THE OLD AND NEW OF MEDICAL EDUCATION

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#Prevoc16
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WHY OLD AND NEW?
THE NEED FOR CHANGE

Pace of change in healthcare
New technologies
Models of care
Information overload
THE ‘NEW’ OF MEDICAL EDUCATION

Learner-centred education
Technology in the classroom
Simulation
Social Media
LEARNER-CENTRED EDUCATION

‘Memoriser’ to ‘Thinker’

‘Hard’ to ‘Soft’:
  Ethics and Professionalism
  Wellbeing
Learning lacks evidence

Sarah Colyer  Monday, 4 August, 2014

ALMOST 40 years after problem-based learning turned medical education on its head, a group of Australian doctors argue there’s little high-quality evidence to show it beats a lecturer in front of a chalkboard.

In a ‘Perspectives’ article in the MJA this week, Professor Les Bokey and colleagues from the University of Western Sydney, said it was “striking” that although problem-based learning (PBL) emerged at the same time as evidence-based medicine, there was still “very little high-quality evidence for its effectiveness compared with TLL [teacher-led learning]”.

The effectiveness of team-based learning on learning outcomes in health professions education: A Best Evidence in Medical Education Systematic Review

Summary

Team-based learning (TBL) is an active learning strategy currently being implemented in health professions education in response to a growing desire to see students become more engaged in their learning. However, the effectiveness of TBL on improving learning outcomes has not been fully assessed. By systematically evaluating the effects of TBL on health professions, the review aimed to provide educators with an comprehensive synthesis of the current evidence to guide decision-making regarding the implementation of TBL into their curricula.

This review used a systematic, prospectively registered protocol. Following title and full-text screening, two reviewers independently considered that compared TBL to a more traditional teaching method at the undergraduate and postgraduate level. The effects of TBL were assessed based on a modified Kirkpatrick framework of learning outcomes.

Seven studies showed statistically significant improvements in knowledge outcomes favouring TBL. A study showed no differences. For the remaining 3 studies, authors concluded effectiveness of TBL did not provide sufficient data to allow for statistical comparison between groups.

Despite general improvements in knowledge, only one of seven studies reporting learner reaction showed a significant difference favouring TBL. In one study, participants preferred the comparison (i.e., self-paced learning). No trends in outcomes across the review at a systemic level.
"They liked it if you said you cried": how medical students perceive the teaching of professionalism

Hudson H Birden and Tim Usherwood

doi: 10.5694/mja12.11827
An apple a day keeps the doctor away: a health and wellbeing guide for Junior Medical Officers

Health Services Tasmania

Developed by The Postgraduate Medical Education Council of Tasmania (Updated January 2016)

Figure 4: Burnout in the domains of emotional exhaustion, cynicism and professional efficacy, by age group

- Emotional exhaustion
- Cynicism
- Low professional efficacy

- 18-30 years
- 31-40 years
- 41-50 years
- 51-60 years
- 61+ years
80% sent messages during class

85% used their laptops for something unrelated to class

“Most students engage in high tech doodling”
TECHNOLOGY IN THE CLASSROOM

“The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing.”
Repeat practice
Direct observation with feedback
Accommodates all learning styles:
- Visual
- Auditory
- Kinaesthetic
“The concept of different ‘learning styles’ is one of the greatest neuroscience myths”
The Utility of Simulation in Medical Education: What Is the Evidence?

Yasuharu Okuda, MD,1,2 Ethan O. Bryson, MD,1 Samuel DeMaria Jr, MD,1 Lisa Jacobson, MD,1 Joshua Quinones, MD,2 Bing Shen, MD,1 and Adam I. Levine, MD1

1Mount Sinai School of Medicine, New York, NY
2Institute for Medical Simulation and Advanced Learning, Health and Hospitals Corporation, New York, NY
3Rock School of Medicine, University of Southern California, Los Angeles, CA

Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review: BEME Guide 4

Summary

This report is the first BEME systematic review of the research evidence about the features and use of high-fidelity medical simulations that lead to effective learning. The goal was to cover the scientific literature comprehensively, with detail and rigor. The intent was to paint an objective portrait of the current state of knowledge about high-fidelity simulation in medical education and to begin to set an agenda for continued evaluation research.
WHY DON’T WE KNOW WHAT WORKS?

Research:
- Not much
- Variable quality
- Confounders

Outcomes:
- Learner assessment
- Learner evaluation
- Patient outcomes
CONFOUNDERS

WHO WE ARE
- The surgical society of Liverpool Medical School, founded in 2005
- Actively encouraging students to pursue their interest in a surgical career
- Over half the medical school are members
- We recruit a large number of first years every year
- Our committee consists of students from every year group
- Committee roles are highly competed for at our AGM

MEDICAL EDUCATION
Weekly Lectures
- Supplement the medical school curriculum
- Provide valuable careers advice
- Spark interest in surgery
- Annual finals series - regularly has over 100 attendees

Research
For 2013-14 academic year we have incorporated "Live Audience Participation" (LAP) into our weekly lectures. This allows students to ask questions and participate in quizzes in real time. It promotes active learning and provides the lecturer with constant feedback.

It has proved a successful move in medical education and a member of the Surgical Scousers committee presented this teaching strategy at the most recent ASIT conference in Belfast. This was very well received.

Anatomy Workshops

PRACTICAL SKILLS
In conjunction with the Royal Liverpool University Hospital we run regular workshops which allow students to develop surgical skills. Including...
- Basic suturing (44)
- Advanced suturing (15)
- Basic laparoscopic skills (121)*

We source our own materials so the majority of the workshops are kept to under £20 and students receive a certificate of participation for their portfolio.

Good attendance is seen every year, with extremely positive feedback given on the quality of workshops (see figures).

NATIONAL RESEARCH/AUDIT SYMPOSIUM AND SURGICAL CAREERS DAY FOR FOUNDATION AND STUDENT DOCTORS

The society’s aim for 2014 was to hold a national research and careers conference. In conjunction with RCSEd, committee members organised this very successful event. This was attended by over 70 delegates from across the country. Career talks were given by surgeons from various specialties, alongside a Keynote speech from Mr Mike Lavelle-Jones (RCSEd VPs). Exceptionally high quality posters and oral presentations were presented by delegates. Prizes awarded included RCSEd memberships and surgical skills courses.

Delegate Feedback
- "Brilliant. Great for Liverpool-please keep it up"
- "Well organised, informative, interactive"
- "Very good! Highly recommend it"^
- "A very useful event, especially for medical students, both for presenting and learning how to present"
### ASSESSMENT: TOO MANY FAIL

<table>
<thead>
<tr>
<th>Oral Section Pass Rates</th>
<th>May 2014</th>
<th>October 2013</th>
<th>May 2013</th>
<th>October 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidates who scored &gt;50% in written section and passed the overall exam</td>
<td>15/15</td>
<td>18/27</td>
<td>11/18</td>
<td>24/29</td>
</tr>
<tr>
<td>100%</td>
<td>67%</td>
<td>61%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>All candidates invited to oral section and passed the overall exam (written + carry + OTS)</td>
<td>19/23</td>
<td>28/39</td>
<td>13/25</td>
<td>31/42</td>
</tr>
<tr>
<td>82%</td>
<td>72%</td>
<td>52%</td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>Overall Pass Rate</td>
<td>19/43</td>
<td>28/64</td>
<td>13/34</td>
<td>31/56</td>
</tr>
<tr>
<td>44%</td>
<td>44%</td>
<td>38%</td>
<td>55%</td>
<td></td>
</tr>
</tbody>
</table>
ASSESSMENT: TOO MANY PASS

1072 trainees
3400 assessments
99% rated as performing at above or expected level
Only 2 rated as below expected level
WHAT ABOUT WBA?

Good for learning:
Frequent, low stakes assessment
Without them, only 20% of trainees receive structured observation and feedback

Can assess qualities hard to assess in exams
WHAT WE DON’T KNOW

How many is enough?
Which are the most effective?
How best to train the assessors?
Summative or formative?
HOW MANY IS ENOUGH?

• 97 competencies
• 16 WBA per year plus 2 case summaries
• Total = 68

• 7 competencies
• 2 Observed clinical encounters per 6 months
• Total = 15
“The validity of WBA has been questioned”

“Lack of resources and assessor training”

“Assessment is excessive, onerous and not valued”
Shape of Training report

PMETB

UK Academy of Medical Royal Colleges (2009):
“The profession is rightly suspicious...widespread cynicism about WBA, which is now increasing”
“The sign of any connection between SET and teaching effectiveness is murky”

“Students generally rate perceived female instructors lower in several dimensions of teaching”

A series of studies across countries and disciplines in higher education confirm that student evaluations of teaching (SET) are significantly correlated with instructor gender, with students regularly rating female instructors lower than male peers. Anne Boring, Kellie Ottoboni and Philip B. Stark argue the findings warrant serious attention in light of increasing pressure on universities to measure teaching effectiveness.
“It’s ‘astonishing’ that poor data have driven the conversation around evaluations for some 30 years”

“SET ratings explain at most 1% of variability in measures of student learning”
The Doctor Fox Lecture: A Paradigm of Educational Seduction

*Donald H. Nafislion, M.D., John E. Ware, Jr., and Frank A. Donnelly*
CONFIDENCE

1: Self-reported preparedness for hospital practice among interns who graduated from different medical programs (year of internship)

Dunning-Kruger Effect

Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessment.

Nobel Prize Psychology 2000

Scale: 1 = very inadequately prepared, 6 = very adequately prepared

* Significant difference in scores suggested between graduates from the University of Sydney graduate-entry program and those from other programs (based on comparison of 95% CIs, with non-overlapping CIs suggesting a significant difference).
PATIENT OUTCOMES

“This is the first time an educational intervention has been shown to be associated with a clinically important and sustained improvement in perinatal outcome”
We don’t really know what works, or what works best.

We don’t really know if the new is any better than the old.
DOES IT MATTER?

NO:
The ‘10%’ effect
The system ‘seems to work’

YES:
The 10% effect
Cost
Length
THE COST OF TRAINING

$30,000 per student, per year
Commonwealth contribution ($450 million)

$40 million per year just for intern tutorials
THE LENGTH OF TRAINING

Graduate entry
Value of time spent
(enriched with PGY2-4)
WHERE DOES THAT LEAVE US?
“TO SEE CLEARLY, YOU HAVE TO FIRST KNOW THE LIMITS OF YOUR VISION”
Bob Brown
Optimism
Reflections from a life of action
Available August