e LEARNING for undergraduate health professional education

A systematic review informing a radical transformation of health workforce development

Edited by: Najeeb Al-Shorbaji, Rifat Atun, Josip Car, Azeem Majeed, Erica Wheeler

Imperial College London

World Health Organization

e LEARNING for undergraduate health professional education

A systematic review informing a radical transformation of health workforce development

Edited by: Najeeb Al-Shorbaji, Rifat Atun, Josip Car, Azeem Majeed, Erica Wheeler

Imperial College London

World Health Organization

WHO Library Cataloguing-in-Publication Data

eLearning for undergraduate health professional education: a systematic review informing a radical transformation of health workforce development / edited by Najeeb Al-Shorbaji ... [et al.].

1.Health Personnel – education. 2. Education, Medical, Undergraduate. 3.Computer-Assisted Instruction – methods. 4.Education, Distance – methods. 5.Review. I.Al-Shorbaji, Najeeb. II.Atun, Rifat. III.Car, Josip. IV.Majeed, Azeem. V.Wheeler, Erica.

ISBN 978 92 4 150826 1 (NLM classification: W 18)

© World Health Organization 2015

All rights reserved. Publications of the World Health Organization are available on the WHO website (www.who.int) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int).

Requests for permission to reproduce or translate WHO publications –whether for sale or for non-commercial distribution– should be addressed to WHO Press through the WHO website (www.who.int/about/licensing/copyright_form/en/index.html).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

The named editors alone are responsible for the views expressed in this publication.

Design and layout: L'IV Com Sàrl, Villars-sous-Yens, Switzerland.

Printed in Switzerland.

Contents

v **Foreword**

vi **Contributors**

viii **Acknowledgements**

ix **Abbreviations**

x **Glossary**

xii **Executive summary**

1 **Part 1. Introduction, aims and methods**

3 **Chapter 1. About this report**
3 Aims and scope
3 Background and terminology
6 Structure of the report

9 **Chapter 2. Methods**
9 Search strategy
9 Inclusion criteria
9 Study selection and data collection
9 Summarizing the data

11 **Part 2. Subject matter**

14 **Chapter 3. Non-networked computer-based eLearning**
14 Findings
24 Discussion

30 **Chapter 4. Internet and local area network-based eLearning**
30 Findings
40 Discussion

47 **Part 3. A broader perspective**

49 **Chapter 5. Potential advantages and disadvantages of eLearning**
49 Advantages and disadvantages perceived by learners
50 Advantages and disadvantages perceived by the educational provider
50 Advantages and disadvantages in relation to teaching philosophy

54 **Chapter 6. Critical success factors for the implementation and adoption of eLearning interventions**
54 Analytical framework background
55 Instructional systems design and curriculum development
56 Organizational setting
57 Technological infrastructure

61 **Chaper 7. Strategies to introduce eLearning equitably and effectively**
61 Systems approach
61 Building eLearning into the education workforce
62 eLearning ownership and responsibility
62 Maximize technology within the existing infrastructure
63 eLearning policies

64 **Chapter 8. Institutionalizing and sustaining eLearning**
64 Institutionalization: key concepts
65 Organizational transformation and change strategies
67 Financing
68 Cost-effectiveness

71 **Chapter 9. Quality of eLearning**
71 What is quality of education?
73 Applying the concepts of quality to eLearning

77 **Part 4. Discussion, conclusions and future directions**

79 **Chapter 10. Summary of key findings**
79 Studies comparing eLearning to traditional learning
80 Studies comparing different modalities of eLearning

81 **Chapter 11. Strengths and limitations of the systematic review**
81 Strengths
81 Weaknesses and limitations

83 **Chapter 12. Contextualizing the findings in wider literature**
83 Non-networked computer-based eLearning
85 Internet and local area network-based eLearning

88 **Chapter 13. Practice and policy implications**

90 **Chapter 14. Gaps in the available evidence and recommendations for future research**

92 **Appendices**

92 Appendix 1. Formative work on eLearning and blended learning
106 Appendix 2. Systematic review methods
109 Appendix 3. Search strategy for use in MEDLINE (Ovid SP)
110 Appendix 4. Results of the electronic searches
111 Appendix 5. PRISMA flow diagrams
113 Appendix 6. Fields included in the data extraction form
117 Appendix 7. Characteristics of included studies

Foreword

A defining feature of health systems in the 21st century will be the capacity to respond to populations' needs, while at the same time anticipating future scenarios and effectively planning for evolving requirements. Nowhere is this more apparent than in the health workforce domain: a fundamental mismatch exists between supply and demand in both the global and national health labour markets, and this is likely to increase due to prevalent demographic, epidemiologic and macroeconomic trends.

Unchecked loss of health workers due to attrition and migration, maldistribution within countries, absolute deficits in some low- and middle-income countries, uneven quality and performance of the health workforce, outdated training models and an over-reliance on cadres focusing on curative services in secondary and tertiary care settings are some of the most common health workforce challenges hindering efforts to attain global and national health objectives. At the same time, we have better evidence than ever before on effective solutions. For instance, it is widely recognized that what, how and where students are taught and who educates and trains the health workforce are major factors in determining the readiness and resilience of a health system, including the capacity to produce the adequate types and number of health workers, to equip them with the required competencies, and to deploy and retain them where they are most needed.

The scope and magnitude of the health workforce challenges we face require both greater investment and more effective and strategic use of available resources: in this context, it becomes necessary to fully exploit the potential of innovative approaches and new technologies to health workforce education, deployment and management.

We live in an era where technology is enabling us to gain knowledge at a speed formerly inaccessible. Information and communication technology (ICT) in particular, is an effective enabler to improve the health of populations, both directly and through improved health workforce capacity and accessibility.

The Department of Health Workforce in collaboration with the Department of Knowledge, Ethics and Research commissioned this report to provide countries with evidence to inform and guide the adoption of innovative, technology-enabled models into health professional education, so as to augment capacities to scale up production, enhance quality and relevance of training, and adopt equity-focused policies.

The analysis identifies the different forms of ICT that are used to deliver undergraduate health professional education and evaluates the effects of both networked and non-networked computer-based eLearning on students' knowledge, skills, attitudes and satisfaction. It provides insight into advantages and disadvantages of eLearning and an overview of how the quality of eLearning can be measured. Importantly, it identifies and discusses the critical success factors for the implementation and adaptation of eLearning interventions, as well as strategies to equitably and effectively introduce, institutionalize and sustain eLearning.

Furthermore, the report demonstrates the need to strengthen mechanisms at the country level between health workforce institutions of higher learning and ministries of health and education, in order to support quality education across an increasing number of health professionals.

eLearning has an under-exploited potential to support health workforce capacity building in different contexts, and can empower health workers to take charge directly of their own competency development, to enable them to play a full role as change agents in addressing the challenges we will face in the 21st century.

Contributors

Professor Rifat Atun ● Professor of Global Health Systems, Department of Global Health and Population, School of Public Health, Harvard University, Boston, MA, USA

Delia Beck ● Research Assistant, Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Dr José Marcano Belisario ● Research Assistant and PhD candidate, Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Associate Professor Josip Car ● Director of Health Services and Outcomes Research Programme, LKC Medicine, Nanyang Technological University and Director of Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Živa Cotic˘ ● Research Assistant, Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Dr Pradeep Paul George ● Principal Research Analyst, Health Services and Outcomes Research, National

Professor Janko Kersnik ● Professor of Family Medicine, Department of Family Medicine, Faculty of Medicine, University of Maribor, Maribor, Slovenia

Dr Holger Kunz ● Teaching Fellow, Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Corinna Lamberti ● Undergraduate student, Department of Life Sciences, Imperial College London, London, United Kingdom

Ye Li ● Postgraduate student, Department of Integrated Early Childhood Development, Capital Institute of Paediatrics, Beijing, China

Stewart Lee Loong ● Research Assistant, Global eHealth Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom

Professor Azeem Majeed ● Professor of Primary Care, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom National Healthcare Group Singapore, Singapore

Eve-Marie Musulanov ● IT Research Support Officer

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_27586