Should we trust our current approaches to the evaluation of trainees in the clinical workplace?

Olle ten Cate, PhD
Center for research and development of education
University Medical Center Utrecht
The Netherlands

Overview

• Current problems of assessment in the workplace
• Update on the why and what of entrustable professional activities
• Entrustment as an assessment approach
Disclosure statement

No conflict of interest reported

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University Medical Center Utrecht

“X-ray” of UMCU’s education building, designed to resemble a body with lungs and CV system
What score would you give the architect?

<table>
<thead>
<tr>
<th>Fail</th>
<th>Below expectations</th>
<th>Meets expectations</th>
<th>Exceeds expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
<td>6 7 8</td>
</tr>
</tbody>
</table>
What criteria cross your mind?

- **Esthetics** (appearance from all angles; colours used, brightness, transparency, spacial construction, originality)
- **Functionality** (capacity, size of room vs required student population size and teaching formats, teaching-specific functions, noise sensitivity)
- **Costs** (related to estimated budget)
- **Speed** of design and construction (related to planning)
- **Issues** with construction encountered within 5 years
- **Opinions** of users (teachers, students, staff), owners (university, UMCU), visitors, passengers
- **Comparison** with other medical education buildings
- **Reputation, charisma, professionalism** of the architect

Current problems of assessment in the workplace
Issues that challenge the validity of workplace-based assessment

Content specificity
- Sampling issues; unfamiliarity (idiosyncrasy) issues

Context specificity
- Context variation; expert judgment variation

Rater bias
- Halo, leniency, restriction or range, lack of reference framework

Low construct alignment of rating instruments
- Limitations of current checklists

The trouble with assessment in the workplace

DOES

SHOWS HOW

KNOWS HOW

KNOWS

Miller, 1990
The trouble with assessment in the workplace

- **DOES**
- **SHOWS HOW**
- **KNOWS HOW**
- **KNOWS**

- **IN THE CLINICAL WORKPLACE**
- **IN A SIMULATED ENVIRONMENT**
- **IN A WRITTEN TEST (closed and open format)**
- **IN A WRITTEN TEST (MCQ)**

A reliable test

1. Standardized – equal for all candidates
2. Power to discriminate between individuals
3. Reproducible scores if re-administered
The trouble with assessment in the workplace

- **DOES**: Cannot meet reliability requirements
- **SHOWS HOW**: May be made reliable with much effort
- **KNOWS HOW**: Can have acceptable reliability
- **KNOWS**: Can be very reliable

Observations cannot always be turned into numbers

- “Not everything that counts can be counted; not everything that can be counted counts”*  
- Expert judgment is necessary and cannot always be made fully explicit  
- “I know it when I see it”**

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*WB Cameron, 1957  
**Stewart Potter, US Supreme Court, 1964, judging “obscenity”
In conclusion

• Traditional psychometrics do not work well in the workplace

• Variance caused by raters and context is larger than variance caused by trainee qualities, precluding reliable rating

• Worsened by lack of supervision, fragmented care, short patient stays, little observation
The why and what of entrustable professional activities

Core principles around EPAs

- EPAs are to make competency-based medical education work in clinical practice
- Competencies and activities constitute an essential two-dimensional matrix
- Competence is defined as a threshold in a continuum of learning
- Entrustment decisions transfer responsibility to learners when they are ready for it
CBME – virtues and problems

• (inter-) national concerted effort to redefine what a physicians is – with great success
• Shift from assuming to assessing competence at transition to unsupervised practice
• The analytical definition of competence has become very complex and detailed
• Assessment of all competencies does not guarantee competent physicians

The complexity of CBME

<table>
<thead>
<tr>
<th>Role</th>
<th>161 key concepts</th>
<th>28 key competencies</th>
<th>116 enabling competencies</th>
<th>434 milestones (excl CPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical expert</td>
<td>16</td>
<td>5</td>
<td>21</td>
<td>77</td>
</tr>
<tr>
<td>Communicator</td>
<td>27</td>
<td>5</td>
<td>18</td>
<td>66</td>
</tr>
<tr>
<td>Collaborator</td>
<td>21</td>
<td>3</td>
<td>8</td>
<td>47</td>
</tr>
<tr>
<td>Leader</td>
<td>19</td>
<td>4</td>
<td>13</td>
<td>68</td>
</tr>
<tr>
<td>Health Advocate</td>
<td>14</td>
<td>2</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Scholar</td>
<td>39</td>
<td>5</td>
<td>27</td>
<td>85</td>
</tr>
<tr>
<td>Professional</td>
<td>25</td>
<td>4</td>
<td>16</td>
<td>67</td>
</tr>
</tbody>
</table>
Entrustable Professional Activity

A unit of professional practice that may be entrusted to a learner to execute unsupervised, once he or she has demonstrated the required competence

E.P.A.

- Entrustable: acts that require trust – by colleagues, patients, society
- Professional: confined to occupations with extra-ordinary qualification and right
- Activities: tasks that must be done

EPAs ground competencies in daily practice
EPAs versus competencies

- EPAs: units of work / tasks that must be done
- Competencies: qualities of individuals

One can possess competencies; one cannot possess EPAs

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>person-descriptors</td>
<td>work-descriptors</td>
</tr>
<tr>
<td>knowledge, skills, attitudes, values</td>
<td>essential tasks in professional practice</td>
</tr>
<tr>
<td>content expertise</td>
<td>discharge patient</td>
</tr>
<tr>
<td>health system knowledge</td>
<td>counsel patient</td>
</tr>
<tr>
<td>communication ability</td>
<td>lead family meeting</td>
</tr>
<tr>
<td>management ability</td>
<td>design treatment plan</td>
</tr>
<tr>
<td>professional attitude</td>
<td>Insert central line</td>
</tr>
<tr>
<td>scholarly skills</td>
<td>Resuscitate patient</td>
</tr>
</tbody>
</table>

EPAs require workers possessing competencies

(Dee-Cote, 2013; Ten-Cate et al., 2010; Ten-Cate & Scheele, 2007)
Does it fit?

Task (EPA) to be done

Person with their competencies

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EPAs require multiple competencies

<table>
<thead>
<tr>
<th>Competencies</th>
<th>EPA1</th>
<th>EPA2</th>
<th>EPA3</th>
<th>EPA4</th>
<th>EPA5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical expert</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>Collaborator</td>
<td>+</td>
<td></td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Communicator</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td></td>
<td>+</td>
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<tr>
<td>Leader</td>
<td></td>
<td>+</td>
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<td></td>
</tr>
<tr>
<td>Health advocate</td>
<td>+</td>
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<td>++</td>
<td>+</td>
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</tr>
<tr>
<td>Scholar</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>Professional</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
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</tr>
</tbody>
</table>

Assessment focused on EPAs
**EPAs: a synthetic approach**

<table>
<thead>
<tr>
<th>Medical expert</th>
<th>EPA1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborator</td>
<td>EPA2</td>
</tr>
<tr>
<td>Communicator</td>
<td>EPA3</td>
</tr>
<tr>
<td>Manager</td>
<td>EPA4</td>
</tr>
<tr>
<td>Health advocate</td>
<td>EPA5</td>
</tr>
<tr>
<td>Scholar</td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td></td>
</tr>
</tbody>
</table>

**7-item Format of EPA Description**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title of the EPA</td>
</tr>
<tr>
<td>2</td>
<td>Specification and limitations</td>
</tr>
<tr>
<td>3</td>
<td>Most relevant domains of competence</td>
</tr>
<tr>
<td>4</td>
<td>Required experience, knowledge, skills, attitude and behavior for entrustment</td>
</tr>
<tr>
<td>5</td>
<td>Assessment information sources to assess progress and ground a summative entrustment decision</td>
</tr>
<tr>
<td>6</td>
<td>Entrustment for which level of supervision is to be reached at which stage of training?</td>
</tr>
<tr>
<td>7</td>
<td>Expiration date</td>
</tr>
</tbody>
</table>
Entrustment decision-making as an assessment approach

When is “competence” reached?

When a professional activity is mastered
- ...on a threshold level
- ...that permits trust
- ...to act unsupervised

Competence is a stage in a continuum of development
Growth of competence over time

Expert
Proficient
Competent
Advanced
Novice

Training
Deliberate professional practice

Ready for unsupervised practice

Competency curves of one trainee

Competence threshold

Justified entrustment decisions

Training
Deliberate professional practice

EPA1
EPA2
EPA3
EPA4
EPA5

Dreyfus & Dreyfus, 1980; ten Cate et al., 2010

Dreyfus & Dreyfus, 1980; ten Cate et al., 2010
Another trainee

EPA approach serves flexibility

- **Intra-trainee variation**: trainees do not reach competence for everything on last day of training
- **Inter-trainee variation**: different prior knowledge and skills, learning ability, general attitude
- **Context variation**: variable clinical opportunities, local practice (epidemiology, facilities, culture), education-mindedness of staff

One size does not fit all
Five levels of supervision, reflecting increasing trust in trainee autonomy

1. Be present but no permission to enact EPA
2. Practice EPA with direct (pro-active) supervision
3. Practice EPA with indirect (re-active) supervision
4. Unsupervised practice allowed (distant oversight)
5. EPA may be supervised with junior learners

Ian Cate & Schiere, 2010

Psychology of traditional workplace assessment

She’s nice and works hard; it won’t hurt and will probably stimulate if I mark her ‘superior’

Please... mark me ‘superior’
Psychology of EPA-based workplace assessment

She’s nice and works hard, but it may hurt my patients if I mark her ‘ready for unsupervised practice’

Please... mark me ‘superior’

Can entrustment decisions mitigate traditional assessment problems?

• Patient is part of the equation
• Responsibility / liability of supervisor is part of the equation
• Chances of leniency-bias are decreased
• Reliability increases when raters deeply understand what they assess – “trusting a trainee” is nearer than rating a competency
The trust concept in EPA-based assessment

- Trusting someone is making yourself **vulnerable**
- It is taking a calculated **risk** that future adverse events are manageable
- Graduates will be certified to carry out activities that supervisors have **not been able to observe** and leaners may have never encountered
- Entrustment decisions require an estimation of **adaptive competence**.

Better construct alignment may improve reliability
Entrustability scales

Entrustability Scales: Outlining Their Usefulness for Competency-Based Clinical Assessment
Janelle Rekman, MD, Wade Gofton, MD, MEd, Nancy Dudek, MD, MEd, Tyson Gofton, PhD, and Stanley J. Hamstra, PhD

Zwisch Scale for intra-operative evaluation

Proportional Zwisch Levels by PGY

FIGURE 1. Zwisch levels by resident postgraduate year (PGY).
Supervision levels expanded

1. Not act / observe
   a. Presence not allowed
   b. Presence allowed

2. Direct supervision: supervisor present in the room; proactive
   a. Co-activity: execute together
   b. Supervisor observes; takes over if needed
   c. [Supervisor in the room, but busy with other things]

3. Indirect supervision: sup.not present; quickly available; reactive
   a. All findings checked post-hoc
   b. Key findings checked post-hoc
   c. No check or only on indication

4. Unsupervised practice
   a. Supervisor available by phone
   b. No supervisor available

5. Permission to supervise junior learners

Entrustment decisions – two modes

Ad-hoc entrustment decisions
happen every day; situationally determined; based on presumptive trust and initial trust. Formative nature.

Summative entrustment decisions*
should be based on grounded trust (multiple sources of documented information); serves as certification / license to act. Summative nature.

*sometimes called Statement of Awarded Responsibility (STAR)
### Entrustability scales

<table>
<thead>
<tr>
<th>Retrospective evaluation</th>
<th>Prospective decision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ad-hoc entrustment</strong></td>
<td><strong>Summative entrustment</strong></td>
</tr>
<tr>
<td>“In this procedure....”</td>
<td>“This learner is ready for..”</td>
</tr>
<tr>
<td>1</td>
<td>I had to do it</td>
</tr>
<tr>
<td>2</td>
<td>I had to talk through</td>
</tr>
<tr>
<td>2</td>
<td>I had to prompt from time to time</td>
</tr>
<tr>
<td>2</td>
<td>I needed to be there just in case</td>
</tr>
<tr>
<td>3</td>
<td>I did not need to be there</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
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</tr>
</tbody>
</table>

### Why entrustment decisions may be more valid than traditional assessment

- Align construct of assessment with the construct of patient care in a teaching hospital
- A “how much supervision needed” scale is natural
- Clinicians are not forced to judge on a scale they do not naturally use in their thinking
- Gut feeling (*I know it when I see it*) may weigh in
- EPAs may be related to competencies to help explain when the gut says ‘no’ or ‘slow down’
- Assessment is holistic: entrustment combines skill, knowledge, attitude and more tacit features
Entrustment: recognizing ability + right + duty to act

Assessment of learners in regular education focuses on evaluation of ability with no consequences other than individual progress.

Entrustment of learners combines the evaluation of ability with the permission to act and the readiness to be scheduled for service.
**What must one show to deserve trust?**

1. **ABILITY** Competence
2. **INTEGRITY** Honesty/truthfulness, benevolence
3. **RELIABILITY** Conscientious and consistent behavior
4. **HUMILITY** Observing one’s own limitations and willingness to ask for help

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**Five groups of useful information sources for entrustment decisions**

<table>
<thead>
<tr>
<th>1. Knowledge &amp; skills tests</th>
<th>Written, oral, e-assessment, simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Short practice observations</td>
<td>15 min snapshots of practice followed by debrief (eg.miniCEX)</td>
</tr>
<tr>
<td>3. Case-based discussions</td>
<td>15 min 1-on-1 discussion: what did you do, did you understand, what if...(eg.OMP)</td>
</tr>
<tr>
<td>4. Longit. practice observations</td>
<td>Post-shift, to-post week/month report on general qualities (eg MSF)</td>
</tr>
<tr>
<td>5. Product evaluations</td>
<td>Patient report, discharge summary, paper</td>
</tr>
</tbody>
</table>

Assessment of observations, framed as required level of supervision, and processed in an e-portfolio

Thanks to Dr Karen Schultz and Dr Jane Griffiths from the Family Medicine Department of Queens University at Kingston, Ontario, Canada
Maintaining competence

- EPAs gained during specialty training may serve well as MOC focus
- Continued and deliberate practice of EPAs should suffice to maintain the portfolio
- Disrupted or not maintained EPAs for years should loose the status of ‘Level 4’: renewed supervision mandatory
- New EPAs could be added after specialty registration
Maintaining competence

Compe-­‐tence
threshold

Justified entrustment decision
Loss of trust

training
deliberate professional practice

Competence

Jus9fied entrustment decision
Loss of trust

Maintaining competence

Women’s Health

Digital Badge for an EPA in Pap Smear
Clicking on the badge will display the meta-data

Pap Smear

Issuer Details
Name: Dr. Kelly Jones, Cleveland, OH
URL: http://my.abcc.comedicine.org
Organization: ABCC College of Medicine, Cleveland, OH

Badge Details
Name: Pap Smear
Description: Skilled
- Pap smear technique
- ThinPrep Pap smear technique
- Specimen handling
- Cervical cancer screening guidelines

Criteria: http://my.abcc.comedine.org/badges/criteria

Issuance Details
Recipient: janemmah@gmail.com
Expires On: 1/1/2020

25/05/16
**EPAs in the continuum**

- EPAs were conceived for CBME graduate medical education
- AAMC CEPAER project has stimulated its use in undergraduate medical education
- A dynamic portfolio of EPAs may extend throughout working life - EPAs should cease to be certified for after years of non-practice – and EPAs may be added after supplementary practice
- CBME -> Competency-based medical practice

**Wrapping up**

- Valid learner evaluation is the workplace is notoriously difficult
- Competency-based training requires better assessment of competence
- Assessment with a focus on EPAs may improve assessment
- We must develop trust in our learners and in our approach to evaluate them
References