Top Teaching & Learning Papers

ICRE 2019 - KeyLIME

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I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Je n’ai aucune affiliation (financière ou autre) avec une entreprise pharmaceutique, un fabricant d’appareils médicaux ou un cabinet de communication.
Disclaimer

• Dr. Cheung and Dr. Busari are in the bloom of their medical education careers

• Dr. Cheung and Dr. Busari would like to continue to be employed in their work as medical educators in future

• We feel that these ten articles are excellent, thought-provoking, controversial, or practical—all have merits

• Criticisms are made in the spirit of debate, recognizing the high quality work of the talented authors.
Introductions

• Who are we?

• Who is in the room?

• @jobusar
• @wjcheungem

• #Top10TL
Faculty and Resident Perspectives on Using Entrustment Anchors for Workplace-Based Assessment

Nancy Dudek, MD, MEd
Wade Gofton, MD, MEd
Janelle Reckman, MD, MAEd
Allan McDougall, MA, PhD
Study

• **Why:** Scales that use entrustment anchors demonstrate better reliability than traditional anchors.

• **Objective:** To understand faculty and resident experiences of traditional vs. entrustment anchors (*how, why, when*)
Methods

• How:
  > Semi-structured interviews of faculty and residents
  > Phase 1 – traditional anchors (n=12)
  > Phase 2 – entrustment anchors (n=10)
  > Constructivist grounded theory
Results

- Work because they use *pragmatic language*, grounded in clinical judgment
  - *Concrete*: more justifiable
  - *Transparent*: link assessment with learning progress
    - More accepting of lower scores
  - *Align with training outcomes*: goal of independent practice
    - Enhances feedback
Results – Contextual Concerns

• Procedural vs. non-procedural
  > Running a clinic on-time

• Junior vs. senior trainees
  > Wouldn’t be expected to be able do the task independently
  > Lower scores made sense

• More direct observation
  > Use of indirect observation to judge performance (e.g. OCP)
Results – A Gap

• Entrustment anchors don’t provide information about:
  > How a trainee is doing relative to their peers
  > Their expected rate of progress

• Need to include some feedback about whether the resident’s performance is appropriate for their level
Why I like this paper

- Provides an explanation for the “acceptability” of entrustment anchors

- Identifies concerns that non-users may have
  - Target faculty development and resident orientation
But...

• Generalizability is limited
  > Single centre
  > Many forms of “entrustment” anchors

• Don’t expand on the contextual concerns
  > How do you operationalize entrustment anchors in non-procedural settings?
Perspective

Entrustment Ratings in Internal Medicine Training: Capturing Meaningful Supervision Decisions or Just Another Rating?

Rose Hatala, MD, MSc\textsuperscript{1,2}, Shiphra Ginsburg, MD, PhD\textsuperscript{3}, Karen E. Hauer, MD, PhD\textsuperscript{4}, and Andrea Gingerich, ND, MMEd, PhD\textsuperscript{5}

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Study

• **Why:**
  > The implementation of Entrustable Professional Activities has resulted in assessments based on supervisors’ entrustment of a learner to perform specific activities without supervision.
  > While entrustment may be intuitive, there are concerns that current implementation of rating scales for non-procedural tasks, based on entrustability, may not translate into meaningful learner assessment.

• **Objective:** outline a number of potential concerns with ad hoc entrustability assessments in internal medicine postgraduate training

• **How:** reflective analysis/expert opinion
Results

- **Problem:**
  - differences in the scope of procedural vs. non-procedural tasks
  - Types of clinical oversight common within internal medicine, and
  - the limitations of entrustment language.
  - potential directions for inquiry that would require....

- **Moving forward:**
  - Clarify purpose of assessment
  - Reconsider the fundamental concepts of entrustment
  - Examine whether quantitative measurement is best approach
Why I like this paper

- Takes a critical look at the EPA agenda in CBME
- Reflections based on authentic experiences from the frontline
- Provides useful food for thought
But...

- Literature / experience that entrustment anchors work in non-procedural disciplines

- (Lack of) direct observation in Internal Medicine
  > Entrustment anchors can still be used to rate performance based on indirect observation
  > Stimulus to change to culture to include more direct observation

- Appropriateness of IM’s defined EPAs
Key stakeholder opinions for a national learner education handover

Aliya Kassam1, Mariela Rueta2, Maureen Topps1, Margo Mountjoy3, Mark Walton3, Susan Edwards2 and Leslie Nickell2

Abstract

Background: Sharing information about learners during training is seen as an important component supporting learner progression and relevant to patient safety. Shared information may cover topics from accommodation requirements to unprofessional behavior. The purpose of this study was to determine the views of key stakeholders on a proposed national information sharing process during the transition from undergraduate to postgraduate medical education in Canada, termed the Learner Education Handover (LEH).

Method: Key stakeholder groups including medical students, resident physicians, residency program directors, medical regulatory authority representatives, undergraduate medical education deans, student affairs leaders, postgraduate medical education deans participated in focus groups conducted via teleconference. Data were transcribed and coded independently by two coders, then analyzed for themes informed by principles of constructivist grounded theory.

Results: Sixty participants (22 males and 27 females) from 16 focus groups representing key stakeholder groups.
Study

• **Why:** Learner handover is controversial (assimilation effect; more learner-centered training)

• **Objective:** Understand the views of stakeholders on a proposed national information sharing process UGME → PGME in Canada
Methods

• Association of Faculties of Medicine of Canada working group
• Stakeholders:
  > Learners (students, residents)
  > PDs
  > Student affairs leaders
  > Deans (UGME/PGME)
  > Medical regulatory authorities
• Homogenous focus groups
• Constructivist Grounded Theory
Results

- 60 participants; 16 focus groups

- Most acknowledged the value of learner handover between UGME-PGME
Focus:
- Patient safety
- Learner-centered

Contributions from:
- UGME
- Learner

Learner Education Handover
- Post CARMS (Canadian Resident Matching Service)
- Standardized National Initiative Across Canada

Fig. 1 Themes of Content, Process and Format of the Learner Education Handover
Results Cont’D

Benefits

• Enhanced Mechanism to Ease Transition
• Tailored learning environment
• Increased preparedness of program
• Competency based

Fig. 2 Themes of Risks and Benefits of Learner Education Handover
Why I like this paper

• Learner handover is very topical

• Kudos for involving stakeholders!

• Broad Sampling:
  - National representation
  - Breadth of stakeholders
But...

• Biased results?
  > Participants who chose to participate
  > 2 workgroup members were participants

• Questions about methods?
  > Constructivist grounded theory, but...
  > Deductive component [content, process, format]?
Break out of the Classroom: The Use of Escape Rooms as an Alternative Teaching Strategy in Surgical Education

Anna Eva Kinio, MSc, *,† Laurence Dufresne, MD, *,† Tim Brandys, MD, FRCSC, *,† and Prasad Jetty, MD, FRCSC *,†

*Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada; and †Division of Vascular and Endovascular Surgery, The Ottawa Hospital, Ottawa, Ontario, Canada
• **Why:** Didactic teaching is a mainstay in (Canadian) medical and surgical education. Active learning strategies have proven to be beneficial to trainees. Escape rooms is a recent and novel educational intervention but little is known about its value.

• **Objective:** To implement and assess the impact of a “Vascular Surgery-themed” Escape Room on medical student motivation, satisfaction, and engagement in CanMEDS roles.

• **Setting:** Escape Room at the University of Ottawa Skills and Simulation Centre at the Ottawa Hospital, a tertiary care center.

• **Participants:** Medical students in their pre-clerkship years of study.
**Study**

- **How:** An Escape Room was developed that combined Vascular Surgery objectives, knowledge-based problems and technical skills into Vascular Surgery-themed stations.

- **What:** The data collected included information related to
  - Time taken to escape,
  - CanMEDS roles covered during the activity,
  - Debriefing interview session, and
  - Participants satisfaction survey.
Escape room
Results

- 13 medical students (divided into 4 groups) participated in the Escape Room.
- Strategies used:
  - 2 teams used a **collaborative** strategy and successfully escaped with an average time of 53.6 Minutes
  - 2 teams used **individualistic** strategies, only 1 successfully escaped.
- 83% of participants felt the experience motivated them to prepare beforehand and believed that the experience consolidated the knowledge that they had read.
- All the participants reported that the experience encouraged the use of the CanMEDS **communicator** and **collaborator** roles.
- 76.9% of students mentioned that they enjoyed the practical exercises incorporated into the experience
- 53.8% stated that they would like to see the Escape Room format included in the medical curriculum.
Why I like this paper

- Novel educational intervention
- Highly engaging and enjoyable
- Well set-up study and reproducible
But...

- Limited description of the intervention
  > Reflections on feasibility to implement (cost, resources etc.)

- What is the effect of NOT escaping on student learning?

- Teaching modality vs. assessment method?
  > Assessment of the group v.s. of the individual
Effect of Increased Inpatient Attending Physician Supervision on Medical Errors, Patient Safety, and Resident Education: A Randomized Clinical Trial

Kathleen M. Finn, MD; Joshua P. Metlay, MD, PhD; Yuchiao Chang, PhD; Amulya Nagarur, MD; Shaun Yang, MD, MPH; Christopher P. Landrigan, MD, MPH; Christiana Iyasere, MD, MBA
Study

- **Why:**
  - Increased calls for greater supervision because of patient safety concerns
  - Evidence for increased supervision is not robust
  - Concerns about the effects of “oversupervision”

- **Objective:** To determine the effect of increased supervision on patient safety and educational outcomes
Methods

Randomized clinical trial

- **P:** Attending physicians and residents in internal medicine
- **I:** Attending present for work rounds
- **C:** Attending were available but did not join work rounds
- **O:**
  - Rate of medical errors (adjudicated by 4 blinded researchers)
  - Length of rounds, speaking time of faculty, resident, interns
  - Perceptions
Results:

- 9 months
- 22 attendings participated, 1259 patients
- No difference in patient characteristics between groups

Patient Outcomes

- No difference in medical error rate
- No difference in LOS, transfer to ICU, death, discharge home
Results Cont’d

Educational Outcomes

• No difference in:
  > Duration of rounds
  > Duration of bedside presentations
  > Duration that juniors spoke

• Interns spoke less in the intervention group
Results cont’d

• Intervention group (attending present):
  > Residents felt less efficient, less autonomous in making decisions
  > Attendings rated the quality of care higher, knew care plans better

• Residents in both groups:
  > Same quality of care provided
  > Similar ratings of the learning environment
Why I like this paper

- CBME – “supervision” is very topical
- Strength of the study design
- Considered not only patient outcomes but also educational outcomes
- Well tempered conclusions
But…

- There was a difference in medical error rate between groups
  - 15% relative reduction
  - Study only powered to identify a 40% reduction

- How often did supervisors in the control group attend work rounds (crossover)?
Virtual Reality for Health Professions Education: Systematic Review and Meta-Analysis by the Digital Health Education Collaboration
• **Why:** Due to increasing health care needs, strategies to achieve scalable, efficient, and high-quality health professions education are needed. Digital technology, is a promising source of effective health professions education and training systems.

• **Objective:** Virtual reality (VR), as a form of digital technology that
  > Allows users to explore and manipulate computer-generated real or multimedia sensory environments in real time
  > Offers the opportunity to develop cognitive, nontechnical competencies.

The authors therefore decided to investigate the effectiveness of VR for health professions education

• **How:** Systematic Review
Study

- Published protocol, cochrane guidelines
- Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines
- Primary outcomes
  > Learners knowledge post intervention
  > Learners skills post intervention
  > Learners’ attitudes postintervention toward new competences, clinical practice, or patients
  > Learners’ satisfaction postintervention with the learning interventions
  > Change in learner’s clinical practice or behavior
- Grading of Recommendations, Assessment, Development and Evaluations (GRADE) approach to rate the quality of the body of evidence
Results

• A total of 31 studies were finally included in the analysis.
• Meta-analysis of 8 studies found that VR slightly improves postintervention knowledge scores when compared with
  > traditional learning (moderate certainty evidence) or
  > other types of digital education such as online or offline digital education (low certainty evidence).
• Meta-analysis of 4 studies found that VR improves health professionals’ cognitive skills when compared with
  > traditional learning (moderate certainty evidence).
• Two studies found that the effect of VR on technical skills compared favorably
  > to other forms of digital education (moderate effect size; low certainty evidence).
In conclusion:

- The findings for attitudes and satisfaction were mixed and inconclusive.
- None of the studies reported any patient-related outcomes, behavior change, unintended, or adverse effects of VR.
- Overall, the certainty of evidence according to the GRADE criteria ranged from low to moderate.
- Certainty of evidence was downgraded primarily because of the risk of bias and/or inconsistency.
Why I like this paper

- Well conducted study, Adhered to protocol & Cochrane guidelines
- Well written
- Thorough search, reproducible methodology
- Explores the potential usefulness of an innovative educational intervention
But...

- Very broad scope for SysRev/Meta-analysis
  - VR = 3D models; virtual patient/provider; virtual worlds; surgical simulations
  - As research advances and evidence builds, potential to narrow the focus of future reviews

- VR touted as a potential solution for training/education in low resource settings
  - All studies in high-income countries
Overshadowed by Assessment: Understanding Trainee and Supervisor Perspectives on the Oral Case Presentation in Internal Medicine Workplace-Based Assessment

Lindsay Melvin, MD, MHPE, James Rassos, MD, Daniel Panisko, MD, MPH, Erik Driessen, PhD, Kulamakan M. Kulasegaram, PhD, and Ayelet Kuper, MD, DPhil

Abstract

Purpose
The oral case presentation (OCP) is an essential part of daily clinical practice in internal medicine (IM) and a key competency in medical education. It is not known how supervisors and trainees perceive OCPs in workplace-based learning and assessment.

the OCP was viewed by both trainees and supervisors in clinical practice as a tool for patient care, learning, and assessment. Iterative, constant comparative techniques were used to analyze the interviews and develop a framework to understand trainee and supervisor perspectives.

assessment, trainees sought to control the OCP, viewing it as a performance demonstrating their competence, mediated by senior residents and tailored to supervisor preferences.

Conclusions
Preoccupied with assessment around OCPs, trainees often lost sight of the
Study

- **Why:** Oral case presentation is an essential and routine clinical educational activity

- **Objective:** to understand how supervisors and trainees perceive the OCPs in workplace-based learning and assessment
Methods

• Semi-structured interviews with
  > Learners (UGME, PGME) in internal medicine
  > Supervisors

• Focused on OCP as a tool for
  > Patient care
  > Learning
  > Assessment

• Constructivist grounded theory
Results:

• 26 interviews (8 supervisor, 18 learners)
• Shared mental model of the *elements/content* of the OCP

• Two roles:
  > Ensuring appropriate patient care
  > Learner assessment
The oral case presentation in assessment of competence

The OCP in developing a shared understanding of the patient

Supervisors seek understanding

Narrative
Synthesis
Managing uncertainty
The oral case presentation in assessment of competence

The OCP in developing a shared understanding of the patient

Supervisors seek understanding
  - Narrative
  - Synthesis
  - Managing uncertainty

Trainees seek control
  - Senior resident as buffer
  - Adapting to supervisor preference
  - Performance
Results Cont’d

• The issue with assessment / performance:
  > Alters the dynamic between trainee and supervisor
  > Resulting in missed opportunities for teaching and learning

• OCP as a valid assessment method:
  > Assessment of who? Junior trainee or the senior’s buffering ability?
  > Mimicry of supervisor’s preference – threatens the validity
Why I like this paper

- OCP is ubiquitous in medical education (we can all relate)
- Succinct qualitative study
- CGT methods actually produced a framework to better understand the construct better
- Identified future research priorities
But...

- Generalizability
  - Institutional culture
  - OCP during morning rounds
    - Is this different than other forms of OCP? (e.g., in clinic, 1 on 1)
Deliberate teaching tools for clinical teaching encounters: A critical scoping review and thematic analysis to establish definitional clarity

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Study

- **Why:** Teaching and learning in the clinical setting rely largely on the apprenticeship model. Immersion in the clinical environment and learning by experience occur through exposure. While various tools and structures to facilitate teaching encounters in the clinical environment have been described in the literature to date, there is no consistent name or definition for such tools. The authors felt that was a need to for common name/language for these teaching tools.

- **Objective:** Conduct a scoping review to identify the nature and extent of teaching tools in medical and health sciences education and guide future research.

- **How:** 1. *Systematic search* of published and gray literature for tools, models, or frameworks used to facilitate clinical teaching encounters in medical and health sciences education. 2. Perform a *post facto thematic analysis* to conceptualize an appropriate and consistent name and definition. 3. Map the literature to identify *description, justification, clarification*, and other articles. 4. Outline current *evidence* and identify *gaps* in existing research.
Study

Teaching and learning in the clinical setting

Cognitive apprenticeship models
Not simply learning through exposure, but also how to ‘think’ and ‘recount’ the job

Older apprenticeship models
Learning by experience simply through exposure

No consistent nomenclature and no agreed definition for frameworks used in routine clinical teaching encounters

Description articles
What frameworks have been designed? What setting(s) were they designed for?

Justification articles
How have these models been evaluated? What were the settings and study designs?

Clarification articles
To what extent have these frameworks and justification studies been reviewed?

post facto analysis to address this

Scoping review to identify nature and extent of current knowledge, and to guide future research.
Results

1. 6049 citations were screened, 434 reviewed for eligibility, 230 met inclusion criteria.
2. 89 names and 51 definitions were identified. A common design theme was identified in approximately three-quarters of DTTs.
3. Post facto thematic analysis = “deliberate teaching tools” (DTTs)
4. 46 DTTs were identified in the literature, 38 (82.6%) originally described for the medical setting.
5. 40 justification articles: 16 feedback surveys, 13 controlled trials, 7 pre-post intervention studies with no control group, and four observation studies.
6. 49 clarification: 12 systematic reviews and 37 narrative reviews.
7. Current evidence of efficacy was not entirely conclusive, many studies contained methodology flaws.
Why I like this paper

- Thoroughness
- Meaning is provided to a vague concept
- Addresses a gap in the educational literature
But...

• Narrow audience who is interested in:
  > Developing new deliberate teaching tools for specific clinical settings
  > Studying outcomes of these tools

• Comments on strengths / weaknesses of each tool
Patterns of direct observation and their impact during residency: general practice supervisors’ views

Chris B T Rietmeijer,1 Daniëlle Huisman,1 Annette H Blankenstein,1 Henk de Vries,1 Fedde Scheele,2,3 Anneke W M Kramer4 & Pim W Teunissen5
Study

- **Why:** Direct observation (DO) is essential for supervision/feedback/assessment... yet it occurs infrequently / quality is poor

- **Objective:** To explore the manifestations, meanings and effects of DO in developing postgraduate training relationships from the perspective of the supervisor
Methods

- Focus groups
- PGME general practice supervisors in the Netherlands
- Direct observation of technical skills
- Constructivist grounded theory
Results

• 4 focus groups, 28 participants for theoretical sufficiency

• DO was often compared with “nearby supervision”

• 4 patterns of DO
Results

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Positive

Initial planned (bidirectional) DO sessions

Resident-initiated ad hoc DO

Frequent enough

Too infrequent

Resident-initiated ad hoc DO

Supervisor-initiated ad hoc DO

New skills

Basic skills

Supervisor-initiated ad hoc DO

Continued planned (bidirectional) DO sessions

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Negative

Initial period  After initial period
Results

- Positive
  - Initial planned (bidirectional) DO sessions
  - Resident-initiated ad hoc DO (Frequent enough)
  - Resident-initiated ad hoc DO

- Negative
  - Too infrequent

- After initial period
  - Supervisor-initiated ad hoc DO (New skills)
  - Basic skills
  - Supervisor-initiated ad hoc DO

- Continued planned (bidirectional) DO sessions
Results cont’d

- Reliance on ad hoc DO in PGME
  > Supervisors (and residents) have internal tensions that prevent them from initiating ad hoc DO

- Planned, bidirectional DO can mitigate these tensions
  > Facilitate: teaching, assessment, training relationships and patient safety
Why I like this paper

• Acknowledges that there are different types of direct observation

• Helps us better understand why DO occurs so infrequently
  > Not just time, competing priorities

• Not too theoretical --> has take-aways for the front-line clinician
But...

- Context is everything:

- Setting GP:
  - Longitudinal relationship
  - Lack of continuity in medicine is the norm

- How to address the barriers to continued planned DO?
Understanding Health Disparities Through the Eyes of Community Members: a Structural Competency Education Intervention

Billy Bromage • John A. Encandela • Melissa Cranford • Esperanza Diaz • Bridgett Williamson • Virginia T. Spell • Robert M. Rohrbaugh

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Study

• **Why:** It is known that social inequalities result in health disparities for segments of the US population but this is not regularly addressed in medical education. There is a need to develop structural competency initiatives to prepare residents to address these issues.

• **Objective:** Design a structural competency curriculum as an experiential intervention, “through the eyes” of the community.

• **How:** Organizing neighborhood tours led by individuals with lived experience with mental illness (peer advocates) and community leaders.
Results

• **What they did:**
  > 18 PGY2 psychiatry residents (randomly assigned to 5 groups)
  > 5 economically disadvantage neighborhoods in New Haven CT.
  > 2 AA; 1 Hisp; 1 mix AA+Cauc; 1 mix AA + Hisp + refugees

• **Process (2016):**
  > Evening introductory and team building exercise
  > 1 day exploring neighborhoods
  > PGY2 presentation
Results

• Process cont’d:
  > Small Groups: Peer advocates, community leaders, residents
  > Evaluation panel: Community leaders who were not part of the small groups

• Outcomes
  > understanding of historical, economic, and racial barriers faced by community members and efforts taken to address these barriers over the years;
  > PGY-2 residents had a better appreciation of the structural barriers faced by their patients, and the available resources that patients could turn to in the community for and use health care; and
  > encouraged and enhanced partnerships between communities and the university.
Why I like this paper

> A socially relevant paper
> Multiple stakeholder involvement (collaboration)
> Experiential – Not just about numbers
But...

- Helpful to describe how they tied their reflections and synthesis of learning to their work as psychiatrists

- What was the cost of implementing? How feasible is it to reproduce?

- Is it sustainable? Future program evaluation?
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