Professional Development in Microbursts

Greg Durkin
Alan Leichtner

Disclosures

• We have none
Why professional development is critical

For clinicians
- Rapidly growing medical knowledge
- Changing delivery systems
- Increasing complexity and volume of patients

For teachers
- Problematic learning environment
- Changing pedagogy and technology
- Clinicians frequently have not received formal training as teachers
- Increasing numbers of trainees
### How it is generally done

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>30-60 minutes</td>
</tr>
<tr>
<td>Seminars</td>
<td>60-90 minutes</td>
</tr>
<tr>
<td>Workshops</td>
<td>60-120 minutes</td>
</tr>
<tr>
<td>Courses</td>
<td>1/2 to 14 days or more</td>
</tr>
</tbody>
</table>

### What are the major obstacles to providing professional development?
Major challenges

• Time
• Increasing clinical responsibilities and other non-clinical responsibilities
• Motivation
• Lack of prioritization of medical education

What usually happens?

People who don’t need it, show up

People who need it, don’t show up
New Model – The Microburst

- Embedded in existing meeting
- Condensed, focused learning
- Existing meeting is mandatory

The Medical Education Roadshow: Delivering Faculty Development to Busy Clinician Educators When They Least Expect it

Lau, et al. JCEHP 2021;41:157-160
Department of Obstetrics, Gynecology, and Reproductive Biology, MGH
Format I have used

- **Engagement**
  - Point out gap
  - Show bad practice
  - Present a case

- **Concept**
  - Framework
  - Scheme
  - Rubric

- **Practice**
  - Application to case
  - Exercise
  - Application to project

Microburst Examples

- Logic
- Outcomes
- Model of Program Evaluation

- BID Model of OR Teaching

- Entrustment in OR
More Examples

R2C2 Facilitated Feedback Model

Adult Learning Principles

Pratt Teaching Perspectives

Microburst: Cognitive Load and Learning

(With the Curtain Drawn Back)
What’s wrong with this PowerPoint slide?
Human Memory

Retention 25-2000 milliseconds; large capacity

Echoic and Iconic Sensory Memory

Retention 15-30 seconds; capacity limited (7 ± 2 units)

Working Memory

Retention and capacity theoretically infinite

Long-term Memory

Figure 1. Akhtinson–Shifrin three-stage model of human memory.

Cognitive Load Theory

Intrinsic Load (complexity of new information)

Germaine Load (linking new info with current info)

Extraneous Load (unnecessary and distracting info)
Human Memory – with lower cognitive load

Maximizing learning

To decrease Extrinsic load
- Avoid distractions or splitting attention
- Use problem completion
- Provide worked example
- Use visual and auditory modalities (and don’t overload either)

To manage Intrinsic load
- Chunking
- Progress from simple to complex
- Progress from low to high fidelity

To optimize Germane load
- Activate prior knowledge
- Interleaving (not AAA-BBB-CCC, but ACBBCABAC)
- Provide variability
- Use generation effect
Understanding cognitive load, how would you respond to this challenge...

You have been asked to give a talk to beginning healthcare professional learners on the 27 different steps in discharging a patient from the hospital. How would you approach this challenge in order to maximize learning.

Managing Cognitive Load: Take-home approaches

1. Minimize distraction by non-essential elements
2. Pre-digest difficult concepts
3. Help them build frameworks of knowledge
Professional Development in Microbursts

Greg Durkin
Alan Leichtner