MEDICAL EDUCATION: AN INDUCTION INTO THE PROFESSION

Professor Janet Grant
Honorary Professor, UCL Medical School

Director, Centre for Medical Education in Context
WHAT IS MEDICAL EDUCATION?

- KNOWLEDGE
- SKILL
- PRACTICE & PROFESSIONAL CONTEXT

Medical education is an induction into the profession, not just an education.
WHAT IS A PROFESSION?

- Education, apprenticeship, & formal examinations
- High standards of professional and intellectual excellence
- Freedom to exercise professional judgement: work autonomy
- Prolonged specialised training in a body of abstract knowledge
- Regulatory bodies with powers to admit & discipline members: licensing
- Cognitive base, high degree of systematic knowledge
- Critical evaluation by other members of the profession: colleague control, self-regulation
- A system of rewards defined and administered by the community of workers.
- Code of ethics; vocational sub-culture comprising implicit codes of behaviour
- Institutionalised training
- Service orientation
- Professional association, group allegiance, corporate solidarity
THE UCL CURRICULUM GOAL:

To produce the UCL doctor:

- A highly competent and scientifically literate clinician
- Equipped to practise patient-centred medicine
- In a constantly changing modern world
- With a foundation in the basic medical and social sciences
WHAT IS A PROFESSIONAL?

Expert and specialised knowledge

Excellent manual, practical and communication skills

An expert who is master in a specific field

A high standard of professional ethics & behaviour

Has a higher duty to a client, a privilege of confidentiality, and a duty not to abandon the client

Has interest and desire to do the job well

Holds a positive attitude towards the profession

Appropriate treatment of relationships with colleagues
MEDICAL EDUCATION ≠ FOLLOWING A COURSE OF STUDY

MEDICAL EDUCATION ≠ LEARNING A SUBJECT

MEDICAL EDUCATION = INDUCTION INTO THE PROFESSION
HOW DOES THIS INDUCTION WORK?
MEDICAL EDUCATION: A PLAY OF THREE ACTS

★ Act 1: Basic medical education
★ Act 2: Postgraduate training
★ Act 3: Continuing professional development

★ Each has its own directors
★ Each has its own characteristics
### HOW DOES LEARNING CHANGE THROUGH THE 3 ACTS?

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning begins with limited involvement in practice: Early clinical contact while the knowledge base is being acquired</td>
<td>Theory is gradually learned more in the context of practice</td>
</tr>
<tr>
<td>Eventually, learning occurs by engaging fully in the professional process:  - with developing responsibility for the outcome</td>
<td></td>
</tr>
</tbody>
</table>
LEARNING IN A PROFESSION: Induction into professional practice by a series of transitions

<table>
<thead>
<tr>
<th>student</th>
<th>employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>student</td>
<td>responsible doctor</td>
</tr>
<tr>
<td>theory</td>
<td>practice</td>
</tr>
<tr>
<td>teaching</td>
<td>learning</td>
</tr>
<tr>
<td>supported</td>
<td>self-managed</td>
</tr>
</tbody>
</table>

Each stage is underpinned by increasing practice.
THE STORY OF THE PLAY

Peripheral participation with limited responsibility

Gradually becomes

Central participation with full overall responsibility

CenMEDIC
The process of professional education depends on eventual immersion in the context of practice.
INDIVIDUALITY CHARACTERISES A PROFESSION

How does that happen?
Students and doctors are individual in their thinking:

- Because experience is different.
- So information in memory becomes organised in different ways.
- No correct way of thinking about a case.
SOME EVIDENCE…
### DIFFERENT IDEAS ABOUT CASES [ N=15]

<table>
<thead>
<tr>
<th>ACTUAL DIAGNOSIS:</th>
<th>CASE 1: IBS</th>
<th>CASE 2: Hypertrophic pulmonary osteopathy</th>
<th>CASE 3: Alcoholic cirrhosis</th>
<th>CASE 4: Inguinal hernia</th>
<th>∑</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant</td>
<td>17</td>
<td>43</td>
<td>19</td>
<td>17</td>
<td>96</td>
</tr>
<tr>
<td>Senior Reg</td>
<td>18</td>
<td>21</td>
<td>21</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Junior Reg [SHO]</td>
<td>18</td>
<td>25</td>
<td>22</td>
<td>18</td>
<td>83</td>
</tr>
<tr>
<td>3rd year student</td>
<td>18</td>
<td>28</td>
<td>16</td>
<td>30</td>
<td>92</td>
</tr>
<tr>
<td>1st year student</td>
<td>16</td>
<td>26</td>
<td>20</td>
<td>26</td>
<td>88</td>
</tr>
</tbody>
</table>

- Similar levels of shared thinking per case
- Case specific thinking
- **What** is thought by different groups is different: depending on experience of applying knowledge
DO EXPERIENCED CLINICIANS USE MORE KNOWLEDGE?

EXAMPLE:
A man of 53 says he has suffered a heart attack.

What questions, investigations, physical examination would you use to follow up and manage this?

Who uses most knowledge?
- 1st year students?
- 3rd year students?
- Junior Reg?
- Senior Reg?
- Consultants?
DIFFERENT ITEMS REQUESTED PER GROUP
[15 per group]

<table>
<thead>
<tr>
<th></th>
<th>CASE 1: Crohn’s</th>
<th>CASE 2: Epilepsy</th>
<th>CASE 3: Arthritis</th>
<th>CASE 4: MI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant</td>
<td>70</td>
<td>59</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Senior Reg</td>
<td>84</td>
<td>61</td>
<td>97</td>
<td>74</td>
</tr>
<tr>
<td>Junior Reg</td>
<td>68</td>
<td>60</td>
<td>73</td>
<td>64</td>
</tr>
<tr>
<td>3rd year student</td>
<td>62</td>
<td>65</td>
<td>77</td>
<td>78</td>
</tr>
<tr>
<td>1st year student</td>
<td>49</td>
<td>41</td>
<td>20</td>
<td>51</td>
</tr>
</tbody>
</table>

Process of accumulating and applying knowledge to practice
Once exams are finished, the knowledge base is pruned & tuned
DO ALL GROUPS USE THE SAME INFORMATION?

Within each case separately:

- 100% agreement on only one item [ECG for MI]
- 75% agreement for 2% of items
- 50% agreement for 3% of items

All maximum levels of agreement were at Junior Reg [SHO] level.
WHY DOES THIS HAPPEN?

It's all about your memory structures which:

- Are individual tailored through clinical practice
- Become more appropriate with experience
- Do not become more elaborate with experience
- Become better organised

Efficiency  Speed  Effectiveness

Acquiring the knowledge base and applying it to tailored clinical experience becomes more appropriate with experience.

Does this happen?
Learning for professional induction is a social process.
Learners participate in communities of practitioners.
Learners acquire knowledge, skills, fluency, professional values and attitudes.
THE NECESSITY OF CONTEXT

There are crucial inductive relationships between experienced practitioners and the learners in terms of:

- Activities
- Identities
- Artefacts
- Knowledge
- Practice
- Values
Some knowledge cannot be codified and taught but only transmitted through training and personal experience

‘We know more than we can tell’
THROUGH THE COMMUNITY OF PRACTICE:

PATTERNS OF COMMUNICATION
WHAT DOES THIS SHOW?

Patients top everyone’s communication list

Peers are significant at all stages

Induction into the profession is by building a community of practice in the context of practice.
PROFESSIONAL EXPERTISE

- Made up of a large body of knowledge and long application of that knowledge to practice.
- General agreement that expertise in any given field requires c. 10 years of concentrated practice.
HOW DOES PRACTICE WORK?
CHARACTERISTICS OF LEARNING FROM PRACTICE 1

- Learning by doing
- Teaching by doing
- Experience of seeing patients
- Using knowledge and skill
- Building up personal knowledge and skill
- Bite-size learning from ‘bits and pieces’
- Discussing patients
- Using knowledge stored in memory
- Managing patients
- Learning from supervision
- Having errors corrected
- Receiving feedback

CenMEDIC
CHARACTERISTICS OF LEARNING FROM PRACTICE 2

Making teaching points during the course of service

Presentation and summarising

Listening to experts’ explanations

Observing experts working

‘Picking things up’

Role models

Charismatic influences

Learning from teamwork interactions

Learning clinical methods from practice

Hearing consultants thinking aloud

Being questioned about patients, thought & actions

Thinking about practice and patients

Macdonald 1997
ONE MORE THING……

Professionalism is ultimately learned from role models in practice…..
IMPORTANT FEATURES OF PROFESSIONAL LEARNING

- clinical work and responsibility
- close senior-trainee relationship
- feedback on performance
- appropriate role models
Situated learning allowing controlled legitimate peripheral participation in communities of practice for the transmission and development of tacit learning and tacit knowledge
REMEMBER THE STORY OF THE PLAY

Peripheral participation with limited responsibility while the knowledge and skill base is built

Gradually becomes

Central participation with full overall responsibility
AND SO COMPETENCE IS GUARANTEED
Science base
Clinical skills
Practice context
Academic development
Professional development

Educational excellence