

POSTGRADUATE  
UNIVERSITY OF OTAGO  
DUNEDIN NEW ZEALAND

# Teaching Practical Skills

Jon Cornwall and EDSSU Team

*JC - Education Adviser*  
Early Learning in Medicine  
jon.cornwall@otago.ac.nz


OTAGO MEDICAL SCHOOL  
DUNEDIN NEW ZEALAND

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## See one, do one, teach one And other things

"FOR THE THINGS WE HAVE TO LEARN BEFORE WE CAN DO THEM, WE LEARN BY DOING THEM."




Aristotle

Holmes



**PRACTICE DOES NOT MAKE PERFECT ONLY PERFECT PRACTICE MAKES PERFECT**



VINCE LOMBARDI

I hear and I forget. I see and I remember. I do and I understand.

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Today we will.....

**Focus on: The 'doing'**      **Less focus on: Different tools / modes**

- **Aims:** Review theory around teaching practical skills, reflect on own practice, explore experiences and tips of other teachers
- **Objective:** Develop improved understanding of factors contributing to successful teaching of practical skills

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*The hour goes like this.....*

- Student perspectives
- Theory / practice, experience


*[break in middle]*

**Get on chat!** 😊

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### What do students say?

- What makes a practical teaching session really good?
- What sorts of things make it not as good as it could be?
- What is the best advice you could give to someone teaching you practical skills?



<https://www.dailymotion.com/video/celebrity-coupons-are-confused>

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[Video of students talking about what they would like as learners]

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Stop for a second

1. Say 'hello' very quickly, including what sort of teaching you do, and where you are located / setting
2. From what you've heard from the students, what is the main thing that resonated with you as a learner?

**Breakout One - 5 Minutes**

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Summarizing the student voice

- Don't assume all students are the same level
- Make sure all can see
- Explain clearly what and why / Make clinically relevant
- Demonstrate clearly
- Have different strategies for teaching
- Correct mistakes immediately
- Allow time for repetition
- Supplement with explanations / resources as required

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**Background, theory, evidence**

- Revisit good educational practice / ELM strategy guidelines
- Theories: Halsted, Peyton, George & Doto; Kolb's Model
- Evidence for 'stepwise' theories
- Other things to consider

**What are the additions to your personal Toolkit?**

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Practical Teaching Sessions - Breaking it Down

- Before you start: planning / preparation
- **During the session: structure, delivery**
- After the session: repetition, upskilling, debriefing, revisiting



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Other components to consider (but not today)

- How often? How long? ['deliberate practice']
- High fidelity v low fidelity (feel 'more real' v 'less real')
- Virtual v real
- Simulation / standardized patients
- Video feedback
- Recommendations for practice?
- Testing and retraining schedule?

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ELM Curriculum Delivery and Teaching Strategy 2022

ELM Teaching Strategy 2022: A Focus on Student-Centred, Active Learning involving Blended Delivery



The COVID-19 crisis of 2020 illuminated multiple elements surrounding the quality of teaching delivery in ELM. The need move to online delivery for many courses, and subsequent experiences of staff and students, indicate that improvements in teaching quality within ELM were not only worthy, possible, for desirable and necessary. This move was necessary to ensure that students were given the best possible platform for learning in a course that is already difficult and replete with challenges. To this end, ELM is continually looking to move current teaching practice in line with international best practice pedagogy that looks to incorporate three key elements of teaching practice in the sessions that are delivered. These three key elements include activities being student-centred, have delivery of material that includes opportunities for active learning, and provides experiences for students that incorporates blended delivery of teaching content.

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ELM Curriculum Delivery and Teaching Strategy 2022

- Includes practical examples
- Well organised, logically structured
- Clear objectives, which are revisited
- Simple slides which are not overly detailed
- Revised and concise yet overly long
- Practical examples
- Big picture followed by building up content
- Fun, entertaining lectures are engaging
- Record up to date resources
- Clear objectives, which are revisited
- No superfluous, irrelevant, unmanageable content
- Frequent summary slides
- Simple slides which are not overly detailed

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Integral Components of any ELM Teaching Session

- Make the session student-centred, involve active learning, and ensure blended delivery
- Adopt a delivery mode that can accomplish objectives
- Emphasize objectives (key points) at the beginning, (b) as you get to them, (c) as a summary at the end
- Limit the main points to five or fewer
- Create effective visuals, analogies, interactive content, demonstrations, and examples to reinforce the main points
- Integrate clinically relevant examples into the session, perhaps to tie in key points or scaffold difficult concepts

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### Theories around teaching of practical skills

Herman Boerhaave (1668-1738): Founder of clinical teaching and modern academic hospital  
*"Healthcare skills are complex requiring multiple steps"*

**Halsted:** See one, do one, teach one (~1900)

**Peyton:** Four step process (1998) (with a little educational theory added in)

**George & Doto:** Five step process (1997, 2001)

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### Stand, stretch, move, refuel

STAND UP AND Stretch  
*(or get more coffee, for you addicts!)*

Turn your camera off, mute your mic.  
 Stand up, move around.  
 We will start again in 60 seconds.

<https://channel4.com/c4stand-up-and-stretch>

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**'Spot the difference'**

Yang et al. BMC Medical Education (2022) 22:542  
<https://doi.org/10.1186/s12909-022-03612-3> BMC Medical Education

**RESEARCH** Open Access

**The application of the spot the difference teaching method in clinical skills training for residents**

Liu Yang, Wen Li\*, Jian Zou, Junnan An, Bin Zeng, Yitao Zheng, Jiming Yang and Jia Ren

**Question:** What is your favourite 'trick' for learners when teaching clinical skills?

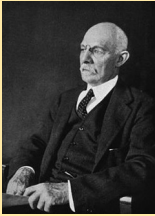
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**William Halsted, MD 1852-1922**

- Johns Hopkins founding Professor
- 'See one, do one, teach one' [surgical focus] ~1903
- Invented radical mastectomy
- Addicted to cocaine and morphine (but wasn't illegal!)

*Criticisms*

- Doesn't fit adult learning theory
- Patient safety




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**Rodney JW Peyton**

(Peyton's Four Step Process)

- "Widely regarded as the World's #1 surgical coach..."
- Trauma surgeon
- Qualified lawyer
- "Mr. Peyton's prowess in the medico-legal domain, blended with his avid experience in both military and civilian trauma has been instrumental in him being regarded as an authority on medico-legal issues."
- Publications.....



<https://www.oxford.com/publications>

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with his  
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**Peyton's Four Step Process 1998**

1	Demonstrate	Demonstrate
2	Deconstruction	Talk the trainee through
3	Comprehension	Trainee talks the trainer through
4	Execution	Trainee does

[Actually, please feel sorry for Walker – it's 'Walker and Peyton, 1998']

<https://www.oxford.com/publications>

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**George & Doto (1997, 2001)**

Peyton's Four Step Process

1	Demonstrate	Demonstrate
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1. Explain why needed and how used clinically
2. Silent demonstration
3. Repeat slowly and describe
4. Student talks through
5. Student performs

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George & Doto (1997, 2001)

Peyton's Four Step Process

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6. Feedback to / from student (Kolb)

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[Based on assumption baseline status is adequate / appropriate] [See 'Giacomino et al. 2020']

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**Models throughout clinical skills literature:**

- Halsted (1903)
- Walker and Peyton (1998) ← Actually published about and socialised
- George and Doto (2001)
- Ali and the other guy (2021)

**Theories**

- Kolb's reflective (experiential) model of learning (1984) ← Up in some ivory tower somewhere

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**Kolb's Reflective (Experiential) Model of Learning (1984)**

[Humanistic / Constructivist theory of learning]

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**Kolb's Reflective (Experiential) Model of Learning (1984)**

Do One

See One

Teach One

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**Kolb's Reflective (Experiential) Model of Learning (1984)**

Execute

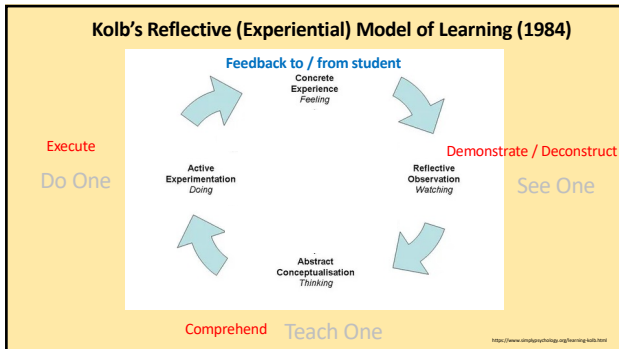
Demonstrate / Deconstruct

See One

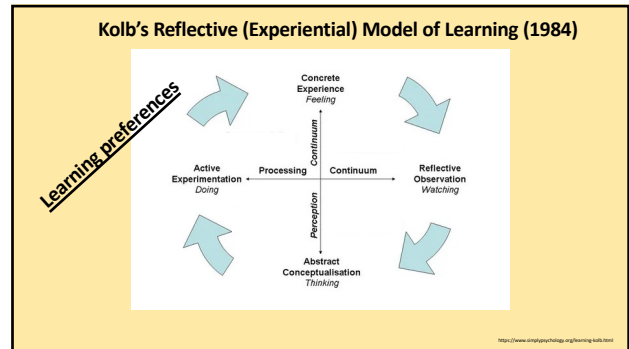
Comprehend

Teach One

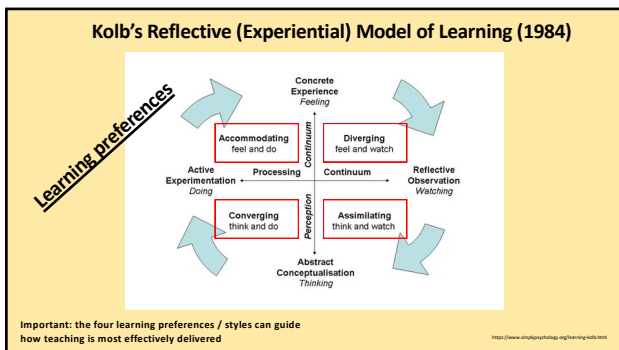
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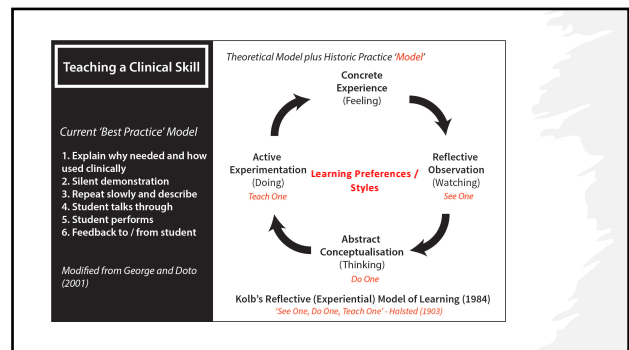
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Evidence supporting stepwise approach as being 'better'?

Yes (vs Halsted mostly) for teaching complex skills; low fidelity unclear

*Vogel et al. 2016:*  
UG Med Ed; structured delivery, feedback, SDL all effective  
Multimedia training has utility

*Giacomino et al. 2020:*  
Health Prof Ed; 'Peyton's approach' is effective by staff; by student / peer teaching, effect less clear

*Higgins et al. 2021 (simulation):*  
Simulation effective sx skills (and superior to no training)  
Confirms 'unless you use it, you lose it'

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Stop for a second

How is your next clinical teaching session going to integrate information from the framework(s) presented?

How will you potentially modify your skillset and delivery?

Breakout Two - 6 Minutes

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### Feedback

[What is 'accurate' feedback, and what does it look like?]

Ask the learner what went well (Be specific)

Tell the learner what went well (One thing at a time!)

Ask the learner what could be improved

Tell the learner what could be improved

Burgess et al. BMC Medical Education 2020, 20(Suppl 2):458

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### Feedback

Ask the learner what went well

Tell the learner what went well

Ask the learner what could be improved

Tell the learner what could be improved

Burgess et al. BMC Medical Education 2020, 20(Suppl 2):458

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### In summary

- Common frameworks of teaching practical skills exist
- Structured teaching following stepwise delivery is effective
- There are common elements to teaching which span tasks and disciplines
- Other elements supplement effectiveness

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### Links, references

- Education Unit resources: <https://www.otago.ac.nz/oms/education/mbchb/staff/resources/>
- ELM Curriculum Delivery and Teaching Strategy: <https://medschool.otago.ac.nz/course/view.php?id=1918>
- Burgess A, et al. Tips for teaching procedural skills. BMC Med Ed. 2020 20(Suppl 2):458
- Ericsson K. Deliberate practice and acquisition of expert performance: a general overview. Acad Emerg Med. 2008;15:988-94
- Walker M, Peyton JWR. (1998). Teaching in theatre. *Teaching and learning in medical practice*. Rickmansworth, UK: Manticore Europe Limited, 171-180.
- George JH. Doto FX. A simple five-step method for teaching clinical skills Fam Med. 2001 Sep;33(8):577-8.
- Giacomo K, et al. 2020. The effectiveness of the Peyton's 4-step teaching approach on skill acquisition of procedures in health professions education: A systematic review and meta-analysis with integrated meta-regression. PeerJ 8:e10129 <http://doi.org/10.7717/peerj.10129>
- <https://www.youtube.com/watch?v=rycIUldM3k> (Kolb's Learning Cycle – approx. 11min)

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### Thank you

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Te Whare Wānanga o Otago  
NEW ZEALAND

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