Between Scylla and Charybdis: Navigating the discourses of competence

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Medical education discourse

As every medical professor knows, you just find a patient with some fractures and escort a gaggle of students to the bedside for a good long stare.

As long as the sufferer is not prodded too hard, or denied a clear view of the television, no ethical rules are violated.

Economist, March 24, 2007
Is this how you talk about medical education?

- We all have models (discourses) about medical education and competence
- The discourses we use frame the way we see and talk about what competence is
- These discourses change in time and place
Encountering different discourses by traveling

- My interest in discourses took me on a 6 year voyage to real places (France, China, Ethiopia, Israel, Jordan, Pakistan...) and virtual locations (books, internet, documents) where competence is discussed and debated.

- I am going to take you on an imaginary version of that voyage.
This is our ship

The Hippocrates
Our map*

Harrison’s Island
Miller’s Island
Cronbach’s Island
Taylor’s Island
Schön’s Island

*Conceptual destinations
Medical education and the maintenance of incompetence

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SCYLLA OR CHARYBDIS: NAVIGATING BETWEEN EXCESSIVE EXAMINATION AND NAIVE RELIANCE ON SELF-ASSESSMENT

A peculiar dilemma in nursing has been the lack of robust discussions about assessment practices in nursing education. On one hand, there has been an explosion of interest in reflection with professionals exploring the benefits of making improvements in practice (Davis et al. 1995). Eva and Regehr (2005) have called for a reconceptualization of self-assessment and Nelson and Peng (2008) have warned of the folly of basing systems of competence on the tenuous process of ‘reflection’.

While these discursive trains appear to be moving on completely different tracks, we must avoid the chasm. High-stakes, summative assessment practices are being used to discover and remove a few very small boa constrictor-like hazards from our profession. Why? To confirm that students are safe and competent. To ensure that our patients are safe and competent. To ensure that our professional organisation is transparent and accountable. To establish a safe and competent profession for the future.

In all of these processes, we need to ensure that we are not simply employing mechanisms that deliver a single, generic output of ‘competence’ that suits every student, nurse, and context. We need to develop integrated and reflective self-assessment tools that help us to evaluate our own processes and help us to reflect on our own professional development.
Our dictionaries of language

Harrison’s Island
Knowledge discourse

Miller’s Island
Performance discourse

Cronbach’s Island
Psychometric discourse

Taylor’s Island
Production discourse

Schön’s Island
Reflection discourse
Our guide to culture and architecture
Harrison’s Island
Miller’s Island
Cronbach’s Island
Taylor’s Island
Schön’s Island
Harrison’s Island
Medical school architecture on Harrison’s Island
<table>
<thead>
<tr>
<th>Harrison’s Island</th>
<th>Facts, foundational knowledge, basic science, first principles, fund of knowledge, classic text books, classic articles</th>
</tr>
</thead>
</table>
| Roles and activities | Table: Teacher’s: Lecturers, source of wisdom  
                        Student’s: Memorize, reproduce  
                        Tests: Multiple-choice exams |
| Believe in… | Knowledge accumulation |
| Religion | Cognitive psychology |
Warnings about this island

- The preoccupation with doing well on standardized tests has conditioned the way young people think. They have better-developed cognitive abilities to recognize random facts than to construct patterns or think systematically.
  
  Jacques Barzun, 1988

- Student: Madam – do you have higher conjugated or unconjugated bilirubin?
  
  Harrison’s Island Medical Student
Harrison’s Island
Miller’s Island
Cronbach’s Island
Taylor’s Island
Schön’s Island
Miller’s Island
Medical School Architecture on Miller’s Island

Medical Student

Simulated Patient

Interaction

Physician Examiner
<table>
<thead>
<tr>
<th>Performance discourse</th>
<th>Simulations, simulated patient feedback, performance, skills, skills centre, OSCE, multiple observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles and activities</td>
<td>Teacher’s: Demonstrating and observing skills, Student’s: Performing for observers, Tests: Performance-based assessment (simulation, OSCE)</td>
</tr>
<tr>
<td>Believe in…</td>
<td>Observation of performance</td>
</tr>
<tr>
<td>Religion</td>
<td>Behaviourism</td>
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</table>
In many places they would ask students to write an essay on the origin of the word shoelace, or give them a multiple choice question on the design of shoelaces or even ask them to describe the steps in tying a shoelace.

Whereas really the only way of doing it is showing you know how to tie a shoelace.

Ronald Harden 2005
Exclusive reliance on a pedagogical approach of simulation training may be encouraging students to become “simulation doctors” who act out a good relationship with their patients but have no authentic connection with them.

Hanna and Fins (2006)

Student: Oh that must be hard for you...wow that must be hard for you... oh, yes that must be really hard for you

Patient: Can you stop saying that?!

Medical Student, Miller’s Island
Cronbach's Island

\[ \alpha' = \frac{N \cdot \overline{r}}{1 + (N - 1) \cdot \overline{r}} \]
Medical school architecture on Cronbach’s Island

- Medical Student
- Standardized Patient
- Interaction
- Physician Examiner
- Psychometricians
- Testing centre
The way they talk on Cronbach’s island

Knowledge of educational products and educational purposes must become quantitative, take the form of measurement.

Education is one form of human engineering and will profit by measurement of human nature and achievement as mechanical and electrical engineering have profited by using the foot-pound, calorie, volt and ampere.

Thorndike, 1922
### Cronbach’s Island

<table>
<thead>
<tr>
<th>Psychometric discourse</th>
<th>reliability, validity, generalizability, data, psychometrician, candidate, checklist, item-banking, cut-point, standardization</th>
</tr>
</thead>
</table>
| Roles and activities    | Teacher’s: Preparing students for exams  
                          | Student’s: Strategies to max scores on exams  
                          | Tests: Standardized, summative exams, |
| Believe in…             | The conversion of human behaviour to numbers |
| Religion                | Psychometrics |
Learning the language of Cronbach’s

In the 1980s many people moved from the older Miller’s and Harrison’s Island to Cronbach’s and learned its language of psychometrics

The standardized-patient technique ...has many of the same advantages of the multiple-choice question

It is a standardized item, can be given in multiples, and can be scored in reliable and valid ways.

Howard Barrows, formerly of Miller’s Island 1993

\[
\alpha = \frac{N \cdot \bar{r}}{1 + (N - 1) \cdot \bar{r}}
\]
Warning: There are severe paradigmatic storms around Cronbach’s island

\[ \alpha = \frac{N \cdot \bar{r}}{1 + (N - 1) \cdot \bar{r}} \]

Harrison Bird Brown
Warnings about Cronbach’s island

In a standardized environment, it becomes a problem when [a patient] doesn’t look the same as everybody else. - Diana Tabak 2006

I have heard enough anecdotes about the shotgun behaviour induced by checklists to shift the burden of proof onto the advocates of this strategy. - Geoff Norman 2005

I think the problem is that as we’ve tried to get more valid and more reliable statistically, we’ve actually come away from what we were really trying to do in the first place. - Jean Ker 2005

\[ \alpha = \frac{N \cdot \bar{r}}{1 + (N - 1) \cdot \bar{r}} \]
From these choppy waters, ...

- We now follow the route that some took from the older islands to two neighboring Islands.
- Off the coasts of Taylor’s and Schön’s Islands, there are dangers!

Caught between the Scylla and Charybdis.
Harrison’s Island
Miller’s Island
Cronbach’s Island
Taylor’s Island
Schön’s Island
Taylor’s Island
Medical School Architecture on Taylor’s Island

- Candidate
- Standardized Patient
  - Interaction
- OSCE Station
- Physician Examiners
- Psychometricians
- Management
## Taylor’s Island

<table>
<thead>
<tr>
<th>Production discourse</th>
<th>Cost, production, finished product, accountability, outcomes, efficiency</th>
</tr>
</thead>
</table>
| Roles and activities | Teacher’s: Management and labour  
Student role: Raw material or product  
Tests: Mass Testing, quality assurance |
| Believe in…          | Productivity and efficiency |
| Religion             | Production/Capitalism |
The way they talk on Taylor’s Island

The corporate order, with its assembly-line techniques, job differentiation, and increased organizational size, demanded a different type of office space and a more regulated and regimented flow of time.

Kwolek-Folland (1994)
Learning the language of Taylor’s

Today, we have reached new heights in the science of producing and testing medical students.

We run the operation using standardized and efficient process.

As a result we are in a much better position to assure the public that we are graduating a product with the skills for safe and effective practice.
Beware the Scylla lurking in the waters of Taylor’s Island!

Athena (2007) Women in Greek Myths
The siren call of productivity and the death of feedback

In a production model, the many assessments of “quality” are summative, for external bodies, and there is no feedback to students.

Health professionals live in an “examined society” in which constant surveillance and testing locates the responsibility for their competence externally to the individual.
External monitoring of quality may help to:

- Discover and remove a few very low performers (although the eventual fail rate on most health professional examinations is near zero)
- Reassure the public that the profession is monitoring knowledge and skills of the next generation
- Standard setting across the country and internationally
But some say this culture of production is dangerous

- It distorts student learning
- Produces no feedback to advance learning
- Leads to commoditization and contracting-out of examinations, test preparation and even teaching, with significant increases in costs for students and professionals

If you create a sausage factory - you will get sausages.
Schön's Island
Medical school architecture on Schön's Island

Diagram:
- Medical Student
- Teacher/Examiner

Arrow flows from Medical Student to Teacher/Examiner and vice versa.
The way they talk on Schön's Island

The concept of learner as a mere processor of information has been replaced by the image of a self-motivated, self-directed problem solver.

Ministry of Education 1980
<table>
<thead>
<tr>
<th>Schön's Island</th>
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<tbody>
<tr>
<td><strong>Reflection discourse</strong></td>
</tr>
</tbody>
</table>
| **Roles and activities** | Teacher: Guide/Mentor/Confessor  
Student role: Reflecting, self-analysis  
Measures: Portfolio  
Believe in... Self-assessment, self-direction, self-reflection  
Religion Self-actualization, psychoanalysis |
The ‘trinity’ of reflective technologies

- Self-assessment, self-direction and self-regulation
- Adult learning theory and the idea that the locus for control of competence is **internal**
- Different technologies such as: portfolios, reflective diaries, logbooks, self-directed web-based modules
But beware! You can vanish into the Charybdis!

Warning’s about Schön's Island

In a review of many studies on self-assessment, “There is a subset of clinicians who appear, either by training or personality, unable to judge themselves”

Dave Davis (2006)

In adopting self-directed methods for maintenance of competence, “Regulators appear quite unconcerned about the lack of coherence between what is being monitored ‘at a distance’ and the actual professional knowledge (needed) to function skilfully and competently”

The archetype of the internally, self-regulating professional

- Reflects regularly on daily practice
- Self-assesses gaps in knowledge or skill
- Seeks opportunities to redress gaps
- Invests energy to learn (or relearn)
- Incorporates new knowledge into practice

Handfield-Jones 2002
But if we read the literature...

- We look for gaps?
  - “Self-protective” function of self-reflection
- We find gaps when we look?
  - The ineffectiveness of self-assessment
- We try to address gaps through learning?
  - We study what we are already good at
- We incorporate new information into practice?
  - Ineffectiveness of CME for changing practice
A repeated pattern

Kruger and Dunning 1999, Hodges et al 2000
The flaw in the theory

- Theories of adult learning focus on the reasons why people *DO* learn

- Little or no research on why people *DON’T* learn

- It is impossible to make people understand their ignorance, for it requires knowledge to perceive it; and therefore, he that can perceive it, hath it not

Jeremy Taylor
The voyage home
Traveler’s diseases you don’t want to bring home

- Unusable decontextualized knowledge
- Deficient or fake interpersonal skills
- Homogenization/suppression of diversity
- Commoditization of education technology and rising costs to students and professionals
- Impoverishment of teacher-student relationship and the loss of feedback
- Reflection without substance
Lessons from Harrison’s and Miller’s Islands

- Knowledge is important - but try to avoid teaching and testing “pure” knowledge - integrate with skills and real context.

- Skills are important by must be integrated with knowledge.

- When using simulations ensure transfer to ‘authentic’ clinical settings.
Lessons from Cronbach’s Island

- Highly standardized psychometric methods can be helpful, but they have some serious side-effects

- Commit to diversity in teaching/testing, reduce rigid standardization - real life is “messy”

- Minimize checklists and “reductionistic” measures

\[ \alpha = \frac{N \cdot \bar{r}}{1 + (N - 1) \cdot \bar{r}} \]
Lessons from Taylor’s Island

- Don’t create a big teaching and testing factory that does only end-of-line quality assurance.
- Use small-scale teaching and frequent, local assessment whenever possible versus “one-shot” mass assessment.
- Avoid mechanization, labour-management, manufacturing models that dehumanize medical education.
Lessons from Schön's Island

- Use reflection carefully: Enough external input to correct inaccuracies of self-judgment; not so much it deforms learning

- Think of teacher as coach who can help a student (or a MD in practice) be sure they know “when to slow down” or “when to look it up”

- Use “self-selected external assessments” and follow-up on learning plans
I hope you have enjoyed the trip!


Cathell DW. (1890) Book on the physician himself. FA Davis, Philadelphia and London


Hodges B. (2003a) OSCE! Variations on a theme by Harden. Medical Education. 37(12):1134-1140.


