Ronald M. Harden

AMEE Guide No. 21
Curriculum mapping: a tool for transparent and authentic teaching and learning

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Michael Schmidts
# traditional curriculum

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Harden: Curriculum map
modern curriculum

Modules

Basic sciences
- Man and society
- Cells and communication
- Environment and employment
- the heart
- respiration

Clinical sciences
- neck pain
- fever
- Bringing bad news

Learning opportunity

Team learning
- Seminar
- PBL
- Case based learning
- Skills training
- Simulated patients
- E-learning
- Bedside teaching

assessment

Oral exam
- MC
- Short answer
- Essay
- Portfolio
- Video record
- Logbook
- OSCE
- Mini CEX
- 360° evaluation
modern curriculum

Modules

Basic sciences
- Man and society
- Cells and communication
- Environment and employment
- The heart
- Respiration

Clinical sciences
- Neck pain
- Fever
- Bringing bad news

Learning opportunity
- Team learning
- Seminar
- Case-based learning
- PBL
- Skills training
- Simulated patients
- E-learning
- Bedside teaching
- Oral exam
- MC
- Short answer
- Essay
- Portfolio
- Video record
- Logbook
- OSCE
- Mini CEX
- 360° evaluation
module 13 „The heart“ – year 3

- Do students know already something about pain?, muscle cells, hemodynamics?
- When did they learn this? in what depth?
- Was there already an practical training assessment on auscultation in the 2nd year skills course?
- What the hell did they learn in „cells and communication“?
- And what is „environment and employment“ for? – seems to be a terrible waste of time!!!
Faced with curricula which are becoming more centralized and less departmentally based:

- Content is integrated (horizontal – vertical)
- Organ-based, System-based, Case-based, Problem – based
- Many modern methods of teaching and assessment
- Complex
- It’s difficult to keep orientated for students, teachers, curriculum planners
Missing transparency

- Planned
- Taught
- Learned

Harden: Curriculum map
Establish transparency \(\rightarrow\) establish congruency

- planned
- taught
- learned

Harden: Curriculum map
The key to a really effective integrated curriculum is: to exchange information about what is taught, how it is taught, when it is taught that it reflects the overall goals of the school.

This can be achieved through curriculum mapping …
Hardens analogy of a map

- Orientation (broad picture)
- transparent
- Different levels of depth
- shows gaps
- Shows links and connections (roads, railways, airports)
Links and relations

The whole is more than the sum of its parts

Harden: Curriculum map
Hardens proposal: windows, nodes and links

based on
- Curriculum mapping (English 1984)
- Concept mapping (Novak & Gowin 1984)
- Matrix representation systems (Du Bois & Kiewra 1989)

Harden: Curriculum map
Windows, nodes

Outcomes
1  4  7  10
2  5  8  11
3  6  9  12

Learning opportunity

Content

Assessment
Outcome window: e.g. 12 nodes

(1) Competence in clinical skills
(2) Competence in practical procedures
(3) Competence to investigate a patient
(4) Competence in patient management
(5) Competence in health promotion and disease prevention
(6) Competence in communication
(7) Competence in handling and retrieval of information

(B) How the doctor approaches his/her practice—‘Doing the thing right’
(8) With understanding of basic and clinical sciences and underlying principles
(9) With appropriate attitudes, ethical stance and legal responsibility
(10) With appropriate decision making, clinical reasoning and judgement

(C) The doctor as a professional—‘The right person doing it’
(11) An understanding of the doctor’s role in the health service
(12) An aptitude for personal development
Windows, nodes

Outcomes

1  4  7  10
2  5  8  11
3  6  9  12

Learning opportunity

Content

Assessment
Content window:

**nodes (cluster – area – units)**

- Cardiovascular 'cluster of expertise'
- Hypertension 'area of expertise'
- β-blockers 'unit of expertise'
- Measurement of BP 'unit of expertise'

**Clusters:**
- Respiratory System
- Nervous System
- Renal System
- Endocrine System
- Reproductive System
- GI System
Windows, nodes

Outcomes
1  4  7  10
2  5  8  11
3  6  9  12

Learning opportunity
lecture
Skills lab
PBL
bedside
library

Content
Assessment
MC
OSCE
SAQ
Mini CEX
Windows, nodes and links

The whole is more than the sum of its parts

Harden: Curriculum map

1. MC
2. OSCE
3. Mini CEX
4. SAQ
5. Lecture
6. PBL
7. Skills lab
8. Library
9. Bedside
Links from and to node „blood pressure measurement“

Outcomes:
1
2
3
4
5
6
7
8
9
10
11
12

Competence in practical procedures

Content:
Cardiovascular system
Hypertension
Blood pressure measurement

Learning opportunity:
lecture
Skills lab
PBL
library
bedside

Assessment:
MC
OSCE
SAQ
Mini CEX
Window → Perspective

E.g. Outcome perspective: Which practical procedures do we train in our curriculum and how do we assess the competence?
windows for every key question

- What is taught? outcomes content
- How is it taught? learning opportunities teachers students
- When is it taught? timetable
- How is it measured? assessment
- Who plans? curriculum organisation
Complex and multidimensional

Adaptations and changes every year!

Harden: Curriculum map
Computers
Views

• While the map is too complex and multidimensional for an „unfiltered“ perception, it allows „views“ by certain perspectives/layers/filters

• Broad perspective
• Detailed perspective
Broad perspective

What is trained in the skills lab?
Are there outcomes that are underrepresented in the curriculum?
Which kinds of assessments do we have in the last year of the curriculum, and what content is assessed?
Detailed questions

Remember module 13 „the heart“ in year 3

• Do student‘s know already something about pain?, muscle cells? When did they learn this?

• Was there already an practical training assessment on auscultation in the 2nd year skills course?

• What the hell did they learn in „cells and communication“?

• And what is the module „environment and employment" for – seems to be a terrible waste of time !!!
Users of a curriculum map
(→ stakeholders, → perspectives)

• Curriculum planners
• Teachers
• Students
• Examiners
• Administrators
• Accrediting bodies
• Public
• Educational researchers
Preparing the curriculum map

- Assess needs
- Scope the task (complexity of the map, access to the map, static or dynamic representation of the curriculum)
- Populate the windows and establish the links
- Plan evaluation and update
- Allocate responsibility
Requirements

• Full institutional support
• Resources (time and project team (medical-computer-educational expertise))
• Academic leadership (project manager)
• Stakeholders involved
• Address compliance of teachers (threatening complexity and technology, less autonomy)
• Keep it dynamic and flexible
conclusion

Faced with curricula that are becoming more centralized and less departmentally based, and with core and optional elements, the teacher may find that

the curriculum map is the glue that holds the curriculum together

Harden: Curriculum map
conclusion

• Curriculum map ensures
  – Finding ones best way around in an strange country
  – Best use of teachers and students time
  – Prioritizing of resources
  – Operationalising outcomes
Not an easy task

But no good curriculum can afford to be without a curriculum map!

We have one 😊