Understanding Medical Education

EVIDENCE, THEORY AND PRACTICE

EDITED BY

Tim Swanwick

WILEY-BLACKWELL

ASME
Association for the Study of Medical Education

Contents

List of Contributors

Foreword

Preface

Introduction: Understanding Medical Education

1 Principles of curriculum design

- Introduction
- What Is Curriculum? Definition and Standards
- Factors that Influence Curriculum Design
- The Purpose and Components of Curriculum Design
- Steps in Curriculum Design
- References

2 Teaching and learning in medical education: how theory can inform practice

- Introduction
- Adult Learning Principles
- Social Cognitive Theory
- Reflection and Reflective Practice
- Transformative Learning
- Self-directed Learning

Experiential Learning
Situated Learning
Communities of Practice
Connections
Acknowledgement
References

3 Problem-based learning
What Is Problem-based Learning?
Problems
Facilitators/Tutors
Small Groups
Resources
Organisation and Grading
Student Evaluation
The Theoretical Basis for Problem-based Learning
Effectiveness of PBL
Summary
Acknowledgements
References
Further Reading

4 Interprofessional education
Introduction
Defining Interprofessional Education
The Rationale for Interprofessional Education
The Diversity of Interprofessional Education
Designing Effective Interprofessional Education
Interprofessional Education and the Curriculum

Delivering Effective Interprofessional Education
The Role of Facilitation
The Assessment of Interprofessional Education
Tidal Flows in Interprofessional Education
Acknowledgements
References
Further reading

5 Work-based learning
Introduction
The Changing Landscape of Medical Education and Training
The Current State of Work-based Learning in Medical Education
Learning and Work
Theories of Social Learning
Curriculum and Work-Based Learning A Complex Relationship
Implications for the Clinical Teacher
Challenges to Work-based Learning in Medical Education
Developing and Promoting Work-based Learning
Conclusion
References
Further Reading

6 Learning medicine from the humanities
Introduction
Helping Students to Learn from the Humanities

Finding the Balance between the Science and the Art
Meeting Curricula Requirements
A Curriculum for the Medical Humanities?
Course Design and Assessment
Programme Evaluation and Research Opportunities
Creating the Right Environment
Resources
Conclusion
References

7 Portfolios, personal development and reflective practice
Contents of a Portfolio
Purposes of Portfolios in Medicine and Nursing
Assessment through Portfolios
Reflective Practice and Professional Development
An Interpretive Approach to Portfolio Assessment
Conclusions
Acknowledgement
References

8 Supervision, mentoring and coaching
Introduction
What Does Supervision Mean?
What Is Supervision For?
Cases, Contexts, Careers the Three Domains Covered by Supervision

Types of Supervision
Conceptual Frameworks for Supervision
Common Tensions in Supervision
Raising the Profile of Supervision Changing the Culture of Medicine
Acknowledgements
References

9 Teaching and leading small groups
Introduction
The Learner Experience
What Constitutes a Small Group?
Housekeeping
The Role of the Tutor
Getting Started
Techniques to Use in Small Groups
Group Dynamics
The Interprofessional Group
Dealing with Difficult Group Members
Exploring Boundaries
Frequently Asked Questions
Summary
References
Further Reading

10 Lectures and large groups
Introduction
Clinical Knowledge
Communities of Practice

Lectures and Learning
Putting Theory into Practice
Conclusion
References
Further Reading

11 e-Learning
Introduction
Computer-based Teaching†
Hypertext or Online Reading Resources
Computer-aided Learning
Simulations
Intelligent Tutoring Systems
Learning Styles and e-Learning
Workplace-based Learning and Continuing Professional Development
Virtual Learning Environments
Blended Learning
Tasks and Activities in Virtual Learning Environments
New Developments
Conclusions
References
Further Reading
Web Links to Further Information

12 Simulation in medical education
Introduction
A Brief Historical Perspective

What Is ‘Simulation’?
Why Use Simulation?
Fidelity of Simulation
Classification of Simulators and Simulations
The Theoretical Basis of Simulation
Feedback in Simulation
Practical Approaches to Teaching, Learning and Assessment Using Simulation
Transferability
Limitations to Simulation
The Future of Simulation
References

13 Patient involvement in medical education

Introduction
Patients, Users and Consumers
Context of Patient Involvement
Scope of Patient Involvement
Levels of Patient Involvement
Benefits and Disadvantages
Principles and Practice
Areas for Further Research
Conclusions
Acknowledgements
References

14 How to design a useful test the principles of assessment

Introduction
What Is Assessment?
How to Choose the Best Approaches to Assessment
Popular Assessment Instruments
Combining Assessment Methods
Standard Setting
Future Directions
Epilogue
References

15 Written examinations

Introduction
Assessment in the Curriculum
Knowledge, Reasoning and Written Assessment
Formats of Written Assessment
Item Analysis
Standard Setting for Written Assessments
Summary
Acknowledgements
References
Further Reading

16 Workplace assessment

Introduction
A Framework for Assessment Based on Observation
Common Methods
Portfolios

Influence on Learning
Faculty Development
Challenges for Workplace-based Assessment
Summary
Acknowledgements
References

17 Structured assessments of clinical competence
Introduction
The Long Case
Objective Structured Long Case Examination Record
Short Cases
Objective Structured Clinical Examinations
OSCE Design
Conclusions
Acknowledgement
References

18 Formative assessment
Introduction
Characteristics of Formative Assessment
Teacher Perspectives
Student Perspectives
Feedback
Formative Assessment in the Curriculum
Hospital clinical placements
Conclusion

References

19 Self-regulated learning in medical education

Introduction
A Model for Self-Regulated Learning
Conclusion
Acknowledgement
References
Further Reading

20 Thinking about research frameworks, ethics and scholarship

Introduction
What Is Research?
Theoretical Frameworks in Education and the Social Sciences
Theoretical Perspectives in Research
Positivism
Post-Positivism
Critical Theory and Related Ideological Positions
Constructivism
Participatory Action Research
Reconciling and Combining Research Frameworks
Practical Considerations When Starting Research
Ethics in Research
Scholarship
Conclusions
Acknowledgements

References
Further Reading

21 Quantitative research methods in medical education
The Quantitative Paradigm
The Research Question
Research Designs
The Experimental Tradition
The Epidemiologic Tradition
The Psychometric Tradition
The Correlational Tradition
Scoring
Cronbach’s ‘Two Disciplines’
Reviews
Discussion
References
Further Reading

22 Qualitative research methods in medical education
The Paradigm and Purpose of Qualitative Research
Qualitative Research Approaches
Qualitative Research Tools
Principles of Rigour
Conclusions
References
Further Reading

23 Evaluation improving practice, influencing policy

- Introduction
- What Is Evaluation?
- Definitions Evaluation, Assessment and Appraisal
- Purposes of Evaluation
- Conceptual Models in Evaluation
- Evaluation or Research?
- Formative and Summative Evaluation
- Sources of Evaluation Evidence
- Evaluation Methods
- Designing Questionnaires for Evaluation
- Evaluation Results Implementation and Influence
- Pitfalls in Educational Evaluation
- Conclusion
- Examples of Evaluations in Medical Education
- References
- Further Reading

24 Selection for medical education and training

- Introduction
- International Perspectives on Medical Selection
- The Selection Process Design, Evaluation and Research
- Selection methods
- Recommendations for Future Research
- References
- Further Reading

25 Managing remediation

- Introduction
- From Assessment to Remediation
- Principles Underpinning Success
- Getting Started
- What’s Next?
- Digging Deeper
- Delivering Remediation
- Pitfalls and Problems
- References

26 Quality in medical education

- Introduction
- Quality in Medical Education
- Preparation for Practice
- Postgraduate Medical Education
- Continuing Medical Education
- Experiences in Teaching and Learning
- Discourses of Quality
- Conclusion
- Acknowledgements
- References

27 Dealing with diversity

- Introduction
- Defining Diversity
- Diversity in Organisations
- The Socio-political Context
- Disability

Cultural Diversity
Diversity in Medical Education
Teaching and Training
Conclusions
References
Web-based Resources

28 Developing medical educators a journey, not a destination
Introduction
Who Is a Medical Educator?
What is Staff Development?
A Curriculum for Staff Development?
How Can We Develop Medical Educators?
What Is Known about Effectiveness?
What Theoretical Frameworks Can Guide the Development of Medical Educators?
How Should We Design a Staff Development Programme?
Conclusion
Acknowledgements
References

29 Educational leadership
Introduction
Leadership and Management
A Brief History of Leadership
Educational Management and Leadership
Leading Teams

Leading Change
Strategic Planning
Leading Improvement and Getting Results
Challenges for Healthcare Education Leaders
Leadership Development
Summary
References
Further Reading

Index

Understanding Medical Education

Evidence, Theory and Practice

EDITED BY

Tim Swanwick

London Deanery
London, UK

A John Wiley & Sons, Ltd., Publication

This edition first published 2010, © 2010 by The Association for the Study of Medical Education

Blackwell Publishing was acquired by John Wiley & Sons in February 2007. Blackwell's publishing program has been merged with Wiley's global Scientific, Technical and Medical business to form Wiley-Blackwell.

Registered office: John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

Editorial offices: 9600 Garsington Road, Oxford, OX4 2DQ, UK

The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

111 River Street, Hoboken, NJ 07030-5774, USA

For details of our global editorial offices, for customer services and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com/wiley-blackwell

The right of the author to be identified as the author of this work has been asserted in accordance with the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by the UK Copyright, Designs and Patents Act 1988, without the prior permission of the publisher.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names,

service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

Library of Congress Cataloging-in-Publication Data

Understanding medical education: evidence, theory, and practice / edited by Tim Swanwick. – 1st ed.

p. ; cm.

Includes bibliographical references and index.

ISBN 978-1-4051-9680-2 (pbk.)

1. Medicine–Study and teaching. I. Swanwick, Tim. II. Association for the Study of Medical Education.

[DNLM: 1. Education, Medical–methods–Collected Works. 2. Education, Medical–organization & administration–Collected Works. W 18 U55 2010]

R845.U53 2010

610.76–dc22

2010013901

First edition 2010

List of contributors

Mark A. Albanese
Director of Research
National Conference of Bar Examiners;
Professor Emeritus
Departments of Population Health Sciences and Educational Leadership and Policy Analysis
School of Medicine and Public Health
University of Wisconsin-Madison
Madison, Wisconsin, USA

Antony Americano
Director of Corporate Services
London Deanery
University of London
London, UK

Janet Askham
Research Director
Picker Institute Europe
Oxford, UK

Dinesh Bhugra
Professor of Mental Health and Cultural Diversity
Institute of Psychiatry, King’s College London;
Honorary Consultant at the Maudsley Hospital
London, UK

David Blaney
Chief Executive of ASME;
Undergraduate Dean, Hull York Medical School
York, UK

Alan Bleakley
Professor of Medical Education

Peninsula Medical School
Plymouth, UK
Katharine A.M. Boursicot
Reader in Medical Education
Barts and the London;
Reader in Medical Education and Head of Assessment
Queen Mary's School of Medicine
London, UK
Paul Bradley
Director of Clinical Skills
Peninsula Medical School
Plymouth, UK
Julie Brice
Academic Support Manager
Peninsula College of Medicine and Dentistry
Plymouth, UK
Graham Buckley
Chairman, ASME
Edinburgh, UK
Bill P. Burdick
Associate Vice President for Education
Foundation for Advancement of International Medical Education and Research;
Co-Director
FAIMER Institute;
Clinical Professor of Emergency Medicine
Drexel University College of Medicine
Philadelphia, Pennsylvania, USA
Deborah Cohen
Senior Clinical Medical Research Fellow
Individual Support Programme, School of Medicine
Cardiff University
Wales, UK

Ian Cooper
Language and Communications Specialist
Individual Support Programme
School of Medicine
Cardiff University
Wales, UK
Oonagh Corrigan
Senior Lecturer in Clinical Education Research
Peninsula Medical School
Plymouth, UK
Kate Ellis
Academic Standards and Policy Officer
Peninsula College of Medicine and Dentistry
Plymouth, UK
Kevin Eva
Associate Professor and Associate Chair
Department of Clinical Epidemiology and Biostatistics
McMaster University
Hamilton, Ontario, Canada
Editor of the Wiley-Blackwell journal, *Medical Education*
Martyn Evans
Professor of Humanities and Principle
John Snow College, Durham University
Durham, UK
Eamonn Ferguson
Professor of Health Psychology
University of Nottingham
Nottingham, UK
Della Freeth
Professor of Professional Education
Queen Mary University London
London, UK
Jill Gordon

Professor of Medical Education
Medical Humanities Unit
Centre for Values, Ethics and Law in Medicine
University of Sydney
Sydney, Australia
Janet Grant
Professor of Education Medicine and Director
Open University Centre for Education in Medicine
Milton Keynes, UK
Larry D. Gruppen
Chair
Department of Medical Education
University of Michigan Medical School
Ann Arbor, Michigan, USA
Jan Illing
Head of Medical Education Research Group
Durham University
Durham, UK
Brian Jolly
Director
Centre for Medical and Health Sciences Education
Monash University
Melbourne, Australia
David M. Kaufman
Professor, Faculty of Education
Director, Learning and Instructional Development Centre
Simon Fraser University
Burnaby, British Columbia, Canada
Tara J. Kennedy
Assistant Professor
Department of Pediatrics
University of Toronto
Toronto, Ontario, Canada

Jean Ker
Director
Clinical Skills Centre;
Senior Lecturer in Medical Education
University of Dundee
Dundee, Scotland, UK
John Launer
Associate Director
London Deanery
London, UK
Lorelei Lingard
Professor, Department of Medicine
Director, Centre for Education Research and Innovation
Schulich School of Medicine and Dentistry
The University of Western Ontario
London, Ontario, Canada
Bridget Lock
Director of Medical Education
Princess Royal University Hospital
Farnborough, UK
Andrew Long
Associate Dean
London Deanery;
Officer for Assessment
Royal College of Paediatrics and Child Health
London, UK
Karen V. Mann
Professor
Division of Medical Education
University of Manchester
Manchester, UK
Clare Morris
Associate Dean

Bedfordshire and Hertfordshire Postgraduate Medical School
University of Bedfordshire
Luton, UK
Peter McCrorie
Professor and Head
Centre for Medical and Healthcare Education
St George's, University of London
London, UK
Jean McKendree
Senior Lecturer in Medical Education
Hull York Medical School
Hull, UK
Judy McKimm
Associate Professor and Pro Dean (Health and Social Practice)
Unitec, New Zealand
John J. Norcini
President and CEO
Foundation for Advancement of International Medical Education and Research
Philadelphia, Pennsylvania, USA
Geoff Norman
Professor of Clinical Epidemiology and Biostatistics
McMaster University
Hamilton, Ontario, Canada
Fiona Patterson
Director
Organisational Psychology Research Team
City University
London, UK
John Pitts
Retired, formerly
Associate Director in Educational Research

NHS (Severn and Wessex Deanery);
Honorary Research Fellow
University of Winchester
Winchester, UK
Trudie E. Roberts
Head of the School of Medicine and
Director of the Medical Education Unit
University of Leeds
Leeds, UK
Melody Rhydderch
Occupational Psychologist
Individual Support Programme
School of Medicine
University of Cardiff
Wales, UK
Lambert W.T. Schuwirth
Associate Professor for Assessment of Medical Competence and Performance
University of Maastricht
Maastricht, The Netherlands
John Spencer
Professor in Medical Education in Primary Health Care and Education Development
University of Newcastle
Newcastle, UK
Yvonne Steinert
Associate Dean for Faculty Development
Director of the Centre for Medical Education;
Professor of Family Medicine
McGill University
Montreal, Quebec, Canada
Cees P.M. van der Vleuten
Scientific Director

School of Health Professions Education
University of Maastricht
Maastricht, The Netherlands
David Wall
Deputy Regional Postgraduate Dean
West Midlands Deanery;
Professor of Medical Education
Staffordshire University
Stoke-on-Trent, UK
Casey B. White
Assistant Dean for Medical Education
Assistant Professor of Medical Education
University of Michigan Medical School
Ann Arbor, Michigan, USA
Diana F. Wood
Director of Medical Education and Clinical Dean
School of Clinical Medicine
University of Cambridge
Cambridge, UK

Foreword

Education and learning have always been important parts of medicine-how we learn, how we assist learning and how we can best continue to learn, are all components of the process. Over the centuries these processes have changed radically; from essentially book learning and observation, to the introduction of anatomy and the formal study of the human body, through the development of the process of clinical examination, backed up by pathology to the beginning of laboratory work.

The complexity of modern medicine has added a much greater dimension to the learning. As the determinants of disease become clearer so the range of topics to cover and understand grows. Thus in addition to understanding the molecular basis of illness there is a need to consider social and economic issues in determining health, lifestyle choices, and the environment, and the wider public health.

How do we put all of this together? How do we develop a curriculum? How much needs to be learned at each stage of the process? And how do we assess the progress of the student and doctor? How do we ensure that we keep practice up to date and that continuing learning becomes an in built part of medical practice? How do we build it into our genes? How can we use the new learning technologies such as e-learning and simulation to best effect?

In addition to all of this we have seen a resurgence of interest in education itself and real wish to understand more fully the principles and practices involved. This requires the development of research tools and methods of assessment if we are to take learning to an even higher plane.

Patients, and the public, are central to this, in two ways. First and foremost, the purpose of all of this is to help

patients and their families deal with illness, the consequences of the diagnosis and the effects of treatment. Communication skills are key to this. The role of the doctor is to act as a healer and this requires a wide range of skills which are regularly updated and reviewed. Patients also point the way for us in the aspects of clinical practice.

The second role of the patient is to help the student or the doctor in the learning process. Increasingly patients give their time and skills to help us do better and we should recognise how much they contribute the education of the profession.

This splendid book covers these topics and many more. It makes the process of learning and assessment readily accessible and should stimulate new ideas and better ways of improving the care we give to patients and the public.

Sir Kenneth C. Calman
Chancellor
The University of Glasgow