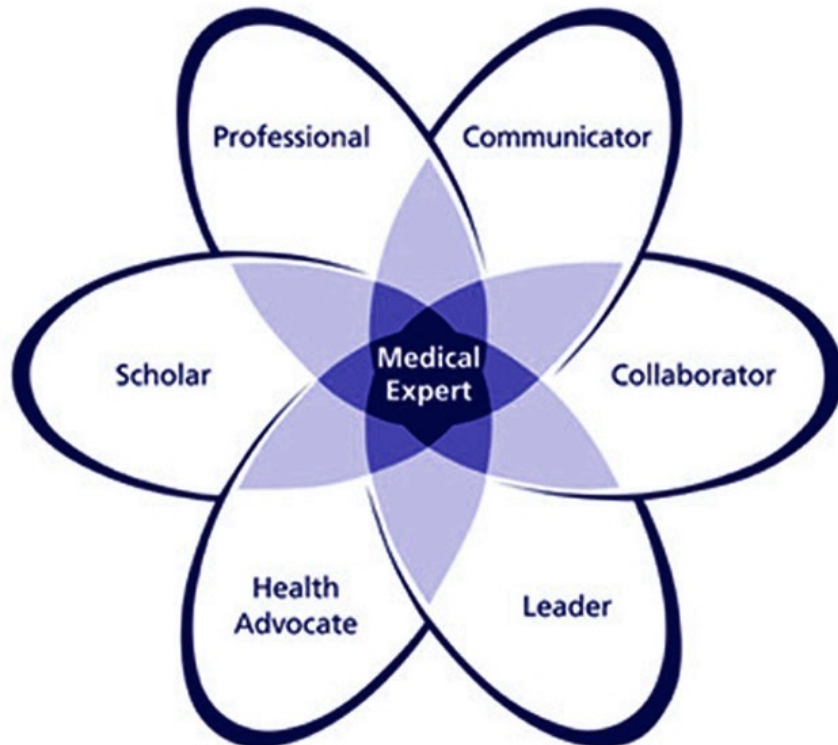
Intuitive/MEDBOT – Training





****42-year-old woman. Laparoscopic sleeve gastrectomy. Day 3: staple line leak.****

- Her surgeon had completed ****the required number of cases.****
- His logbook was signed. His training was "complete."

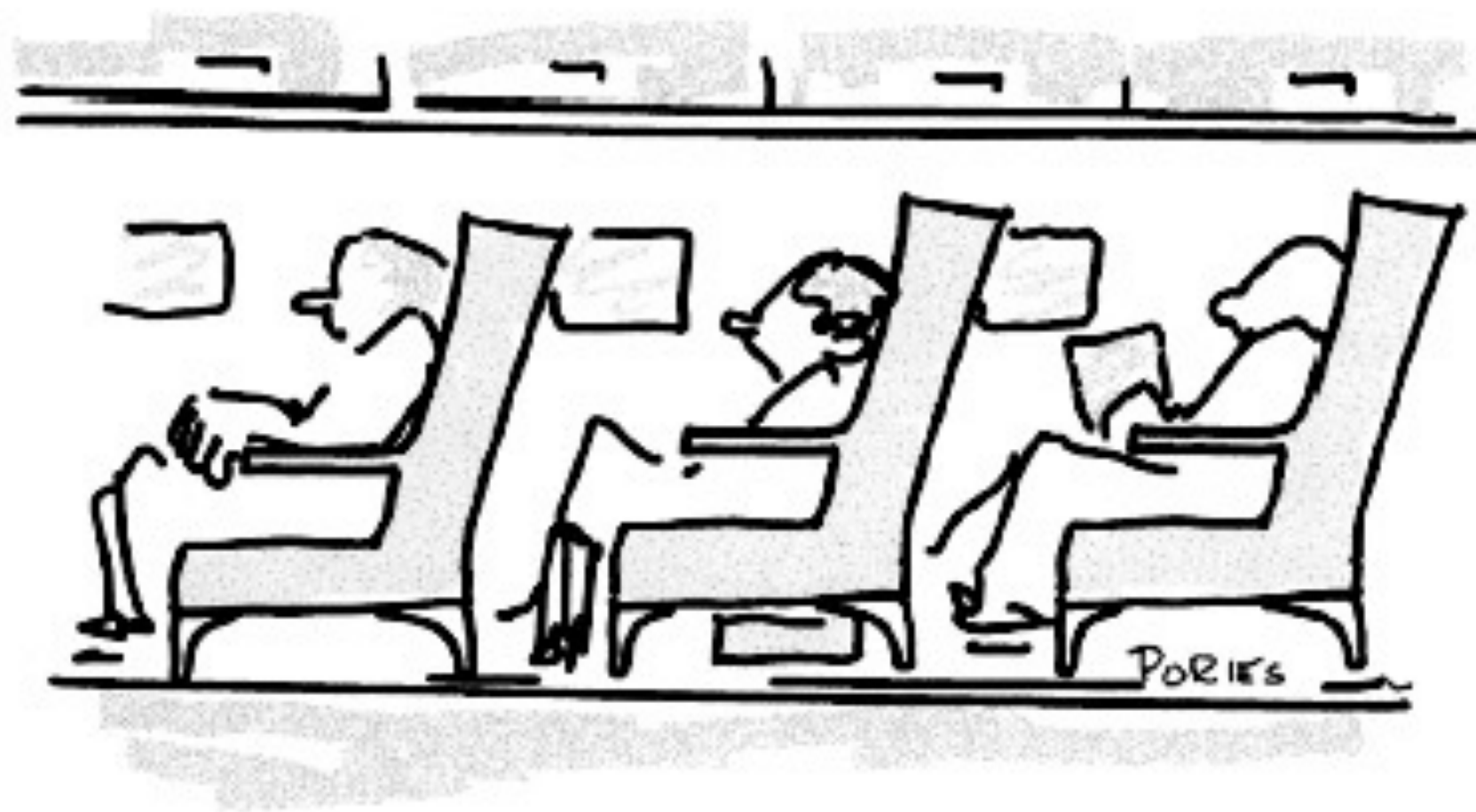


So I ask you this question — and I want you to sit with it:

- Did the system fail her? Or did the individual/preceptor fail her?******



Birkmeyer JD et al NEJm 2013
Dimick JN NEJM 2009



*"Good morning. I'm your captain and I just completed
a three day program to fly this plane."*

Graduados de Cirugía General

TABLE 2. Professionalism Domain Responses

Abbreviated Query	Strongly Disagree, %	Disagree, %	Neither Agree nor Disagree, %	Agree, %	Strongly Agree, %
Communicates effectively	0.0	1.1	6.7	50.0	42.2
Comes into hospital to see sick patients	0.0	5.6	8.9	38.9	46.7
Demonstrates ownership of patients	0.0	6.7	10.1	43.8	39.3
Treats ancillary staff with respect	0.0	0.0	7.8	35.6	56.7
Treats residents with respect	0.0	0.0	5.6	41.6	52.8
Demonstrates professional behavior	0.0	0.0	7.8	32.2	60.0
Reviews history/imaging of patients for OR	0.0	6.7	12.4	43.8	37.1
Arrives to OR well prepared	1.2	7.0	12.8	43.0	36.0

OR indicates operating room.

TABLE 5. Clinical Evaluation and Management Domain Responses

Abbreviated Query	Strongly Disagree, %	Disagree, %	Neither Agree nor Disagree, %	Agree, %	Strongly Agree, %
Understands pathophysiology of disease	1.1	5.6	7.9	59.6	25.8
Understands treatment options and indications for surgery	0.0	7.1	10.6	57.6	24.7
Performs appropriate initial outpatient evaluation	0.0	3.3	16.7	46.7	33.3
Counsels patients regarding differential and recommendations	0.0	3.4	22.7	48.9	25.0
Understands indications for surgery and appropriate work-up	0.0	4.4	15.6	55.6	24.4
Understands treatment alternatives and areas of controversy	0.0	12.4	19.1	56.2	12.4
Proficient in postoperative care	0.0	2.2	8.9	55.6	33.3
Recognizes complications early	0.0	5.7	15.9	48.9	29.5
Initiates appropriate investigations and responds with appropriate interventions	0.0	3.4	18.2	47.7	30.7
Demonstrates appropriate postoperative care recommendations relevant to disease, including surveillance	0.0	3.4	23.0	55.2	18.4
Recognizes decompensating patients, transfers to the appropriate level of care, and clearly communicates to the faculty member	0.0	4.5	13.5	51.7	30.3

PAPERS OF THE 133RD ASA ANNUAL MEETING

General Surgery Residency Inadequately Prepares Trainees for Fellowship

Results of a Survey of Fellowship Program Directors

Samer G. Mattar, MD,* Adnan A. Alseidi, MD, FACS,† Daniel B. Jones, MD, FACS,‡
D. Rohan Jeyarajah, MD, FACS,§ Lee L. Swannstrom, MD, FACS,|| Ralph W. Aye, MD, FACS,¶
Steven D. Wexner, MD, FACS, FRCS, FRCS(Edin), PhD (Hon),** José M. Martinez, MD, FACS,††
Sharona B. Ross, MD, FACS,‡‡ Michael M. Awad, MD, FACS,§§ Morris E. Franklin, MD, FACS,||||
Maurice E. Arregui, MD, FACS,¶¶ Bruce D. Schirmer, MD, FACS,*** and Rebecca M. Minter, MD, FACS†††

Graduados de Cirugía General

TABLE 3. Level of Independence/Graduated Responsibility Domain Responses

Abbreviated Query	Strongly Disagree, %	Disagree, %	Neither Agree nor Disagree, %	Agree, %	Strongly Agree, %
Formulates a plan of action for patients	0.0	9.0	10.1	53.9	27.0
Can independently perform a laparoscopic cholecystectomy	2.2	15.6	12.2	43.3	26.7
Can perform 30 min of a major procedure independently without supervision	9.0	33.7	23.6	20.2	13.5
Can take general surgery call with rare need for assistance with cases	3.4	22.7	21.6	42.0	10.2
Provides all postoperative care	1.1	16.7	14.4	51.1	16.7
Can perform advanced cases independently by the end of fellowship	0.0	2.2	15.6	52.2	30.0
Can practice independently by the end of the fellowship year.	0.0	3.3	7.8	38.9	50.0

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TABLE 4. Psychomotor Ability Domain Responses*

Abbreviated Query	Strongly Disagree, %	Disagree, %	Agree, %	Strongly Agree, %
Able to control bleeding	1.1	12.2	73.3	13.3
Proficient in recognition of anatomy and anatomic tissue planes	1.1	24.7	58.4	15.7
Proficient in dissection of tissue planes	3.3	25.6	51.1	20.0
Proficient in safe manipulation of tissue	1.1	28.9	54.4	15.6
Proficient in appropriate use of energy devices	0.0	22.2	60.0	17.8
Proficient in obtaining laparoscopic intra-abdominal access	2.2	18.9	55.6	23.3
Proficient in laparoscopic suturing	13.5	42.7	38.2	5.6
Proficient in use of staplers	1.1	13.3	64.4	21.1

*Response options for this domain were anchored with examples of particular behaviors provided for each of the 4 possible answers and specific to the query, to improve reliability and decrease subjectivity of responses.

Graduados de Cirugía General

TABLE 6. Academia and Scholarship Domain Responses

Abbreviated Query	Strongly Disagree, %	Disagree, %	Neither Agree nor Disagree, %	Agree, %	Strongly Agree, %
Interested in academic projects	7.8	17.9	21.1	38.9	14.4
Curious about the underlying mechanisms of disease	3.4	9.0	11.2	59.6	16.9
Motivated to advance science of surgery	7.9	18.0	25.8	38.2	10.1
Familiar with recent publications in the field of advanced training	2.2	20.2	37.1	33.7	6.7
Displays initiative in conducting research	8.9	27.8	26.7	31.1	5.6
Eager to meet deadlines for academic projects	7.8	17.8	24.4	38.9	11.1
Able to compile and analyze data	2.2	29.2	21.3	38.2	9.0
Able to present salient findings of a study	2.2	15.7	31.5	40.4	10.1
Understands research protocol design	6.7	27.8	27.8	34.4	3.3
Understands basic statistical analyses	6.7	30.0	27.8	30.0	5.6
Understands components of abstract and manuscript	7.9	27.0	28.1	33.7	3.4
Can write a cohesive manuscript	8.9	27.8	31.1	26.7	5.6

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We have built surgery training on three assumptions

| Assumption |

| **Volume** = competence |

| **Time** in program = readiness |

| **Exposure** = mastery |



| Reality |

| Same case number $\neq$ same outcome |

| Learning curves are **non-linear and individual**

| Passive exposure without structured feedback produces **invisible variability** |



Chikwe J et al Ann Thor Surg 2009
Aggarwat R et al Qual Saf Health Care 2010
Ten Cate O J Grad Med Educ 2013
Fecso AB et al Ann Surg 2017

We have built surgery training on three assumptions

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| Reality |

| Same case number ≠ same outcome |

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The most dangerous surgeon in your OR is not the one who knows they're struggling.

It is the one who has ****completed their numbers and believes they are ready.****



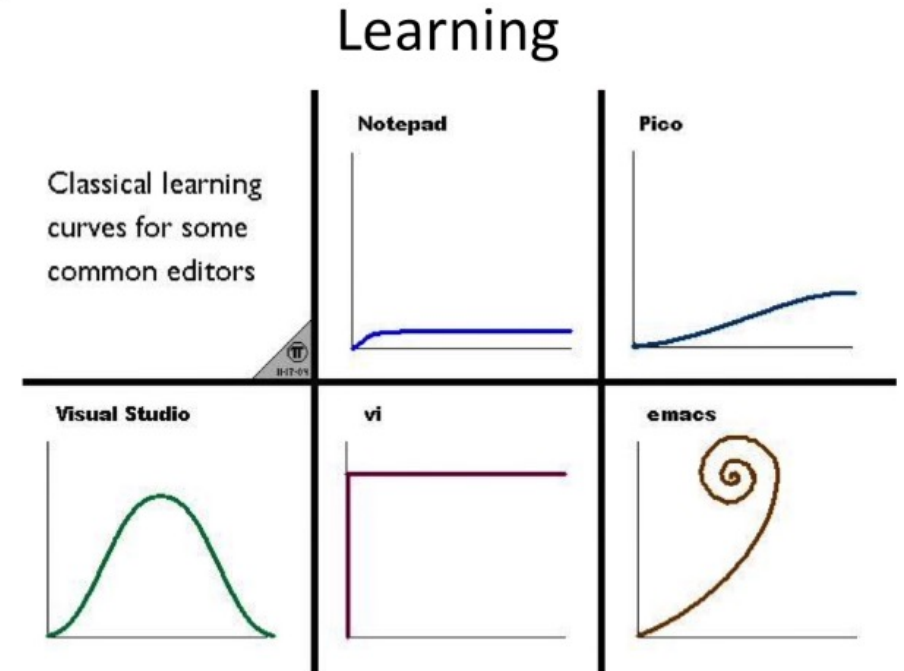
Chikwe J et al Ann Thor Surg 2009
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THE LEARNING CURVE PROBLEM

- ****High individual variability**** in rate of skill acquisition
- ****Non-correlation**** between case number and complication rate at the individual level
- ****Critical inflection points**** that differ between trainees — and are currently undetected

Two trainees finishing the same program,
with the same attending,
with the same case volume,
can have ****radically different technical consistency****

1.00



ProgrammerHumor.io

- Our current model : **"How many has she done?"**
- The right question is: **"How well does she do it?"**

Ramsay CR et al Int J Technol Assess Health Care 2001
Feldman LS et al Surg Endosc 2004
Zevin B et al J Am Coll Surg 2012
Patel SM et al Obes Surg 2021

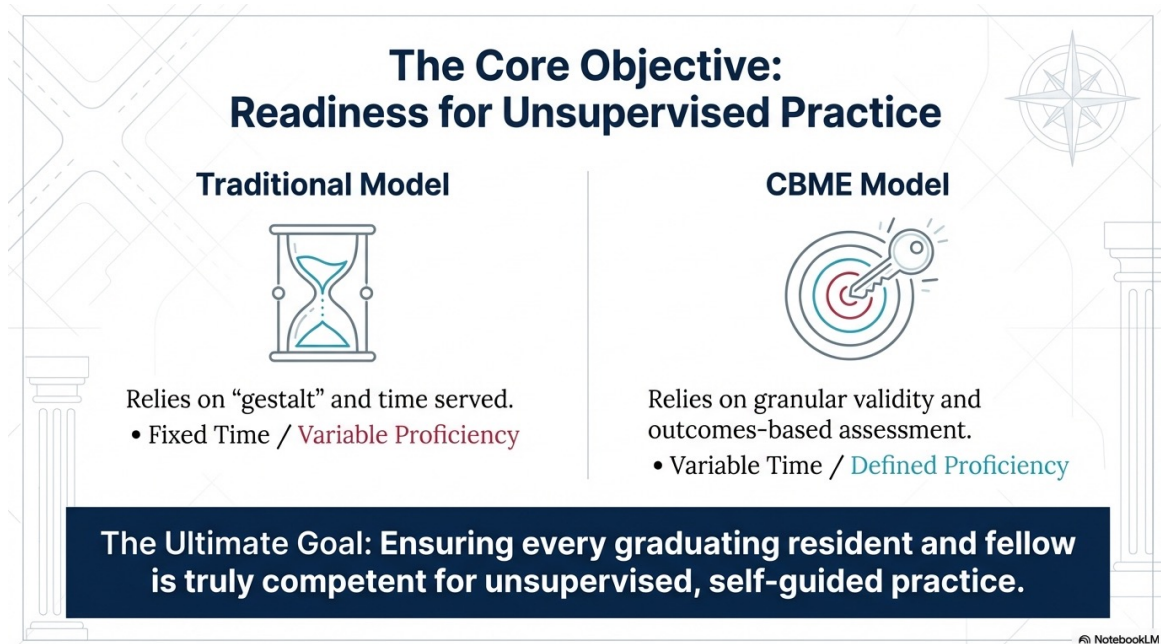
WHAT COMPETENCY-BASED EDUCATION ACTUALLY MEANS

Core definition:

- Progression determined by ****demonstrated performance****, not by time elapsed or cases logged.

The paradigm shift requires us to change three fundamental equations:

- **Time → Competence**
- **Cases → Consistency**
- **Exposure → Mastery**

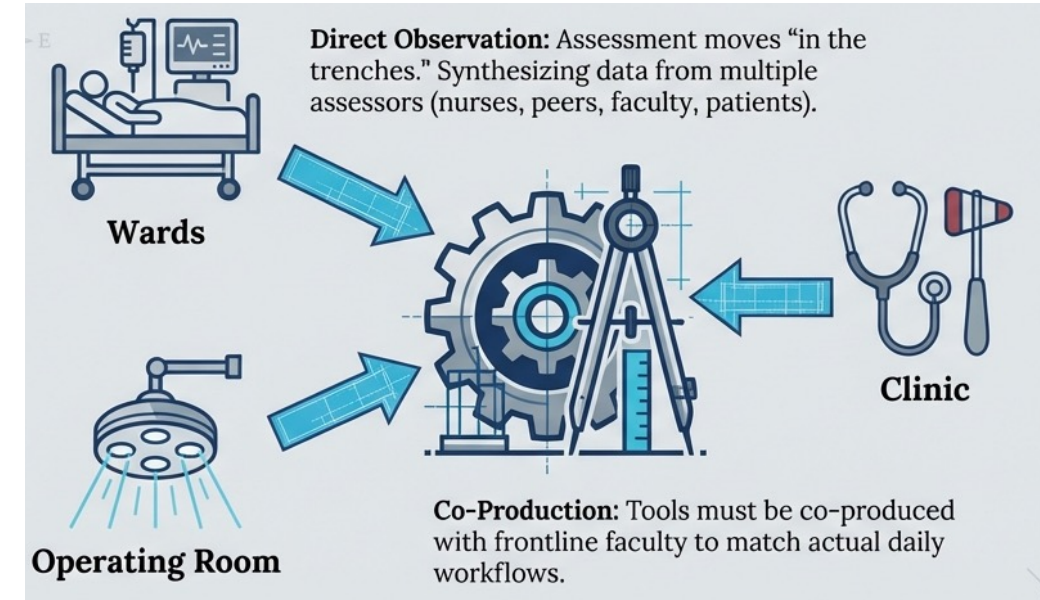


The standard is not: "Has this surgeon done 50 sleeves?"

The standard is: "Can this surgeon perform a sleeve safely, consistently, independently?"

ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) IN SURGERY

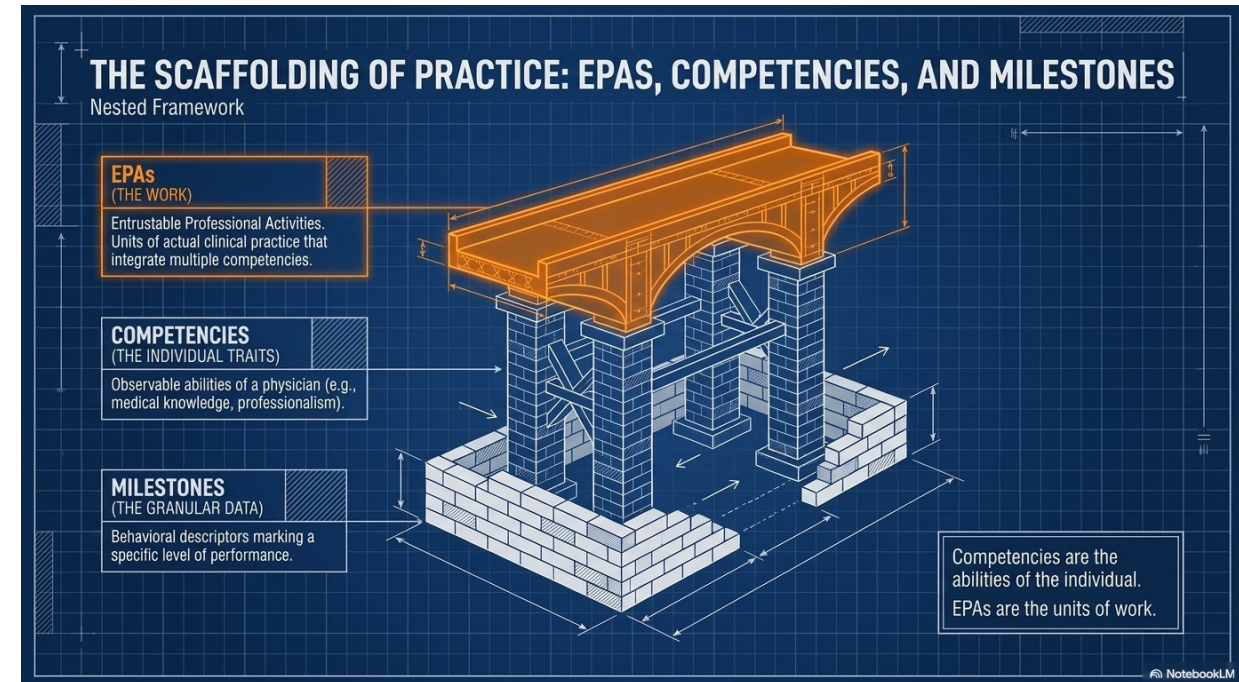
- The EPA framework operationalizes competency into **trustable, observable units of clinical work.**
- This is not simply "performing the operation." It encompasses:
 - Appropriate patient selection and risk stratification
 - Intraoperative decision-making under variance
 - Complication recognition and response
 - Post-operative management



Ramsay CR et al Int J Technol Assess Health Care 2001
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ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) IN SURGERY

- | Level | Description |
- | 1 | Requires full direct supervision
- | 2 | Requires direct supervision, may perform steps
- | 3 | Requires indirect supervision (supervisor available)
- | 4 | Can perform unsupervised



Ramsay CR et al Int J Technol Assess Health Care 2001
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Entrusted Professional Activities

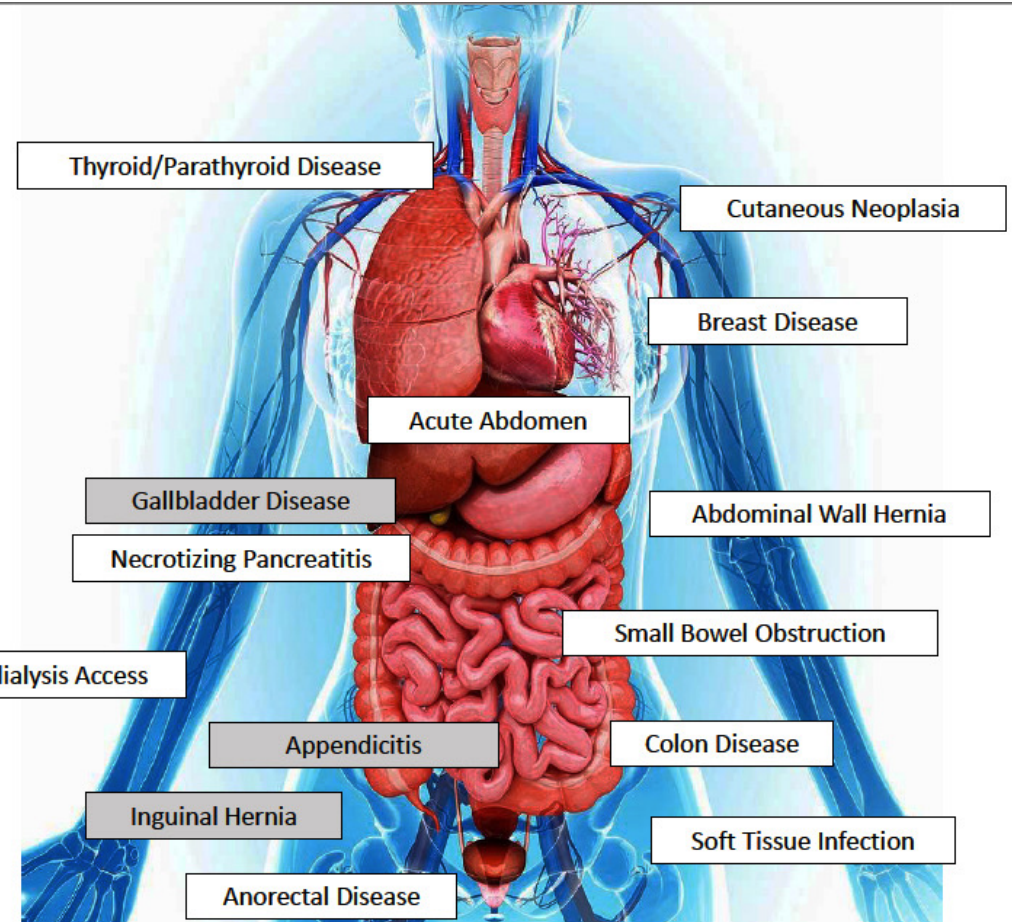
- 18 EPA for General Surgery
- 5 already validated
- Scale:
 - Minimal participation
 - Direct Supervision
 - Indirect Supervision
 - Ready for Practice

Surgical Consultation

Trauma

Critically Ill Patient

Flexible Endoscopy



ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) IN SURGERY

- ****The critical educational act**** is not assigning a number — it is the ****decision to trust.****
- That decision must be ****evidence-based, not instinct-based.****

The image displays four sequential screenshots of a mobile application interface for evaluating surgical performance. Each screen has a dark blue header with a hamburger menu icon, the title 'Evaluations', and a grid icon. The status bar at the top shows the time as 10:35 and battery level at 90%.

Screenshot 1 (Leftmost): Shows the evaluator's information: 'Evaluated by: Juan Pablo Pantoja, Core Faculty, General Surgery'. The patient case is 'Evaluate and Manage a Patient With Abdominal Wall Hernia'. A section titled '1 Phase of care' has three radio buttons: 'Preoperative', 'Intraoperative', and 'Postoperative'. At the bottom, a 'Continue Later' button is visible.

Screenshot 2: Shows question '2* Surgery Performed or Diagnosis' with a 'Comment *' text box. Below it, question '3* How complex was the case compared to similar cases' has three radio buttons: 'Straight forward', 'Moderate', and 'Complex'. At the bottom, a 'Continue Later' button is visible.

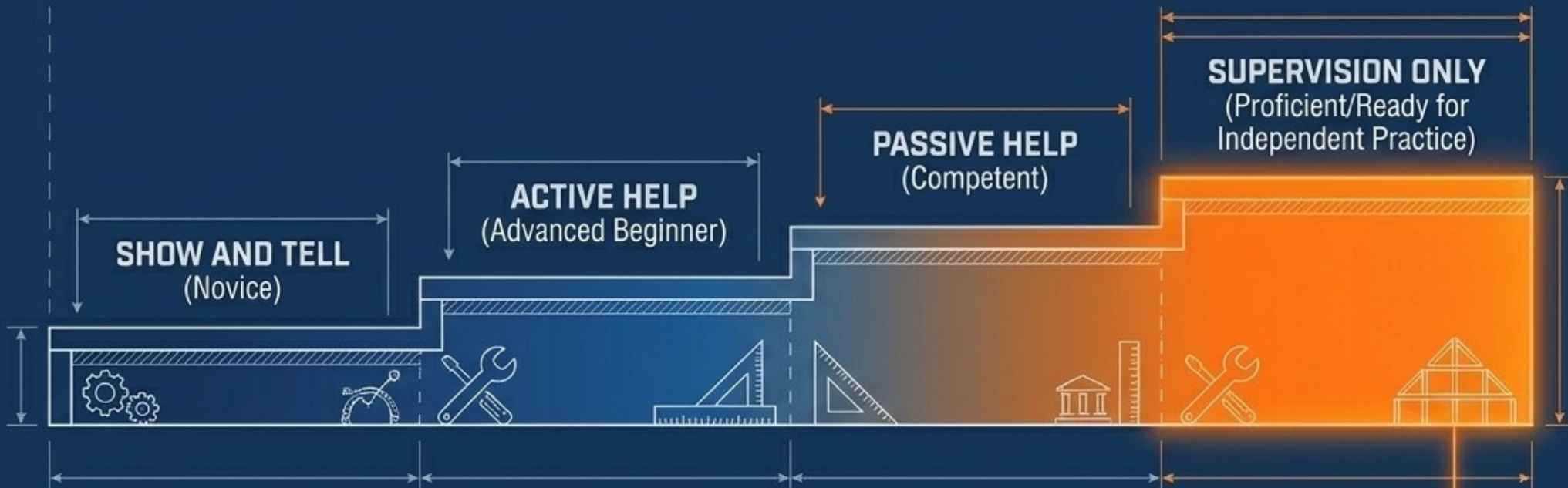
Screenshot 3: Shows question '4* Based on this performance, I would entrust the trainee at this level for the next similar case'. It features three radio buttons: 'Limited Participation', 'Direct Supervision', and 'Indirect Supervision'. A 'Continue Later' button is at the bottom.

Screenshot 4 (Rightmost): Shows question '5* Feedback (additional comments)' with a 'Comment *' text box. At the bottom, there are 'Decline Evaluation' and 'Submit' buttons.

Ten Cate O Med Educ 2007
Ghaderi I et al Ann Surg 2015
Sroka G et al J Am Coll Surg 2010
Holzhausen Y et al GMS J Med Educ 2017

ENTRUSTMENT: THE ULTIMATE METRIC

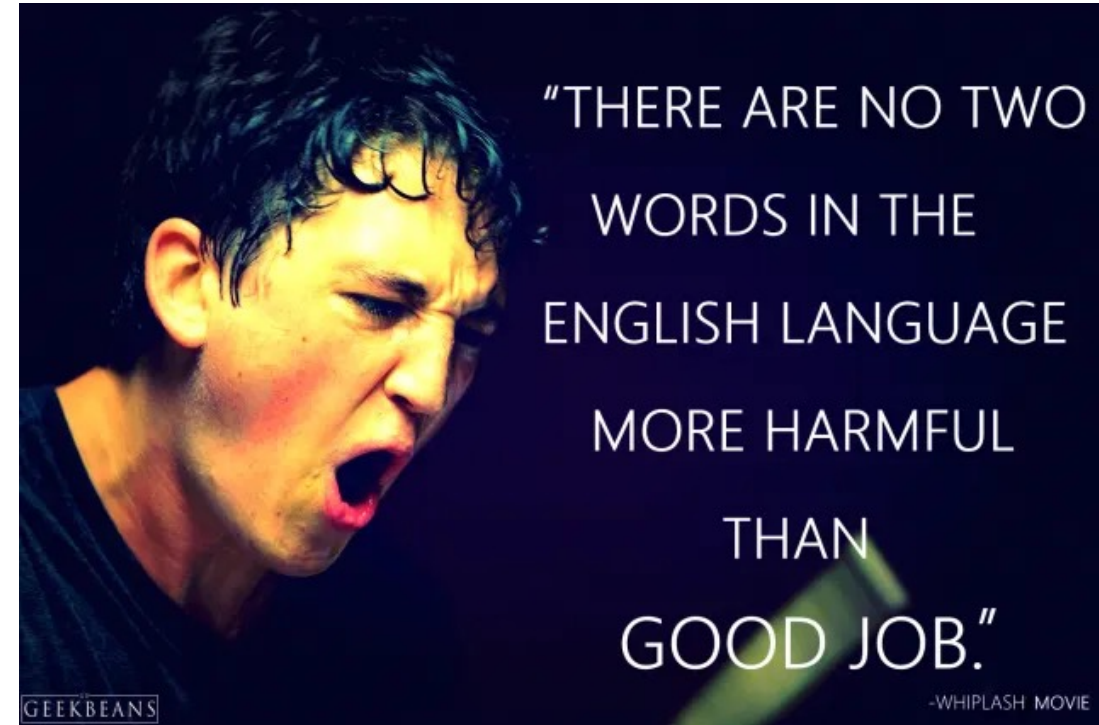
Entrustment is the decision that a trainee has demonstrated the necessary knowledge, skills, and attitudes to be trusted to perform a specific activity without supervision.



THE CRUCIAL QUESTION: Based on this single observation, how would I approach my supervision of this learner the NEXT time?

EFFECTIVE FEEDBACK

- Assessment without feedback is **data collection, not education.**
- The evidence on feedback in surgical training is unambiguous:
- feedback that is **delayed, vague, or non-actionable** produces no measurable improvement in performance.

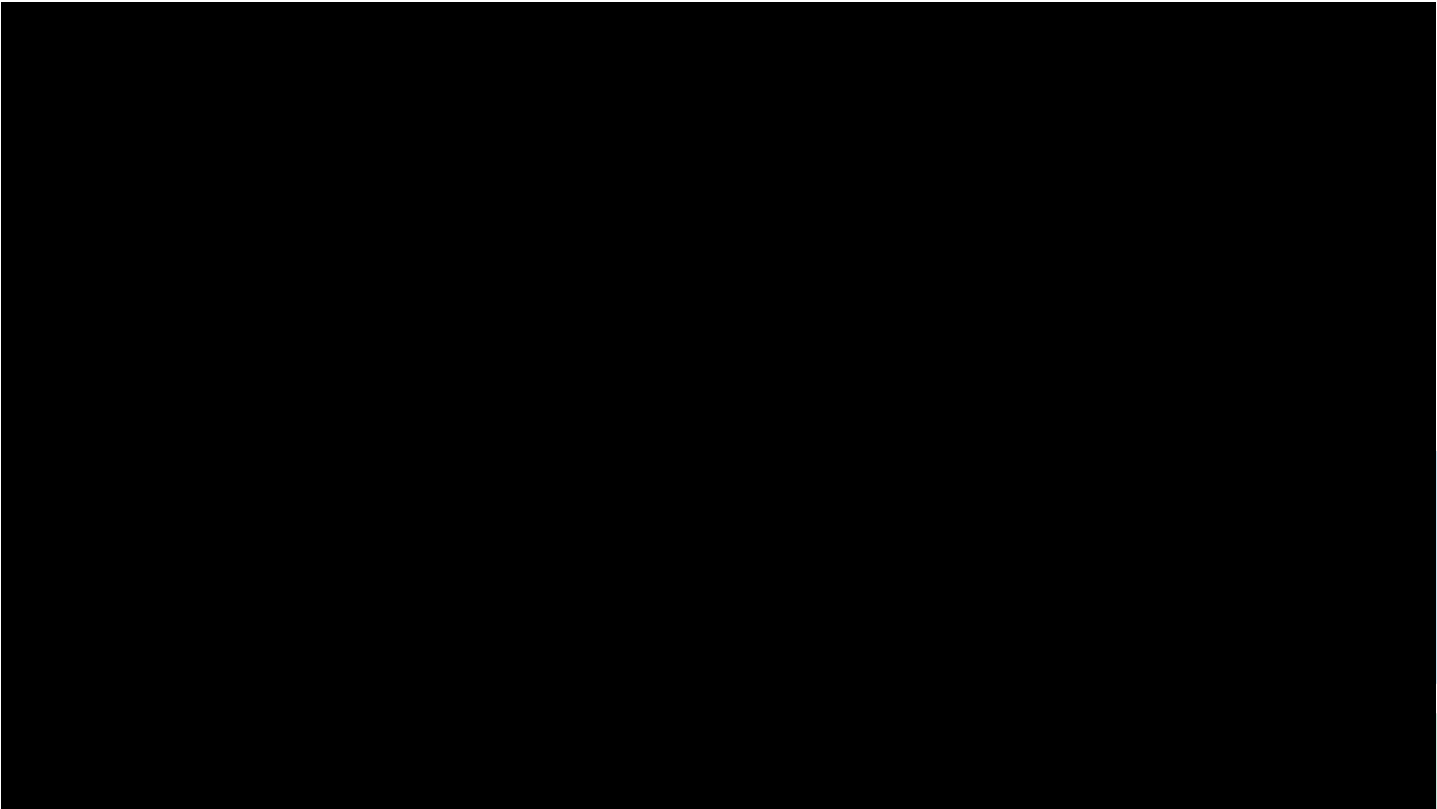
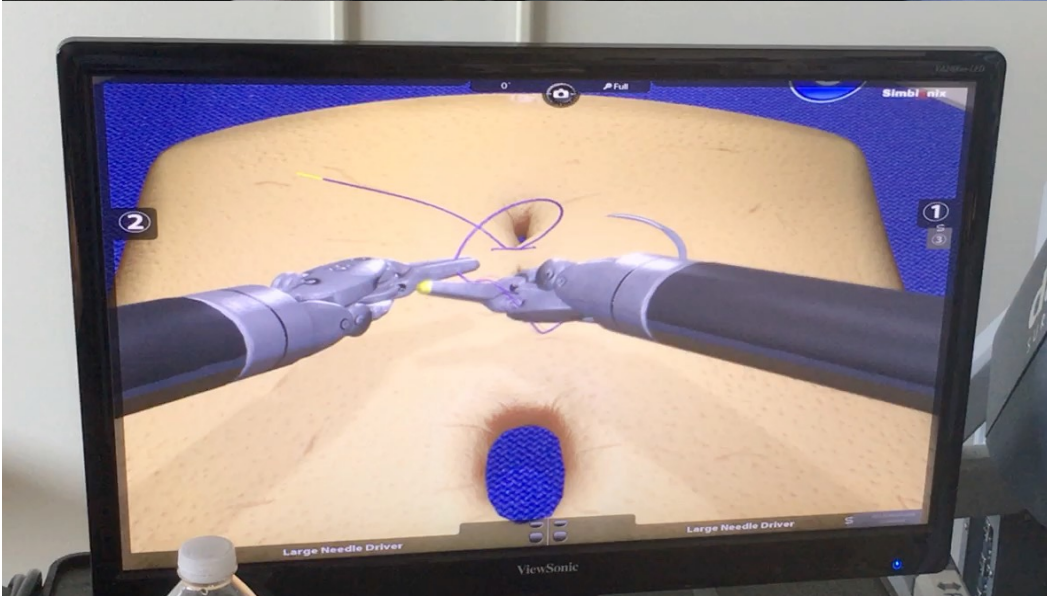
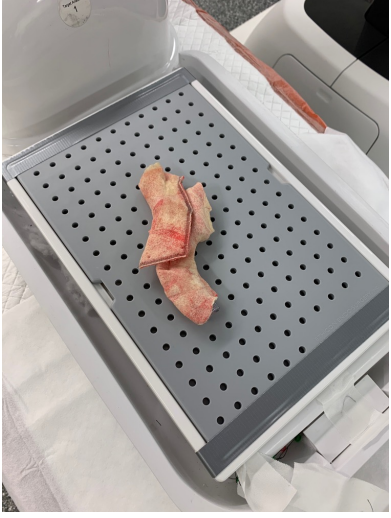
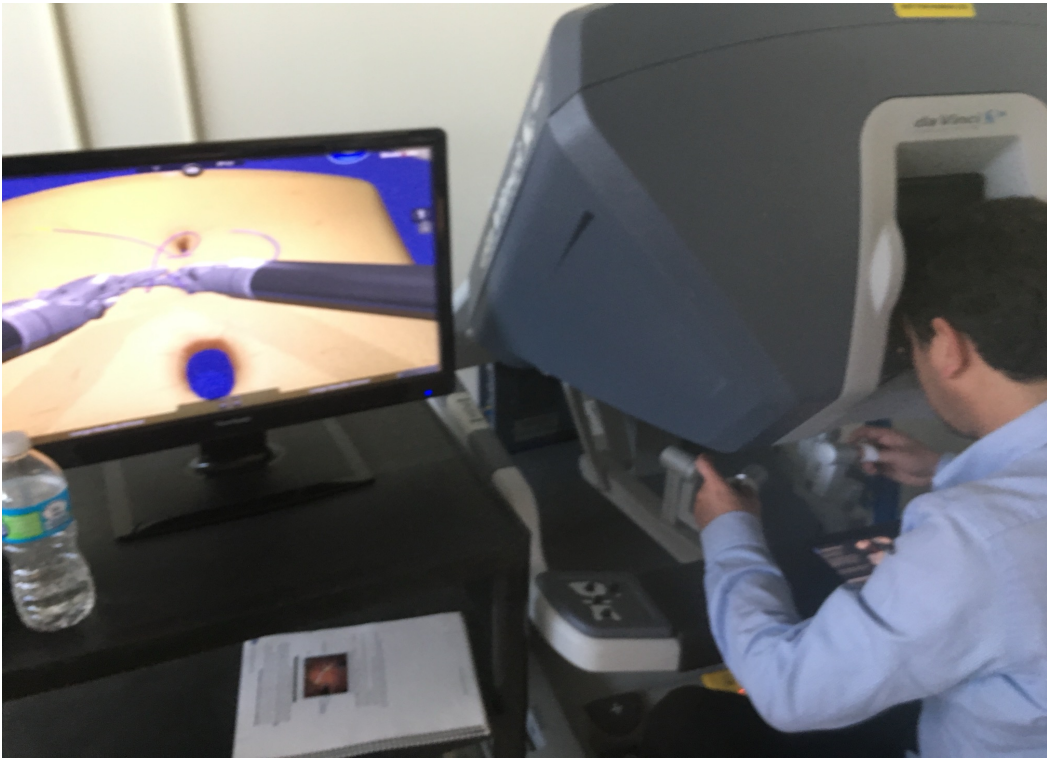


- **The three non-negotiable properties of effective surgical feedback:**
- IMMEDIATE → Within 2 minutes of case completion
- SPECIFIC → "Your angle of His exposure was incomplete at step 4"
- NOT "Good job overall"
- ACTIONABLE → "Next case: place your first port 2cm higher and actively retract the fundus before stapling"

Hattie J et al Rev Educ Res 2007
Veloski J et al Med teach 2006
Watling C et al Med Educ 2012
Ahmed M et al Surgery 2012

Cambio en el programa

Component	Action	Time Required
5 Core EPAs**	Define the 5 operations/decisions that determine readiness.	1 faculty meeting
Brief Checklist.	8–10 critical steps per procedure, completed intraoperatively	30 min to develop
2-Min Debrief.	Structured post-case feedback after every trainee case	2 min per case
Longitudinal Tracking	Simple spreadsheet: OSATS score per case per trainee	10 min/week
Entrustment Decisions	Formal, documented progression reviews at defined milestones	1 meeting/quarter



Move the Camera

Constant clutching

Arm position

Keep ergonomics

Master bed assist (angles/collisions)

Work on Robo “technique”

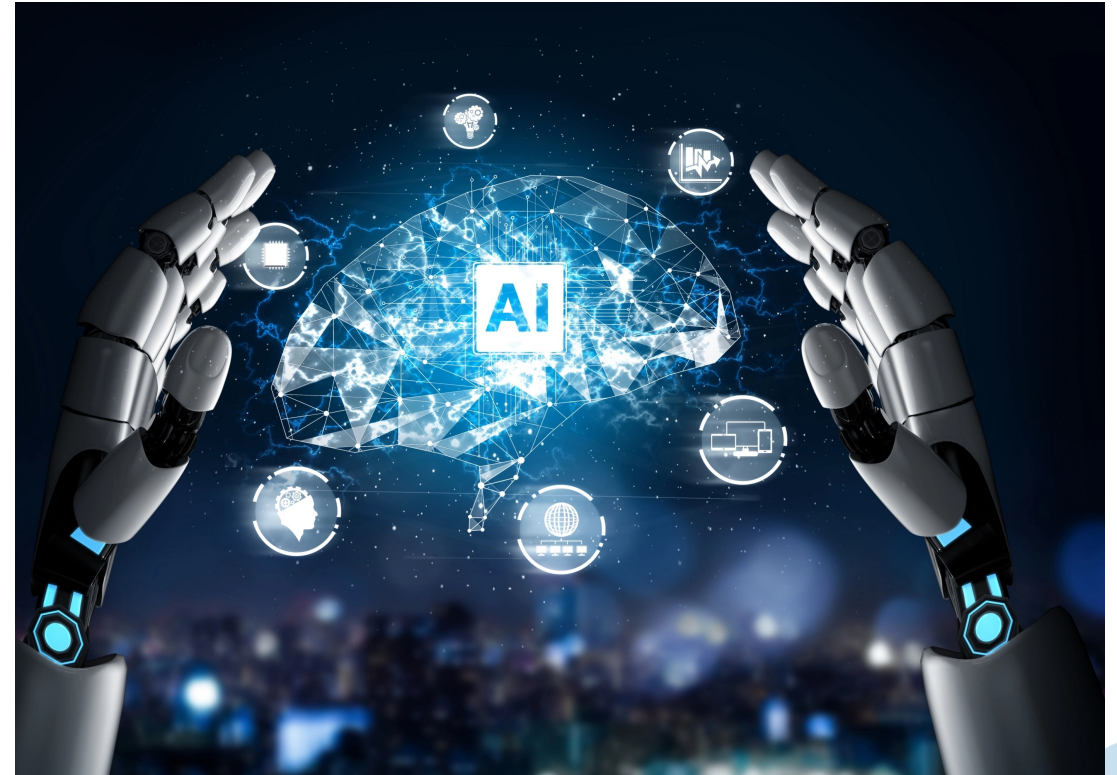
The CBME Ecosystem: Scaffolding in Action



CBME is not just an administrative checklist; it is an engineered blueprint to guarantee trust in the next generation of physicians.

IA en Educación Quirúrgica

- Áreas:
 - Entrenamiento basado en simulación
 - Evaluación objetiva de destrezas
 - Retroalimentación
 - Optimización curricular
 - Educación personalizada



Kankanamge D, et al. Am J Surg 2025

Giglio B et al JAMA surg 2025

ewalramani D, et al. Surgery 2025

THE CENTRAL MESSAGE

We are not forming residents./fellows

We are certifying surgeons to operate alone on vulnerable patients.

That is a different responsibility. It demands a different standard.

Competency based education with trustworthy evaluation tools (EPAs)

AI in the horizon

The question is not:
"Has this surgeon been sufficiently exposed?"

The question is:
"Has this surgeon demonstrated, repeatedly and objectively, that they can perform this operation safely?"



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