

Learning Theories and Evidence-based Curriculum - Five Frameworks

Chelsea R. Mehr, MD and Abigail Grover Snook PhD

- Knowles — *Andragogy*
- Kolb — *Experiential Learning*
- Biggs — *Constructive Alignment*
- Scaffolding & Deliberate Practice — *Wood, Bruner & Ross / Ericsson*
- MUSIC Model of Motivation — *Jones*



Learning objectives

By the end of this session, participants will be able to:

- **Select the framework that best addresses a specific design problem in their own teaching activity**, and name the design question it asks.
- **Analyze their own teaching activity against two or three checklist items** to identify one design strength and one design gap.
- **Construct an alignment map** for that activity showing how their objective, teaching activity, and assessment relate — and judge whether the three are aligned.
- **Commit to one specific change** to the activity, name the framework that informed it, and state how they will know it worked.

Beyond this session, we hope participants will return to the checklist when designing a new teaching activity, when something in their teaching is not working, or when preparing for program review or accreditation.



Overview

Handouts

- * Curriculum Design Checklist
- ** Breakout A, B, C, D

Time	Activity	What Is Happening
0–5 min	Welcome and framing	Purpose of the session; complete the My Teaching Activity box above before we begin *
5–15 min	Five frameworks — overview	One slide per framework; read the summary box in each section as it is introduced; the overview table on the next page is your quick reference *
15–40 min	Small group application	Work in pairs or trios; choose two or three checklist items most relevant to your activity across any section; use the alignment map thread — record your activity's objectives, activities, and assessments as you go; identify one strength and one gap **
40–52 min	Whole group sharing	Two or three volunteers share their gap and proposed change; facilitator connects to the relevant framework by name
52–60 min	Alignment map + commitment	Complete the My Alignment Map and My Commitment card on the last page; pair share before you leave *

Use chat for any questions



Knowles

Andragogy (1970 / 1980)

KEY WORD

Relevance

THE QUESTION IT ASKS

Are my learners motivated to engage with this?

THE THEORY

Knowles argued that adult learners are self-directed, bring accumulated experience that shapes new learning, are motivated by immediate relevance rather than future utility, and need to understand the reason for learning before they will engage with it. The role of the teacher shifts from content transmitter to facilitator of learning.

KEY TAKEAWAYS

- Adults need to know WHY before they engage
- Prior experience is a resource, not background noise
- Motivation is internal — driven by relevance, not compliance
- Self-direction increases with maturity

FOR CLINICAL EDUCATORS

- Before rounds, ask learners to state a daily learning goal, then connect teaching to that goal
- Before a procedure, ask residents to walk you through their plan first
- Unfortunately, “This will be on the test/shelf” is a common motivator



Kolb

*Experiential Learning
Theory (1984)*

KEY WORD

Experience

THE QUESTION IT ASKS

*Am I completing
the full learning
cycle?*

THE THEORY

Kolb proposed that learning is a four-stage cycle:
concrete experience → reflective observation → abstract conceptualization → active experimentation.
Knowledge is created through the transformation of experience — not from experience alone.
All four stages required; stopping at experience without reflection produces exposure, not understanding.

KEY TAKEAWAYS

- Experience alone is not learning
- Reflection transforms experience into knowledge
- Conceptualization links experience to theory
- Application tests and consolidates understanding

FOR CLINICAL EDUCATORS

- In debriefs, ask: "What was the most surprising moment of this encounter?"
- After critical events, ask learners: "What's one action you would change next time?"



Biggs

Constructive Alignment
(1996)

KEY WORD

Alignment

THE QUESTION IT ASKS

*Do my
objectives,
activities, and
assessments
match?*

THE THEORY

Explicit alignment between three elements: intended learning outcomes, teaching and learning activities, and assessment tasks.

The teacher's task is to design activities that engage the right learning behaviours.

Misalignment produces surface learning: learners optimize for what is measured, not what is nominally valued.

KEY TAKEAWAYS

- Outcomes, activities, and assessment must align
- Learners optimize for what is assessed
- Surface learning results from misalignment
- Outcomes define the cognitive level required

FOR CLINICAL EDUCATORS

- Match teaching methods directly to the intended learning outcome, not just topic coverage
 - Review any evaluations or assessments that will be used beforehand
- Define objectives as observable actions, not general goals (e.g., "Student will counsel the patient about starting a statin," not "Student will know statin indications")
- Framing feedback as "with respect to the outcome of..." rather than as a general performance evaluation



Scaffolding & Deliberate Practice

Wood, Bruner & Ross
(1976) / Ericsson et al.
(1993)

KEY WORD

Scaffolding

THE QUESTION IT ASKS

Am I pitching a challenge at the right level and stepping back as competence grows?

THE THEORY

Wood, Bruner, and Ross operationalized Vygotsky's Zone of Proximal Development as scaffolding — targeted, temporary support that enables a learner to accomplish a task just beyond independent capability, then is deliberately withdrawn as competence develops. Ericsson extended this: expert performance emerges not from experience alone but from deliberate practice — focused repetition with immediate feedback at the boundary of current competence, sustained over time.

KEY TAKEAWAYS

- Learning occurs just beyond current competence
- Scaffolding must be temporary by design
- Support withdrawn as competence develops
- Deliberate practice targets weakness — not repetition of whole learning session

FOR CLINICAL EDUCATORS

- Assess what the learner can do independently first
- Provide support — then step back deliberately
- Give feedback immediately and specifically
- Target the exact gap, not the whole performance (for example in a stimulation session, targeting the specific moment the learner struggles with versus running the full scenario from start to finish)



MUSIC Model of Motivation

Jones (2009)

KEY WORD

Motivation

THE QUESTION IT ASKS

*Are the five
conditions for
motivation in
place?*

THE THEORY

Jones synthesized motivation research into five components instructors can directly influence the motivational environment: eMpowerment (perceived control and choice), Usefulness (connection to valued goals), Success (belief that they can be successful in learning), Interest (situational and individual engagement), and Caring (the relational dimension — knowing the instructor cares about their wellbeing and growth).

KEY TAKEAWAYS

- eMpowerment — perceived choice and control
- Usefulness — connection to valued goals
- Success — belief that they can be successful in learning the material
- Interest — genuine engagement with content or task
- Caring — knowing the teacher cares about them

FOR CLINICAL EDUCATORS

- Can you offer any choices or give students some control of their learning?
- Name the usefulness explicitly, every time (“This matters because you will use it every week in clinic”)
- Success does not mean easy — make path visible (point out observable sub-steps)
- Interest is generated with stories, emotions, curiosity
- Caring is most underestimated — check in first



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15–40 min	Small group application	Work in pairs or trios; choose two or three checklist items most relevant to your activity across any section; use the alignment map thread — record your activity's objectives, activities, and assessments as you go; identify one strength and one gap ** Breakout A, B, C, D
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Breakout room options

- 3 in each room
- Poll:
 - A - “Lecture/teaching”
 - B - Teaching “skills/procedures”
 - C – “Small group learning” (one instructor, multiple students/colleagues)
 - D - Teaching during “patient interaction”
- Zoom to put into groups
- Use Breakout sheet specific to your group to start conversation – A, B, C, or D
- Have until 2:10



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* Curriculum Design Checklist		



Using the checklist

- Beyond this session, we hope participants will return to the **checklist** when designing a new teaching activity, when something in their teaching is not working, or when preparing for program review or accreditation.
- Use evidence-based frameworks to better teaching design



Evidence-Based Teaching Design

A Working Checklist for Clinical Educators

[Knowles](#) · [Kolb](#) · [Biggs](#) · [Scaffolding & Deliberate Practice](#) · [MUSIC Model of Motivation](#)

My Teaching Activity

Write the name of the teaching activity you brought to this session. You will use it as your working example throughout the checklist.

Activity name or description:

Learner group (e.g., MS3, PGY2 residents, peers):

Setting (e.g., ward rounds, simulation lab, clinic, lecture):

How This Session Works

You have brought a teaching activity with you — a bedside session, a procedure, a simulation case, a clerkship component, a lecture, or any educational encounter you design and deliver. That activity is your working material for the next 60 minutes. Your task is not to complete every checklist item. It is to pick the two or three items most relevant to your activity, use them to identify one strength and one gap, and leave with a specific change you will make and an alignment map that shows how your objectives, activities, and assessments connect.

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Thank you!