African Health OER Network

Impact Study

June 2012

TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS

CET	Centre for Educational Technology
DeCoDe	Department of Communication Design
HEALTH	Higher Education Alliance for Leadership Through Health
ICT	Information and Communication Technology
KNUST	Kwame Nkrumah University of Science and Technology
MBChB	Bachelor of Medicine, Bachelor of Surgery
MPH	Masters in Public Health
OER	Open Educational Resource/s
OERA	OER Africa
OEP	Open Educational Practices
PDF	Portable Document Format
PG	Postgraduate
PPT	PowerPoint
Saide	South African Institute for Distance Education
SOPH	School of Public Health
ToR	Terms of Reference
UCT	University of Cape Town
UG	University of Ghana
U-M	University of Michigan
UWC	University of the Western Cape

African Health OER Network Impact Study

BACKGROUND AND OVERVIEW

The length of this report is due, in part, to the wide-ranging compass of impact. Because of length, some of the supporting documentation that would normally be integrated in the main report has been collated in an Annexure comprising a separate document. For the same reason, in addition to the overlap and repetition it would introduce, an executive summary is not included. In matters of substance, the Conclusion covers what would have been in an executive summary had there been one. In matters of detail, each section addressing a major indicator has a concluding summary. Sections 2 and 3 provide detail of the research questions, methodology and data collection. For the rest – the bulk of this report – the detail will hopefully provide an accountable basis for conclusions that are reached, and for alternative conclusions readers of the entire report may reach.

1. THE AFRICAN HEALTH OER NETWORK AND PROJECT EVALUATION

1.1 PROJECT BACKGROUND

The African Health OER Network (hereafter also 'the Network') is a sub-programme of OER Africa. The Network seeks to enable participants to develop, adapt and share health educational resources to augment limited human and other resources in the health sector, and thereby to impact positively on overall health provision in Africa and beyond.

The Network is co-facilitated by OER Africa, an initiative of the South African Institute for Distance Education (Saide), and the University of Michigan (U-M). Since 2008, the following partners to the Network have been engaged in OER development:

- Kwame Nkrumah University of Science and Technology (KNUST).
- University of Ghana (UG).
- University of Cape Town (UCT).
- University of the Western Cape (UWC), with the project functioning independently in two different units, namely, the Faculty of Dentistry and the School of Public Health (hereafter also referred to as 'UWC Dentistry' and 'UWC SOPH' respectively).

OER Africa and U-M's strategy for growing the African Health OER Network by forming partnerships with existing health consortia has been accompanied by new institutions participating in the Network. Varying degrees of progress have been achieved with the Kamuzu College of Nursing at the University of Malawi and the Arua Comprehensive School of Nursing in Muni, a new public university in the West Nile region of Uganda. Collaboration with the seven institutions of the East Africa HEALTH Alliance carries promise of wide-reaching impact (see Section 11 for detail of the alliance).

Largely funded by the William and Flora Hewlett Foundation, the Network has evolved over three distinct phases:

1) **Pilot Phase (2008)** – A six-month grant enabled U-M to bring together health science institutions from across Africa to discuss opportunities for advancing health education using African-produced openly licensed educational materials.

2) **Design Phase (2009)** – The six founding members received a joint one-year grant to initiate health OER initiatives within the four African universities and to encourage collaborative authoring of materials between institutions.

3) **Network Phase (2010–12)** – The grant was renewed with the objective of scaling the health OER initiatives within each university and to systematically draw in more African and, eventually, global participants.

On the basis of the Evaluation Brief, a document study and a series of interviews were carried out between September and November 2010. This report reflects the status of the project as it was at the end of December, 2010.

1.2 PROJECT EVALUATIONS AND THE CURRENT IMPACT STUDY

The current impact study follows on from two earlier evaluations of the project.

A formative evaluation of the Design Phase completed at the end of 2009 focused mainly on OER 'take-up' and production in the partner institutions (OER Africa 2009). This evaluation concluded that expectations and contractual targets had been met, or exceeded by an impressive margin, with project coordinators and participants in each partner institution having engaged OER in creative ways that were most appropriate to their own contexts.

The second evaluation, a mid-term evaluation titled 'Phase 2 Evaluation: Consolidation and Sustainability' (OER Africa 2011), reinforced the finding that individual and institutional participants in the project had made significant progress in producing OER as well as in developing OER-supportive policy environments. This they had done in their own distinctive ways, in a manner that was consistent with their own ethos, contextual realities, strategies and resources. OER creations and OER policy had thus been developed in logically 'grounded' ways. Project conceptualization and follow-through reflected a respect for institutional autonomy and the encouragement of progress built on grounded needs and possibilities. Project support had been consistent with institutional needs and choices. In complementary ways, project participants and project management alike had been resourceful in exploiting and making the most of opportunities. The concept of OER accordingly had *credibility* in partner institutions. The evaluation argued that credibility was enabling institutions to utilise their own resources to support OER in ways that contribute to the *viability* of OER production. This was encouraging in terms of sustainability.

With the African Health OER Network grant drawing to the end of its three-year period, an impact evaluation was scheduled for completion by the end of May 2012 (African Health OER Network 2011).

> The goal of the evaluation research is to assess the impact and value of the Network. The potential audience includes: funders, existing and potential institutional partners, OER creators and users, networks of African health education providers, and the international OER community. (Saide & U-M 2011: 2)

1.3 DISTINCTIVE FORMS OF OER DEVELOPMENT IN PARTNER INSTITUTIONS

Although the current evaluation focuses on the impact of the Network itself, rather than its constituent institutions, institutional differences form a necessary backdrop to overall impact. Table 1 (below), reflecting institutional-specific approaches to OER development, is a consolidated version of tables in the 'Consolidation and Sustainability' evaluation report of 2011 (African Health OER Network 2011).

Table 1: Distinctive forms of OER development in partner institutions

Issue	UG	KNUST	UCT	UWC Dentistry	UWC SOPH
Prior orientation to OER	OER was introduced as a new concept to the health sciences.	OER was introduced as a new concept to the health sciences.	Prominent individual academics were already active e-learning/OER producers.	OER was introduced as a new concept to the faculty.	Two resources were available as OER prior to the African Health OER Network.
Development of OER policy	Started 'from scratch'; Mainly top down – led by provost.	Started 'from scratch'; Mainly top down – led by provost.	Both top down and bottom up; Formalization of existing, on-the-ground developments.	There were no substantive institutional driving forces to operationalize UWC's open courseware policy, which remained largely symbolic.	
Development of OER materials	Started 'from scratch' in tandem with policy development.	Started 'from scratch' in tandem with policy development.	Most OER were based on lecture materials developed prior to and during the African Health OER Network.	Started 'from scratch'; OER creation was disconnected from policy development.	OER development was informed by significant existing expertise in materials development for distance education.
Production process	Division of labour: academics provide the content and the script; Technical and media specialists create the OER.	Division of labour: academics provide the content and the script; Technical and media specialists create the OER.	Production is undertaken by academics, with all processes kept as close as possible to the academics, who have access to technical support, as needed.	Production is self-directed by individual academics, with little or no institutional support.	Production is by academics (some on contract), with little or no institutional support; Teamwork is a strong feature.

Issue	UG	KNUST	UCT	UWC Dentistry	UWC SOPH
Pedagogy	Academics and a multimedia expert develop and revise the OER.	Instructional techniques are based on the 'ADDIE' model of instructional design.	Faculty had moved earlier to a 'structured' problem-based learning pedagogy.	Determined by individual OER creators working mainly on their own.	Sophisticated case study approach with strong contextual grounding.
Monitoring of OER quality	A department-based review mechanism following liaison and monitoring within the production line.	A department-based review mechanism following liaison and monitoring within the production line.	'Pride of ownership' principle with "light moderation" (mainly for copyright issues) at the Centre for Educational Technology (CET).	Undertaken by line management.	Quality 'inside' rather than 'on top'; Teamwork: two education specialists write up all materials.
Role of the Network project	*Initiated* a new paradigm.	*Initiated* a new paradigm.	*Complemented* existing initiatives and developments.	*Initiated* a new paradigm.	*Added* an open licensing dimension to existing resource-based teaching.
Faculty staff awareness of the Network	High – the Network is the dominant/sole force in promoting OER.	High – the Network is the dominant/sole force in promoting OER.	Low – many projects on the go; Multiple sources of funding.	High – the Network is the dominant/sole force in promoting OER.	High – the school is reliant on a range of funders for production of materials.

As will be evident in the global picture that follows, institutions – with one exception – have progressed still further in consolidating OER development. Appendix 4 provides updated lists of OER produced by the African Health OER Network partners.

The partial exception to OER moving towards normativity in partner institutions is UWC (Dentistry), whose withdrawal from the project was confirmed on 22 June 2011.[1] While the experience of this faculty provides a useful 'counter' case for deliberation on the nature of effective infrastructure for OER development, this does not imply that impact on the Faculty of Dentistry and its students has been lost. UWC Dentistry staff who had originally engaged with OER remain OER champions, and continue work on OER production. More significantly, the faculty now sees itself as a *user*, rather than a *producer*, of OER.

---

[1] Letter from U-M senior contract administrator to the School of Dentistry, 22 June 2011.

2. IMPACT STUDY: RESEARCH QUESTIONS AND RESEARCH DESIGN

2.1 FORMAL QUESTIONS FOR MEASURING IMPACT OF THE NETWORK

Terms of Reference (ToR) for the impact study (Saide & U-M 2011: 3) specify the following research questions:

1) Is there clear evidence that the published OER are being used by students?

2) Is there any evidence that partner institutions are proactively starting to use OER produced outside of the Network in their programmes? Can this use be linked to what we have done?

3) Is there any evidence that the quality of teaching and learning at partner institutions has improved due to the investments in producing and using OER? Can we establish any link to improved learning outcomes at any institutions?

4) What have been the relative financial implications of OER compared to proprietary approaches of publishing and content development, both in terms of delivering education in universities and in terms of producing educational resources?

5) Is there any evidence of any non-partner institutions having found and used the products from the Network?

6) What is the impact of OER on academics' career development?

7) What is the effective social and technical institutional infrastructure to support OER production and use?

8) What is an effective cross-institutional collaboration model for OER production (Luo, Ng'ambi & Hanss 2010)?

With respect to research methods, the ToR further specify the collection of both qualitative and quantitative data through a variety of methods, including the following:

1) In-person semi-structured interviews with faculty, staff and students at partner and other institutions;
2) Online surveys of faculty, staff and students at partner institutions;
3) A public online survey available on the OERA website;
4) Document analysis of completed OER, policies, meeting notes, press releases, websites, student reflections on using OER etc.; and
5) Web analytics from Google, YouTube, the OERA website, and the U-M website.

An annexure titled 'Outcomes and associated targets, audiences and data sources' formed an additional part of the ToR. This document appears in completed form with notes and outcomes in Section 3 of the current document.

As part of the process of translating formal aims into procedures and action steps, a draft version of the proposed research design was circulated among project management and participating institutions at the beginning of February 2012. After minor amendments, the draft was finalized at the end of that month.

2.2 IMPACT RESEARCH DESIGN

The ToR correctly note that, with so many data sources, "we must be mindful to carefully hold all of these activities and outcomes together in terms of drawing inferences and conclusions from disparate kinds of data". The research questions can be condensed as follows:

(a) ***Web-based and web-derived statistics on OER production and use within and across Network institutions, and OER 'take-up' at other sites****:* Quantitative data in the project metrics table in Section 3 reflect *the outcomes of project outputs and the scale of project impact.*

(b) ***Interviews with staff, students and university management****:* The largely qualitative data derived from interviews provide a basis for understanding the *'what', 'how', and 'why' of project impact* on teaching and learning and on the individuals involved in these processes.

These quantitative and qualitative methodologies complement each other well. In the form of metrics, the former make project developments transparent and accountable. However, as "information should not be confused with judgment" (Ebrahim & Rangan 2010: 9), the qualitative data serve to overcome the limitations of purely quantitative measurement by providing an expanded, more nuanced basis for judgement. It is here that project participants and others whom the project has reached have the opportunity to speak for themselves.

Project documents and other websites provide additional data to support judgements. Table 2 (below) aligns sources of qualitative data with each of the eight research questions/aspects. These questions/aspects have been resequenced to align them with OER impact across different domains.

Table 2: Evaluation design: alignment of qualitative research questions with sources of data

OER impact in	Research question/aspect	Sources of data	The scale of project impact
Participating institutions	1. Student use of OER	Personal accounts of students and recent graduates in the health science faculties	Information (mainly quantitative) from document analysis and statistics from outcome indicators listed in Section 3.
	2. Quality of teaching and learning	Impressions and judgements of students, academic staff and university management	
	3. Impact of OER on academics' career development	Personal accounts of academic staff and university management; institutional policy	
	4. Relative financial implications of OER	Informed estimates by academic staff and university management	
	5. Use of OER produced *outside* of the Network in programmes	Personal accounts of academic staff and students	
Cross-institutional domain	6. Non-partner institutions using OER from the Network	OER Africa and U-M websites; Google analytics; YouTube	
Reflection on all data collected	7. Effective social and technical institutional infrastructure for OER production and use	Evaluator's judgement based on findings from research questions 1–5	
	8. Effective cross-institutional collaboration model for OER production	Evaluator's judgement based on findings from research questions 1–7	

2.3 DATA COLLECTION

Data collection was necessarily very wide ranging.

2.3.1 PROJECT METRICS

Data for project metrics (Table 4, Section 3, below) were drawn from the following:

- The OER Africa website.
- The U-M website.
- Google Analytics or Groups.
- YouTube.
- Online surveys.

Statistics are reflective of the various situations as at 31 March 2012.

2.3.2 INTERVIEWS AND QUESTIONNAIRES

Table 3 (below) presents the range of respondents in relation to their number and the methods of data collection.

Table 3: Categories of respondents, data collection, and number of responses

Respondents	Method of data collection	No. of responses
Interviews		
Academic staff, including management, at partner institutions*	Interviews: on-site, telephonic and Skype	16
Students*	On-site focus group interviews (UG and KNUST only; see Appendix 1)	11 (2 focus groups of 6 + 5 students)
Questionnaires		
OER producers in partner institutions	Distributed MS Word questionnaires	10
Non-OER-producing faculty staff in partner institutions	Distributed MS Word questionnaires Online response to questionnaires**	28
Students in the health science colleges/faculties	Distributed MS Word questionnaires Online response to questionnaires**	369
Broader public of health sciences staff and students *outside* of the Network	Online response to questionnaires**	52

* For detail of interviews and respondents, see Appendix 1.

** Online surveys were available at Survey Monkey (www.surveymonkey.com) during the month of March 2012. (For a description of the distribution strategy, see Appendix 2.)

2.3.3 DOCUMENT STUDY (INCLUDING WEBSITES)

The study of documents focused on project documentation available on the websites of OER Africa, Open.Michigan and the University of Michigan (http://www.oerafrica.org/healthoer, http://open.umich.edu/education/med/oernetwork and http://ctools.umich.edu/ respectively). Institutions helpfully provided policy documents, strategic plans and lists of updated OER developments in addition to other digital resources.

Research papers on the Network and its functioning were available from both the Network project management and individual institutions.

2.4 ANALYZING, INTERPRETING AND PRESENTING DATA

The Survey Monkey facility was used for collecting and capturing much of the data. Although the main body of the current report makes judicious use of data from these three surveys, the completed survey reports are not integrated into the current report due to their length. Because these research reports may be of interest in their own right, they appear in the separate accompanying document *Annexure: Survey Responses*. The reports in the Annexure appear in the same format as that generated by Survey Monkey. In the case of open-ended questions, Survey Monkey reports only on response rates. Respondents' actual comments were accordingly captured in spreadsheets. Selected quotations from these open-ended comments are included in the main report but, in the interests of limiting the bulk of documentation, the spreadsheets are not included in the Annexure.

While quantitative data conveniently aggregated by a facility such as Survey Monkey are a significant asset, aggregated statistics per item do not provide insights into patterns of responses *within* individual questionnaires. For this reason, the evaluator read approximately 100 individual responses separately so as get a better 'feel' for the survey data.

Open-ended responses from questionnaires and interviews were classified and grouped according to emergent themes. The presentation of themes alongside illustrative quotes in tabular form is intended to provide an accountable basis for inferences and conclusions that are drawn. Illustrative quotes are cited verbatim.

The distinctiveness of OER developments in the partner institutions has been outlined (1.3, above). In presenting conclusions, the focus is on developing overall judgements on the Network as a whole, and nuancing this as necessary with mention of individual institutions.

2.5 STRENGTHS AND LIMITATIONS OF THE IMPACT STUDY

It is a truism that all research approaches have their own limitations. 'Quasi scientific' methods with control and experimental groups have the allure of appearing 'scientific'. However, in matters such as measuring teaching and learning, the experimental approach is fraught with ethical difficulties. Given the existence of digital resources and OER, it is also quite impossible for a researcher to manage the distinction between control and experimental groups. Moreover, standard methodologies do not provide universally accepted, all-encompassing indicators for measuring impact on teaching and learning.

Nonetheless, there are reliable indicators, which, when aggregated, can lead to trustworthy judgements. The chief strength of the current study lies in the quantity and diversity of information that has been generated since commencement of the project. This body of information provides a valuable means of triangulating and consolidating insights from the impact data. The Network's series of logically conceptualized research and evaluation studies over time helps to mitigate limitations of the 'snapshot' nature of the impact study.

With respect to limitations, there are two gaps in the data collected. The voices of faculty staff and students at UWC are missing because there was insufficient time in which to follow that institution's procedures for ethical clearance to authorize research; and two important informants were unavailable at the time of data collection.

Attributing particular effects to a single cause can be dangerous in a networked, 'globalised' world. At KNUST and UG there can be few worries about attribution as it was the Network that first introduced OER and supported its development in both. By contrast, disaggregating Network impact on OER developments at UCT and UWC SOPH from that of other projects and processes in those institutions is difficult. This issue is taken up in the Conclusion (Section 12) but, for current purposes, attribution of effects to the Network can be sufficiently justified because the Network was a *key* player in OER developments at both. In the health sciences at UCT, the dean regards OER Africa as an important part of a broader network. It is a "facilitator, inspiration, technical support and management centre". At UWC SOPH, the Network helped to "focus the mind" and apply a "useful bit of pressure – and funds".

Although the project metrics table (Section 3, Table 4) has statistics based on a sample size that would be regarded as excellent in many studies, definitive answers to some of the items in this table would require a 100% sample. For example, two of the academics who completed the online questionnaire indicated that they had volunteered to review OER. From this, there is no way of extrapolating how many staff have in reality offered to review OER. Nonetheless, a percentage of those who had so volunteered based on the number of online returns might be understood as a reasonable indication of the *rate* of volunteering for review. Several items in Table 4 (below) should be read in this way.

The evaluator believes that, the impact study, despite certain limitations, is based on credible data sets that allow for credible conclusions. Again, the chief asset in this study is the opportunity it provides for the triangulation of multiple indicators from diverse relevant sources.

3. PROJECT METRICS

3.1 INDICATORS AND ATTAINMENTS

Table 4 (below) provides an overall quantitative picture of impact in the form of outcomes and attainments stemming from project activities. This provides a general background to subsequent coverage of each of the more qualitative research questions on OER use.

The 'Outcomes and notes' column in Table 4 includes basic information reflecting the situation as at 31 March 2012. Detail too lengthy for inclusion in this extended table is included as footnotes or appendices.

Table 4: Project metrics

Indicator	Outcomes and notes
***African Health OER Network management*: Visible and accessible engagement process for creating, using, discussing or promoting health OER**	
# individual and organizational signatures on Declaration of Support *(Target: 150 individuals and 10 organizations by December 2011)*	90 individuals 19 organizations

Indicator	Outcomes and notes
# individuals subscribed to the quarterly newsletter	935 individuals (A further 40 subscribers were added in May 2012 due to institutional engagement with Haramaya University School of Public Health. A further 237 will be added as a result of requests made by online respondents in their questionnaire returns.)
# individual/organizational content contributors *(Target: 300 individuals by December 2011)*	115 authors representing 12 institutions (see Appendix 3, Part A)[2]
# people/institutions subscribed to oer-tech, oer-dScribe and Partners Forum mailing lists[3]	OER-tech: 21 individuals from 7 organizations[4] OER-dScribe: 25 from 11 organizations[5] Partners Forum: 28 individuals from 16 organizations[6]
# individuals/institutions in periodic oer-tech, oer-dScribe and Partners Forum audio conferences	OER-tech: Participation in monthly call varies but averages 6 individuals. OER-dScribe: The last phone call was in March 2011, since many people are also involved in OER-tech. This list is still used for email discussions every few months.
# individuals/institutions using OERca (Open. Michigan 2011b)[7]	Saide (6 people) KNUST (2 people) UCT (9 people) Pontifical Catholic University of Peru (17 people)
# institutions with local installs of OERca *(Target: 1 by December 2011)*	UCT

---

[2] (a) The list includes scholarly productions as well as OER. (b) Differences across types of OER (e.g. from short videos to full modules and textbooks) imply that OER differ widely in terms of scale and the notional learning hours they represent.
[3] http://www.oerafrica.org/healthoer/Home/ConnectwithColleagues/tabid/1868/Default.aspx
[4] Organizations represented in the oer-tech group: U-M, Saide, UCT, UG, KNUST, Florida Distance Learning Consortium, Florida State University.

[5] Organizations represented in the oer-dScribe group: U-M, Saide, UCT, UG, KNUST, Florida Distance Learning Consortium, Florida State University, University of Wisconsin – Eau Claire, Pontifical Catholic University of Peru, Students for Free Culture, Creative Commons.

[6] Organizations represented on the Partners Forum: U-M, Saide, UCT, UG, KNUST, UWC, Open University UK, Muni University, University of Malawi, Primafamed, Florida Distance Learning Consortium, Peoples Uni, Tufts University, George Washington University, Makerere University, African Center for Global Health and Social Transformation.

[7] This row does include users from U-M, who designed the software, and users from beyond the Network.

Indicator	Outcomes and notes
# institutions contributing to OERca code development	0[8]
# institutions requesting external dScribe services, and associated revenue	3: Peoples Uni, Mt Sinai School of Medicine, Makerere University This has been done voluntarily, so revenue is $0.
# academics volunteering to review submitted content	5 (3 out of 10 faculty who were interviewed reported having reviewed OER, as did 2 out of 28 in the Faculty Survey.)
***African Health OER Network management*: Collection of high-quality African-produced OER representing a diverse range of health disciplines**	For the distribution strategy, see Appendix 2.
# and range of health disciplines represented	310 health resources representing 13 disciplines and 20 sub-disciplines (see Appendix 4, Part B).
# resources published, by material type, by discipline, and by file type (e.g. PPT, Word, Flash Video) *(Target: 50 by December 2010, 100 by December 2011)*	Documents (including Word, Excel, PPT, PDF) 312 Interactive/multimedia 26 Video 18 Text/HTML 14 Audio 11 Webpage 4 Graphics/photos 2
# learning hours represented by collection of resources	There are too many variables to allow for accurate quantification. Academics have different understandings of the concept of learning hours (see also item below: "total # notional learning hours produced by each institution").[9]
***African Health OER Network management:* Visible and used portfolio of OER health education learning materials, which augments and highlights institutional and global repositories**	
amount of money saved by using OER instead of paying licensing fees for relevant copyright-restricted	See discussion under Section 7 of the current report.

[8] This excludes U-M, which is the creator of the software.
[9] With OER, the number of learning hours is not absolute: it depends on how resources are integrated and used in curricula in different settings and with different students.

19

Indicator	Outcomes and notes
content	
# views, downloads and visits from OER Africa, U-M and institutional repositories	OER Africa: 19 416 downloads, 10 824 visitors Total page views: 80 446 Internet archive: 856 downloads U-M: 1 500 views per month SlideShare: 1 591 views YouTube Videos: 110 videos; total views 1 093 831 (see Appendix 3, Part C)
# visits, visitors from OER Africa, U-M and institutional repositories, and trends over time	OER Africa: 10 824 visitors U-M: 766 visitors Total page views: 80 446 For the top 20 search terms and top 20 resource downloads see Appendix 3, Part D.
# and % health science faculty, staff and students aware of the Network	68 students – 19.4% of all respondents 14 staff – 50% of all respondents 31 of the public responses – 64.6% of all respondents
# requests for health OER through the OER request facility10	10
# requests for health OER with at least one response/result	10
# sites hosting Network-produced content/metadata	11 (OER Africa, U-M, UCT, KNUST, SlideShare, Internet archive, MERLOT, GLOBE, OER Commons, BlipTV, YouTube)
# website referrals	40.25% search traffic 14.43% referral traffic (for top website referrals, see Appendix 3, Part E) 45.32% direct traffic
user ratings and comments on content	YouTube: 804 individual ratings; average rating is 4+ stars out of 5 (see Appendix 3, Part C)
Top 20 resource downloads on the Network website	1. *Alcohol Problems: A health promotion approach module guide* 2. *Operar Fistulas Vesico-Vaginais (FFV)* 3. *Ear, Nose and Throat Tutorial* 4. *Managing Change in Healthcare IT*

---

[10] See http://www.oerafrica.org/healthoer/RequestOER/tabid/1865/Default.aspx.

Indicator	Outcomes and notes
	Implementations: Selected references 5. *Surgical Repair of Vesico-Vaginal Fistulae (VVF)* (See Appendix 3, Part D for the complete list.)
Top 20 search terms on the Network website	1. heat 2. breast 3. clinical 4. promoting/mental/health 5. promoting/mental/health/scarce-resource/contexts: or emerging/evidence/practice (See Appendix 4, Part F for the complete list.)
# resources in peer-reviewed repositories (e.g. MedEdPORTAL, MERLOT)	UCT has submitted two, which are currently under review.
Geographical distribution of contributors and users of the OER Africa and U-M websites	African Health OER Network (www.Oerafrica.org/healthoer): 7 000 visits/month Open.Michigan (Open.umich.edu): 10 000 visits/month, 1 500 of which are for African Health OER Network content African Health OER Network and Open.Michigan accessed in over 190 countries For Open.Michigan/African Health OER Network, the top 10 most popular countries are: 1. United States 2. India 3. United Kingdom 4. Malaysia 5. Canada 6. South Africa 7. Australia 8. Ghana 9. Saudi Arabia 10. Pakistan
African Health OER Network management: **Preliminary model for cross-institutional collaboration model for OER production**	

Indicator	Outcomes and notes
# conference presentations	12 reports and papers on Open.Michigan (reports and papers sub-section)[11]
# peer-reviewed papers published	In addition to one other peer-reviewed publication, a chapter on OER development at KNUST and UG appears in a COL/UNESCO book, *Perspectives on Open and Distance Learning: Open Educational Resources and Change in Higher Education: Reflections from practice* (Glennie, Harley, Butcher & Van Wyk 2012).
Institutions: **Increased awareness of OER**	
# and % health science faculty, staff and leadership aware of OER	Students: 214 (61.1%) Staff: 23 (82.1%) Public: 34 (78.8%)
Institutions: **Increased access to and use of OER**	
# and % health science faculty, staff and leadership who have used the locally developed OER from colleagues at their institution	Faculty: 9 (33.3%)
# and % health science faculty, staff and leadership who have used the locally developed OER from other institutions	Students: 58 (16.6%) Faculty: 6 (22.2%) In interviews, UWC (Dentistry and SOPH) describe themselves as "users" of OER.
Institutions: **Community of trained health OER creators and users**	
# invited presentations	24
# training workshops held	16
# advocacy workshops held	10
# conference presentations	21
# individuals trained in OER production (includes dScribes)[12] *(Target: At least one dScribe trained*	200+ UCT and UWC SOPH each has a trained dScribe person.

---

[11] See http://open.umich.edu/education/med/oernetwork/reports.
[12] dScribe is a copyright clearance and OER production process created by U-M (see http://open.umich.edu/dScribe).

Indicator	Outcomes and notes
per institution by December 2011)	UG and KNUST OER models require ICT specialists as essential components in production, and each has one such appointment.
Institutions: **Local development and sharing of contextually appropriate OER**	
# resources produced by each institution *(Target: 15 resources produced annually by institutions)*	UG, KNUST: Total of 25 each (see Appendix 4) UCT health sciences (http://opencontent.uct.ac.za/Health-Sciences) houses 41 resources, which overlap with what is available on the Network website. A further 6 OER are more than 50% complete; and 10 are scheduled for release in the first half of 2012. UWC SOPH: A total of 24, of which 17 are in the final stages of completion. *Note:* Numbers cannot easily be equated as types of OER vary, from short video productions to full modules and textbooks.
total # of notional learning hours produced by each institution	Several academics noted the difficulty of assessing the number of learning hours. The range of learning hours specified in responses varied from (in rank order): 24 (a textbook); 11; 6; "about" 6; 3; 2; 1-2; 1.5 and "15 minutes of teaching time". The last of these responses, qualified with the explanation of "teaching time", is indicative of very different understandings of the concept of 'learning hours'. Aggregated quantification would thus lack validity.
*Institutions***:** **New connections across institutions for sharing knowledge of health education**	
# jointly developed OER with authors from different institutions	1. **UG & U-M** a. *Caesarean Section* b. *Episiotomy & Repair* c. *Sexually Transmitted Diseases and Pelvic Infections* d. *Total Abdominal Hysterectomy* 2. **KNUST & U-M** a. *Mental State Examination* b. *Automated Blood Counts* c. *Buruli Ulcer Disease (Mycobacterium Ulcerans Infection)*

Indicator	Outcomes and notes
	d. *Clinical Chemistry (Glucose Tolerance Test)* e. *Cases in Clinical Microbiology* f. *Laboratory Methods for Clinical Microbiology* g. *Examination of the Pregnant Woman* **3. Saide and the University of Malawi** a. *University Certificate in Midwifery*
# jointly submitted publications with authors from different institutions	1. Ludewig Omollo K, Rahman A & Yebuah C (2012) Producing OER from Scratch: The case of health sciences at the University of Ghana and the Kwame Nkrumah University of Science and Technology. In J Glennie, K Harley, N Butcher & T van Wyk (eds) *Perspectives on Open and Distance Learning: Open Educational Resources and Change in Higher Education: Reflections from practice.* UNESCO/COL. From: www.col.org/psoer, accessed May 2012 **(U-M, UG, KNUST)** **2.** Tagoe N, Donkor P, Adanu R, Opare-Sem O & Engleberg NC (2010) *Beyond the First Steps: Sustaining health OER initiatives in Ghana.* From: http://open.umich.edu/education/med/oernetwork/reports/health-oer-ghana/2010, accessed April 2012 **(KNUST, UG, U-M)** **3.** Luo A, Ng'ambi D & Hanss T (2010) *Fostering Cross-institutional Collaboration for Open Educational Resources Production.* From: http://open.umich.edu/education/med/oernetwork/reports/oer-collab-report/2010, accessed April 2010 **(U-M, UCT)** 4. Ludewig Omollo K & Mawoyo M (2011) *Reflections on the Past Two and a Half Years of a Collaborative Health OER Project.* From: http://open.umich.edu/education/med/oernetwork/reports/reflections-collaboration/2011, accessed April 2012 **(U-M, Saide)** 5. Hoosen S & Ludewig Omollo K (2010) *The African Health OER Network: Advancing health education in Africa through Open Educational Resources.* From: http://open.umich.edu/education/med/oernetwork/reports/ajhpe-article/2010, accessed April 2012 **(U-M, Saide)** 6. Adanu RMK, Adu-Sarkodie Y, Opare-Sem O, Nkyekyer K, Donkor P, Lawson A & Engleberg NC (2010) Electronic Learning and Open Educational Resources in the Health Sciences in Ghana. In *Ghana Medical Journal* 44(4).

Indicator	Outcomes and notes
	From: http://www.ghanamedj.org/pastjournal.php?JID=25, accessed April 2012 **(UG, KNUST, U-M)**
Patients: **Nascent awareness of OER through consent process for clinical recordings**	
# patients accepting/declining to be recorded for OER, and explanation of choice	Patients are known to have declined consent. For example: "At KBTH [Korle Bu Teaching Hospital] at UG, several patients opted out of recording altogether" (Ludewig Omollo *et al.* 2012: 63). However, although institutions do not keep records of such numbers, OER produced are evidence of acceptance on the part of many patients. Universities are still grappling with this tricky issue, which they have approached in different ways.[13]

3.2 SUMMARY: INDICATORS OF IMPACT

On the basis of evidence in the lengthy list of metrics in Table 4 (above), OER activities can be categorized as being either high impact or limited impact.

Table 5: Network impact in terms of outputs and attainments

Domains of high impact	Domains of limited impact
At management level:	**At management level:**
• Visible and accessible engagement process for creating, using, discussing or promoting health OER. • Assembly of high-quality African-produced OER representing a wide range of health disciplines. • Visible and used portfolio of OER health education learning materials, which augments and highlights institutional and global	• The number of *individual* signatures on the Declaration of Support falls short of the target. However, the number of signatures for *organizations* has been surpassed. (Note: In mid-2011, project management ceased promoting the symbolic signing of the declaration in favour of the more meaningful engagement metrics.) • 115 authors of OER content is well short of the

---

[13] For example: "No OER produced at UCT have yet involved patient recordings, as there is a concern that, if OER include patients, the life of the OER depends on the patient's continued cooperation and consent. A patient may initially agree to be screened in a video for an OER, but circumstances in their life may change, which could make them rethink this consent. Blocking off a patient's face may also affect extra-linguistic features, such as facial expressions and body language, that are telling to the diagnosis or treatment" (Mawoyo 2012: 14).

At KNUST and UG, formal patient consent documents have been met with suspicion and have been found to be ineffective in the case of patients who are illiterate. Both universities have successfully employed the strategy of using a graphic artist's images for certain productions.

Domains of high impact	Domains of limited impact
repositories. • Scholarly output on OER at conferences and in publications.	target of 300. However, the number of published resources far exceeds the target.
At institutional level: • Creating awareness of OER. • Increasing access to and use of OER. • Developing a community of trained health OER creators and users. • Local development and sharing of contextually appropriate OER.	**At institutional level:** • New connections across institutions for sharing knowledge of health education.

Table 5 (above) provides substantive evidence that the activities and outputs of Network management and partner institutions have exceeded expectations in terms of the number of locally produced health OER products posted in the public domain. These OER have been well received. The only meaningful area in which impact has been limited is in the further consolidation of connections across partner institutions. Viewed in context, this limitation is understandable. Within partner institutions there has been a strong focus on developing their own systems for OER practices. Instances of jointly developed OER with authors across institutions are likely to increase as new OER users emerge. This trend is already evident (see Section 8).

Against this largely quantitative backdrop, we turn to the more qualitative data.

4. STUDENT USE OF OER

For many students, issues of licensing and copyright are of little interest: the issue of real importance when resources are being considered is that of *usefulness*. Analysis of student responses to questions about OER is complicated by the fact that they do not thus always distinguish between OER and 'non OER'.[14] For current purposes, however, interpretation of students' responses assumes that, when students refer to OER, it is indeed OER that they are talking or writing about.

4.1 RESPONSES FROM THE ONLINE STUDENT SURVEY

Responses to the online Student Survey were submitted by 369 students (see Table 6, below). This healthy sample comprised students who experienced OER as a formal part of their curriculum, as well as those who had not. Given the differences across the Network partners (see Section 1.3, above), the distribution of respondents across institutions is of interest.

---

[14] There were a number of clear indications of this lack of distinction in focus group interviews, during which the interviewer was able to provide clarification.

Table 6: Profile of responses to the online Student Survey

Institution	# Student responses	Respondents' programme of study	Year group of respondent
KNUST	276	Concentrated in three large groups: human biology, medicine and surgery (MBChB), pharmacy	Years 1–4
UCT	87	Wide range of programmes e.g. MBChB, physiotherapy, MSc nursing, occupational therapy, MPhil, disability studies	Years 1–6, and a PhD
UG15	6	MBChB	Years 2–3 (clinical)
UWC	0	Questionnaires not distributed (see Section 2.5)	

The following inferences are drawn from an analysis of data in the Annexure, Part A.

(a) *Student knowledge of the African Health OER Network is limited and localized.* There was far greater awareness of the concept of OER (61% of respondents) than of the Network (19% of respondents). Awareness of the Network was also very recent: 64% of the 68 students who had heard of the Network had done so only in the previous six months. Knowledge of the Network came from local sources: 72% had heard about it through faculty and students; 43% had become aware of it through their own institutional websites.

(b) *While use of the OER Africa website is limited, those who have downloaded resources have found these useful.* Only 43 students (13%) reported being aware of the OER Africa website. Again, this knowledge was found to be recent: of these 43 students, 23 had become aware of the website in the previous six months.[16]

(c) *The type of OER used by students is largely determined by the type of resources made available by their own institutions.* A total of 170 of all students (49%) had used resources (on DVD or website-derived) produced by academics in their own university. Responses show a strong correlation between the type of OER produced by an institution, and the type of resource most used by students. Students from KNUST and UG, for example, are users of OER video productions, while students from UCT access a more diverse range of OER.

Overall, the rank order of types of OER used is:

- o   Videos: 85%.
- o   Lecture presentations: 79%.
- o   Teaching case studies/lab exercises: 77%.
- o   Teacher guides/textbooks: 59%.
- o   Teacher notes: 59%.
- o   Research articles: 54%.

---

[15] Unfortunately, a set of completed questionnaires sent by UG did not reach its destination.
[16] A further 78 reported having found useful/relevant resources on the website. Some students may not distinguish between institutional websites and the OER Africa website.

(d) The number of students accessing OER from other universities is very limited. Only 58 (17%) of all students reported having used OER from other universities. However, it is notable that these students' own ventures into the universe of OER were almost entirely confined to institutions within the Network. The OER-producing universities and the number of students accessing OER from them are:

- o KNUST OER (31 students).
- o Open.Michigan (9 students).
- o UCT OpenContent (5 students).
- o UWC Free Courseware (3 students).

The only other source of OER mentioned – by 5 students – was Kaplan University.

(e) Although limited in number, open-ended comments on the African Health OER Network were overwhelmingly favourable. Students appear eager to learn more about OER. The final item in the questionnaire, an open-ended invitation for comment on Network, drew a response from 37 students. Comments fall into two interlinked categories: favourable comments on the Network (24 students) and suggestions that the Network should be more widely publicized (13 students).

Examples of favourable comments are:

- o "I think it's a very brilliant initiative."
- o "It is excellent!"
- o "It provides relevant information."
- o "Very innovative."
- o "It is quite a resourceful movement that will certainly enhance effective learning."
- o "Very useful/resourceful website. Expand the territory and keep up the good work."
- o "I think it is a nice idea and should be made known to every student."
- o "Really good avenue for students in research."
- o "A laudable project, keep the good work up."
- o "An exciting project, would be interested in being a contributor."

Examples of the view that the Network should be more widely publicized include:

- o "Publicity about the network should be increased."
- o "Please try to increase the publicity on the OER network."
- o "African Health OER Network needs more publicity; because it is my first time hearing about it and I use the Internet a lot."
- o "Publicity should be intensified."
- o "Want to know more about it."
- o "Only just heard about it (as a result of this survey) – looks interesting, though."

Eagerness to know more about the Network is also evident in the fact that, while fewer than 4% of all students were subscribed to the Network newsletter, 77% expressed the wish to become subscribers and provided their email addresses to make this possible.

4.2 VIEWERS' COMMENTS ON YOUTUBE

A total of 804 individual ratings on the quality of video productions were posted on YouTube, providing an average rating of 4+ stars out of a possible 5. Actual comments[17] leave little doubt that the authors are overwhelmingly students. For example:

> "Thanks for helping me pass med school."
>
> "Have a lab on this tomorrow and the lab manual is long winded and didn't make sense…now it's crystal clear, thanks."
>
> "Too bad I didn't watch this video a month ago!"
>
> "Fabulous! It's finally making sense! Desperately needed this for a presentation on Ebola. I've been reading up for days and watched a few videos that didn't really explain in detail what was going on. GREAT video! Now, do you happen to have one on RT-PCR?"
>
> "Thanks a lot. Finally understood just watching once after reading it for hours!"

The most commonly recurring words in viewers' comments are "thanks", "thank you" and "understand".

4.3 CONCLUSION: THE BROADER STUDENT POPULATION'S USE OF OER

Although the Network has not yet reached the majority of students in participating institutions, those it has reached have found its OER worthwhile. A second significant feature of student response is that the Network appears to be responsible for what meaningful knowledge students have of OER; and they are eager for more. This, combined with the fact that knowledge of the Network is recent, suggests that the Network and OER impact on students will soon grow in scale.

YouTube viewers' comments suggest that the Network resources are being used by a significant number of students beyond the Network institutions. Viewers express great appreciation for the effectiveness of the OER video materials.

5. QUALITY OF TEACHING AND LEARNING

Before outlining views on the quality of OER teaching and learning from the perspective of students, academics and management, attention is drawn to two issues affecting the way in which 'quality' will be understood.

First, there is no absolute benchmark against which to measure the quality of a teaching and learning episode. Judgements about quality are context specific. The nature of the

---

[17] See the following URL, where login is required for accessing the content: https://ctools.umich.edu/access/content/group/5766a067-a84e-43c8-94c0-43add93f6407/13_Evaluation%20and%20Impact%20Analysis/Web%20Analytics/2012_03_21%20-%20AHON-YouTube-Videos.csv, accessed May 2012.

student population and the way OER are integrated into the curriculum are only two of the contextual factors that will affect judgements on quality.

Second, the concept of OER refers to a form of licensing, not to the type of resource. The different types of resources created within partner institutions have different implications for pedagogy and curriculum. Briefly:

- At KNUST and UG, the OER that have been developed support the well-established pattern of contact teaching. Increasing class sizes constrain the amount of interaction that is possible between lecturers and their students. In order to supplement the limited time they have with students for classroom and clinical training, "several CHS faculty are interested in creating interactive, self-guided learning materials that students can work through on their own and in their own time" (KNUST nd). OER are thus described as "enhancements" (provost).
- At UWC SOPH, by contrast, OER in the form of fully developed distance learning materials do more than 'enhance' teaching: the OER materials are the teacher.
- At UCT, curriculum impulses from within the faculty have played a large part in determining the type of OER developed and used. A new MBChB curriculum was introduced in 2002 in response not only to new national emphasis on primary healthcare, but also to the burgeoning of new knowledge students and practitioners must master. The curriculum model is one of a structured, problem-oriented rather than problem-based, learning approach (Breier & Wildschut 2006). This translates into a combination of lectures and problem-based sessions using learning resources. It was this curriculum model that created the need for OER and the open collaboration of academics.

In short, judgements on quality are not based on a homogeneous or uniform 'thing' called OER. They are judgements about the quality of different types of OER designed to meet institution-specific needs.

5.1 STUDENTS' VIEWS ON THEIR OER EXPERIENCES

The analysis below is based on two extended focus group interviews, at UG and KNUST. Both interviews were recorded and transcribed (for details, see Appendix 1). While it is unfortunate that students could not be interviewed at UCT and UWC SOPH, commonality across the two groups at UG and KNUST means that both were commenting on similar types of OER. 'Apples' were thus being compared with 'apples', and data from the two sites could be triangulated. Students in both groups were uniformly of the view that their learning was enhanced when it was supported by OER. In-principle approval of the concept of OER was also a powerful overriding theme in students' comments. Typical responses to the question of whether the OER had been useful included:

> "Oh, yeah. Most of us found it very useful."

> "They [OER] have been very helpful. So they are good works. I think it will go a long way to help all of us and the next generation [laughs] – generations to come."

> "Yeah, it's been so helpful and good and quite – I think it's quite better…there's a saying that 'it can only get better'."

When students were asked if they could quantify the efficacy of an OER approach compared to conventional teaching approaches not using OER, one thoughtful response was: "I think it depends on the topic…Yeah, for such a topic [Obstetrics], OER will beat a class lecture by 300%." For other topics, the extent of improvement was rated at between 50% and 90%.

The advantages of OER are listed in Table 7 (below).

Table 7: Students' judgements on the advantages of learning with the use of OER

Advantages of OER	Illustrative example in students' own words
By providing images as well as text and 'voice over', OER are more effective than textbook coverage of certain topics.	"I was studying for my exam and I needed more examples because the textbook was just text and I wanted something visual, and this was so helpful to me." "But you look at an aspect of physiology and microbiology and it's so abstract because you are just reading. But with the visuals and all those things, it makes it easier for you to appreciate the topic." "Once you watch it [the OER], just practise and it becomes a part of you. " ''I think with the videos you tend to understand it more. Because for me personally, I understand like, when in terms of studies, I get a better understanding with videos than just even audios."
Compared to crowded situations in which many students view clinical procedures, OER afford a close-up view that is often better than the 'real-life' situation.	"For this procedure, the lecturer wanted you guys to have a feel of what he actually is doing when he is examining a patient and the way his hand is positioned, which you don't normally see when you are standing by the side." "Yeah, for myself I think it's really helped with the Caesarean section aspect. Because in the theatre you are not really allowed to get too close to the patient and so you don't really appreciate what is going on in the operating room. But when you watch the CD, you have – you are able to just see what is going on and you appreciate the structures and different things that's going on. For example, some of the procedures that are done, maybe IUD insertion…, if you were not able to see it during the procedure aspect, you can watch the video and know exactly how it is done." "The surgical aspect. I think it was helpful but really, really helpful in that…Some of us, we end up standing at the back and so we don't really appreciate what's going on on the table." "[The ward] – is small! And they are leading us and you are all in the ward. You don't allow 20 students to enter a room which accommodates only four or five.
OER are not 'on-off' experiences; they can be	"So if you are just going anywhere, you can just – you are in a taxi, you can slowly be reading your notes…So it's easier. You just download it and as people listen to music and do

31

Advantages of OER	Illustrative example in students' own words
accessed anywhere, any time.[18]	whatever they are doing, in the same way you can be watching or doing an OER as though you are learning." "So it becomes so easy like if that's how he discusses sickle cell disease, then anyone at any point can just pick it and just listen to it for a quick revision of it."
OER are relevant to the local context and conditions under which Ghanaian doctors practise.	"I think OER is a good thing. As I said earlier, we usually just read the books. And most of these books are written by people from the USA. Only a few from our country. And so you read the things that they are doing and the advanced things but…in Ghana, in Korle Bu, we don't do that. So I think that for the fact that the video actually involves our lecturers who are telling us what they do here in Korle Bu."
OER provide the opportunity of experiencing cases that may not present in real life.	*Student 1* [who had found an Obstetrics/gynaecology video on YouTube]: "And it was really good. It was – even – yeah, you don't always get the opportunity to see breech on the ward… " *Student 2:* "Yeah." *Student 3:* "I have never seen it."
OER provide the opportunity of a more dispassionate viewing of events that might otherwise not be adequately followed because of trauma.	[Student commenting on OER on delivery of a baby]: "And also that the video on it has been good because maybe the first day I…was so [laughs] traumatized [some students laughing]…Yeah. So after that I went back to the video to go and watch…and hey, I mean after watching for some time, it has – it has helped me realize and go back to the labour, watch and see the real thing properly."
OER provide a good form of revision/preparation for clinical practice.	"…for about 5 or 10 minutes have a look at it [the OER] and go to the patients and do the examination." "So if you only want to watch going into the abdomen, you just go there and you watch it and you go back."
OER are a good form of revision for examinations.	"… the one on the website Obstetrics [inaudible couple of words] it was really helpful getting to the final fifth-year exams. The steps of the examination of the patient were really helpful preparing yourself for the exams."
OER provide the reassurance of formative evaluation.	"And I think another good thing about the whole study material is the fact that after demonstration how the various procedures are done and all that, they ask questions." "There's a section you can ask – just to confirm you've learned and understood – test quiz. And I think that's a plus. It's very good. It makes you know that you really understood this procedure."
OER can help regularize	"I found it quite difficult because each lecturer has a way of

---

[18] This point was also made in the 'Student Perspective on using an OER Module (2009)' video on http://www.youtube.com/watch?v=f2Fm5Grp7sU&feature=relmfu, accessed April 2012.

Advantages of OER	Illustrative example in students' own words
standards by obviating lecturer stances that students perceive as idiosyncratic.	examining something…They are all different…It's – he has these peculiarities…And you go and do this with another examiner and you are failed. At the end of the day, there's a standard…So at the end of the day, let us get a standard, put it in a system and we all go by that standard."
Accessing OER from other sources contributes to richer understanding of topics.	"Yeah, and another point is I think, like to continue with what you are saying, it also allows exchange of knowledge between the different institutions. Because first it was when I watched the Legon videos, it gave me a new perspective on some of those examinations because there were things they said which our people didn't say…and so I think it's helpful to put the videos in such a way or distribute them in such a way that the students from different universities can have a video from the other universities as well."
OER can play an important role in continuing professional education.	[When we're in practice one day we'll be able to] "look back over videos later: Yeah [some students laughing], very true, very true."

In addition to these wide-ranging advantages identified by students, three further points emerge from their utterances.

First, students appeared to have little concern for the copyright status of resources. For example:

> …I remember when we started Oby/gyn and we were taught mechanism of labour, and actually I was lost that day [some students laugh]. I couldn't understand a thing. But I was so keen that…I found a video on YouTube and I don't know if it's OER. But it was so good. When I saw it, I mean I – it was very difficult for me to ever forget it.

Second, students are critical of OER that they perceive to be of 'low quality'. One OER was said to have too few illustrations; another was "unnecessarily long", and the lighting was not good either. In the case of another: "They – it was as if they were not organized before they videoed. As if they were not organized, or it was impromptu. They weren't expecting it…The sound quality was poor."

Third, and perhaps most importantly, students' exposure to OER has led to clear expectations of changed practices in teaching and assessment, as well as in institutional policy and provisioning. Comments such as "…family planning should also be included in the videos" reflect ways in which the repertoire of OER should be extended. Similarly, OER should be developed to cover situations in which

> …you are confronted with such a case that you have no idea about. So I think this study material should try and capture all these

> things, these rare things…someone might call [you] incompetent, but there is no video on it.

When, during interviews, it was mentioned that some universities made videos of lectures available as OER, it was asked:

> Is it possible we can get that? I know our lecturers will reject this because they say we won't come to class but I mean I'm looking at the long-term. Is it possible we'll get there?

Students felt that a new teaching paradigm was called for:

> *Student 1:* Yeah! It [OER] will help all of us. And me, I think the objection they might raise is that students will be lazy. And I don't think that's the point. The whole idea is that if a student can understand in and out of the classroom, then –
>
> *Student 2*: Understand it, yeah.
>
> *Student 1*: that is the essence. And you will be able to educate the person well. In that case, you will – you are going to spend – you could have made it like a project. "Before you come to class, everybody should watch this video."

Students made reference to institutional responsibility for making OER increasingly available:

> I think that they should set it as a policy of the university then and I am thinking and probably all of the lecturers are supposed to have produced videos or something. Probably it should be something that the university should insist on, that every lecturer does some videos for the number of topics that he teaches in a semester or something.

Technological infrastructure is necessary:

> Have the service available in your hostels and you go, you access it. Because when I go there, the last time I went to check my email, I was so mad; there are some sites I can't even go to. And I'm like, "So why am I paying for technology?"

Overall, students cited compelling reasons for the development of OER to supplement – and indeed to change – normal class teaching. Criticisms there were, but these were of the quality, accessibility and limited OER coverage in relation to the overall curriculum. In this sense, criticisms affirmed the value of OER from the student perspective.

Impact of OER on students who were interviewed has been such that their expectations of OER-based teaching and learning have become normative. Student expectations could become a powerful driver of OER development.

5.2 ACADEMIC STAFF JUDGEMENTS ON QUALITY OF TEACHING AND LEARNING

One of the UWC Dentistry OER stalwarts, who continues to work towards completing her OER after the withdrawal of this faculty from the Network, observed:

> The experience of developing it [the OER] was extremely time-consuming and lengthy as it was reviewed, changes were made, and the full benefit of using it in teaching has not yet been experienced.

With this exception, academics spoke with one voice on the benefits OER brought to teaching and learning. In the view of one, "Grads are now more ready to face the work situation." The following three points made by academics are very similar to those made by students:

(a) *Videos of clinical procedures allow for better viewing.* In addition to the standard argument about an unviable number of students clustered around a patient, it was noted: *"*In some instances animations and illustrations with narration are much more effective than the live performance although they lack the atmosphere of the theatre."

(b) 'Anywhere, anytime' accessibility to learning resources:

> We can make OER available in different formats. Therefore, by this approach it is possible to make lecture materials accessible to all students irrespective of their economic background and so making the resources student-oriented. They are also accessible even in situations when students have temporary difficulty in accessing the Internet.

(c) OER promote more independent learning:

- o "Students are expected to do more independent study, but lecturers are accessible to them should they have queries regarding the materials" (Mawoyo 2012: 8).
- o "I provide adequate background to the topic for students to fetch out more information by themselves."

Other points made by academics referred more to OER benefits for *teaching* than for *learning*:

(a) *OER broaden staff perspectives on new variants of teaching approaches:*

- o "…[OER]…forced faculty to confront e-learning."
- o [We now] "focus on images much more in our teaching."

(b) The benefits of staff collaboration:

- o "The department comes together for a 'peer-review application'. In the medium term, this improves quality. In the longer term, [it improves] the way academics work together."

o With OER, there is "consultation with other colleagues before production…[leading to]…much more thoroughness and thought. OER makes us more certain about steps of procedure being demonstrated."

5.3 MANAGEMENT'S JUDGEMENTS ON QUALITY OF TEACHING AND LEARNING

Senior institutional managers echoed several of the points raised by academics. Commenting on the OER produced by the Department of Anatomy, a provost noted the value of OER in preparing students for a particular procedure that induces anxiety in many students: dissections. The OER material was "good for demonstrating how to compose themselves and conduct the operation". Another provost reported that the effectiveness of OER had raised students' expectations; they were beginning to expect that teaching would be supported with media-based resources.

Senior managers identified three additional benefits:

(a) *OER enable teaching that would not otherwise be possible.* The example of pathology was cited because many institutions do not have the necessary "path lab organs in bottles". At UCT, work has commenced on digitizing approximately 3 500 specimens – plus descriptive text, video clips, and links to relevant sites and research. With the first 1 500 having been completed, many requests have been received from faculties that do not have the necessary specimens. After acquiring the OER, these faculties then need only a data projector or computer to demonstrate the resource to students.

(b) *OER help to overcome many challenges, viz. the following:*

   o Faculty face the educational challenge of teaching clinical skills in ways that are minimally invasive in respect of patients' privacy and rights.
   o Students have to be taught an indigenous language together with clinical skills.
   o If student enrolment is to reach the numbers wanted by the state, the creation of virtual learning environments is essential.
   o Students have to learn to practise in the districts, away from the 'ivory tower'. While they are at such sites, their learning is supported by OER.
   o To be fully functional, doctors need an understanding of allied practices such as occupational therapy and speech therapy. An OER approach is the best way of offering this additional knowledge and understanding.
   o OER raise awareness of open access journals necessary to improve current learning and to promote lifelong learning in a field with a knowledge base that is expanding exponentially.

(c) *Adoption of an OER approach has generated new internal peer-review mechanisms.* In one institution, for example, collaborative work on OER material is followed by peer review managed by a head of department, after which the dean becomes involved, and "the provost finally gives the go-ahead". The development of collaborative working relations through peer-review processes may well bring more long-lasting benefits to overall quality than to a single OER.

A more indirect impact on quality is what one head of department described as "heightened awareness of what may be used legitimately by staff and students". Others also commented on the fact that many academics "aren't being careful about copyright". The same applied to students, who were characterized as being "cavalier about copying".

5.4 CONCLUSION: IMPACT ON TEACHING AND LEARNING

As might be expected, the three sets of interviewees judged OER from the standpoint of their own particular interests and concerns.

Students mainly addressed the question of whether OER presented what had to be learnt in a more accessible form, and in a way that made for better understanding and use of knowledge. In this sense, learning was closely connected with assessment. Success in 'the exams' was a powerful consideration. Theirs was not a purely instrumental position, however. They were keenly aware of how OER can lead to more independent student learning; and they were also attuned to the potential of OER in their ongoing professional development.

While academics also focused on learning, the *teaching* side of the equation was more strongly evident in their judgements. The really important issues for academics were the role of OER in broadening their repertoire of teaching skills, creating opportunities for fruitful collaboration with their colleagues and regularizing understandings about how to teach particular clinical procedures.

Senior managers were equally interested in the role of OER in promoting better learning and student performance. At the same time, their judgement on OER impact had a distinctive breadth in terms of overall quality assurance and the kind of learning that is necessary and possible in the face of changing contexts and national policy requirements.

The respective roles of students, academics and senior managers can carry potential for the assertion of differing interests. In judging the impact of OER on teaching and learning, however, those in the Network were united. *The important conclusion is that from the distinctive perspectives of these three sets of key role-players, OER had achieved high impact.* OER experiences had created a 'win-win' situation in terms of belief in, and commitment to, OER practices that met core needs.

6. IMPACT OF OER ON ACADEMICS' CAREER DEVELOPMENT

6.1 PERSONAL ACCOUNTS OF ACADEMIC STAFF

Being rooted in personal and professional identities, paths of career development will obviously vary across contexts. The themes in Table 8 (below) arise from the accounts of individuals who have ventured into OER production.

Table 8: Impact of OER on individual academics' career development

Theme	Illustrative case/s
The adoption of OER has reinforced a	UWC SOPH relied on teamwork prior to the African Health OER Network: researchers conduct case studies, then education experts write up the cases. The Network brought two changes: (a)

Theme	Illustrative case/s
teaching identity based on teamwork.	Academics have become *users* of OER. dScribing is an integral part of assembling data for case studies and learning materials. (b) Open licensing of resources (but on a cautiously selective basis – see below).
Working with OER adds a new dimension and impetus to teaching.	• "It has spurred me on to publish more OER. I have two more projects soon to go open." • "Yes. It has afforded me an approach to teach online and I am already getting responses." • "Practical aspects of teaching are easier through OER, and less stressful." • "OER production has allowed me to emphasize graphical demonstration and evaluation in my teaching."
OER promote a more learner-centred approach with more independent student work.	• "Yes, OER allow one to get students to practise independently." • "I now love to refer students to the OER Africa website for more information they can seek out for themselves." • "Yes. I am now incorporating more of demonstration and coaching in my teaching in general."
OER make for more rounded academics; teaching is research led.	• ''OER production has given me access to another way of being a higher education practitioner. There is so much emphasis on getting the research right, and on the other hand there is also so much significance attached to being a teacher. So, the OER writing combines the two dimensions of being a teacher and a researcher. Publication in a journal only allows you to show your credentials as a researcher, but OER allow me to project my researcher and teacher identities at the same time" (Mawoyo 2012: 17).
OER have given personal recognition/affirmation as a teacher.	• "… acceptance of our first online production of a lecture titled 'Development of Oro-facial Structures and its Clinical Correlations'. It has already appeared on the KNUST OER website." • "My OER publication has given me more credibility as a previously unpublished academic. It has assisted to build my confidence as a contributor in higher education." • "It has been rewarding getting positive feedback from others. I particularly enjoy watching the clicks grow. Even a student, whose reflective task is included in my website, has been excited at the publication." • "My work reaches an international audience."
Adoption of an OER approach has brought a sense of loss – and fears.	• "There were no differences [between 'normal' teaching and using OER]…one however lost the personal touch." • "I did the research for the module and am fearful that people will grab it…lecturers don't want people to see what they're doing." • "As a marketing person for OER at our university, I'm able to

Theme	Illustrative case/s
	talk from personal experience using my resource as an example. Shifting from a classroom project to one that goes public takes a lot of courage and needs a sense of 'letting go'. One is taking a risk wondering how others will view your material."

This table captures both the rewards and the threats associated with producing and using OER. To understand the nature and the balance of these two forces would require a follow-up study. However, three points are evident from the available data.

First, one would expect *some* possible sense of loss to accompany a switch to OER-based teaching, which brings with it some loss of control over content. A situation in which students have independent access to learning materials, which they can use in their own way and in their own time, represents a significant departure from the historical paradigm, which holds that: the individual teacher is responsible for one group of students for a fixed period of time; teaching is a solo performance; the teacher is the only or main source of information; and the teacher decides on what counts as knowledge and how it should be sequenced, and how learning should be paced. The more surprising aspect of a sense of 'loss' is that only a single academic reported it.

Second, fears can be linked to both personal and institutional factors. Making one's teaching 'public' may indeed take "a lot of courage" (as above), but the widespread problem in respondents' comments was of fears linked to institutional factors. These arise most clearly in a unit in which learning materials are based on staff research and in which a significant proportion of staff are on contract; and all of this in a university that places a premium on scholarly research output.[19]

Third, the much more general picture was one in which fears were very much outweighed by examples of positive effects in teaching and learning and by how OER had influenced the way academics were redefining themselves *as teachers*. One online response provided the most eloquent expression of identity as a teacher:

> OER aligns with my philosophy of teaching – shifting away from the lecturer approach towards a more democratic classroom in which students bring their knowledge and understandings which are valued and probed. OER empowers and enables a scaffolding constructivist approach to teaching and learning. I as the educator am able to develop my resources using those of others in the field, and my students are better equipped to prepare for classes by doing their own research on open access material. It broadens their scope for learning.

Adopting an OER approach has been a catalyst in academics' rethinking the core aspects of their practice: how knowledge is defined, how one relates to one's students around knowledge, and how one relates to fellow academics in the course of daily work.

---

[19] One anecdotal account suggested that an OER of immense potential value to the broader teaching community had not seen the light of day because of its potential as a research publication in a proprietary journal.

6.2 CONCLUSION: OER IMPACT ON ACADEMICS' CAREER DEVELOPMENT

Fears about making their work public were evident in some academics' responses. However, such fears were far outweighed by positive ways in which OER production and use had affected their career development. Approaches to teaching had been consolidated or redefined in the core areas of education practice. In some cases, the two pillars of academic work – teaching and research – had been brought into a more productive relationship. Some academics had achieved personal recognition in ways that affirmed their role as OER practitioners. Senior managers confirmed this view of career development. One provost observed that academics had "embraced OER", but added that there were still "pockets of misunderstanding (not quite the same as resistance)".

Overall, the number of academics who are positive about their OER work far outnumbers those who are wary about putting their work into the public domain. For the majority of academics, working with OER has not remained a marginal 'add on' activity. The OER approach has become integral to the way in which they define their sense of professional identity.

7. RELATIVE FINANCIAL IMPLICATIONS OF OER

The questionnaire for OER producers asked the question: "Has this resource, as an OER, in any way reduced the costs of study for your students? If so, what do you estimate the saving to be?"

Typical responses were: "Don't know"; "Estimate of cost quite difficult"; "I can't tell now"; "Not sure"; "Not certain yet, hasn't been quantified." At one level, such responses suggest that institutions have not yet grappled seriously with this question. Indeed, it is a difficult question as savings associated with OER *production* and use will differ widely from savings accrued from OER *adoption*, use and reuse. For example, the view of UWC Dentistry is that, in their circumstances, the reward of OER creation "is just not proportional to the effort". Nonetheless, even in the UWC Faculty of Dentistry, a saving has been achieved by making "extensive use", in the 'extended' programme for first-year students, of the OER originally developed for senior students.[20]

From three other partner institutions there was evidence of *direct* savings achieved through use of OER. Of these, an academic at KNUST was somewhat speculative in tone:

> What I can only say for now is that it may likely reduce the costs of study by removing the need to photocopy lecture notes and to purchase books. Many lecture notes can be downloaded onto one CD which is 0.5 Ghana Cedis compared with the cost of photocopying. The Internet links are provided for every lecture and meant for students' self-learning and development through sourcing of more information pertaining to the lecture titles. This may be a good substitute for the need to purchase books that may not even be affordable.

[20] The legacy of Dentistry's involvement in the Network is that they now define themselves as OER *users*.

UWC SOPH incurs a per-page licensing fee for use of copyright material. This amounts to a "heavy commitment". Unfortunately, actual savings cannot be quantified because costs are built into student fees, and vary in proportion to student numbers. A dampener on cost saving achieved by OER use is that the institution is "rather textbook bound", and a move away from that would be necessary for impact of savings to be felt by students. Nonetheless, UWC SOPH sees the advantage of using OER in its own learning materials, and a dScriber is charged with responsibility for locating OER for exactly that purpose.

In a single blunt statement, the UCT editor of an OER textbook provided the most compelling example of direct cost saving: "Avoids having to pay R8 000 for a textbook."

Moreover, there were several indications that OER achieve significant *indirect* forms of savings through interrelated combinations of the following:

a) Savings in time.

b) Improved quality/effectiveness of learning.

c) Enabling teaching on topics that might otherwise not be covered.

d) Fostering collaboration between academics.

Illustrative quotes include the following:

- "Student [OER] learning is richer for the encounter."
- "...makes work easier in the long run, you don't have to acquire materials for demonstration and set up apparatus."21
- "The national picture and developments reduces the amount of time available for clinical teaching...with OER you don't have to repeat the performance."
- "Gains are indirect or diffuse: (a) the quality of graduates; (b) fewer students fail."
- "...scientists, clinicians and public health practitioners – who previously operated very independently of each other – have been brought together by the interdisciplinary process..."
- "Saving in time looking for actual patients to examine. Sometimes the patient one needs doesn't present [him/herself]."

7.1 CONCLUSION: RELATIVE FINANCIAL IMPLICATIONS OF OER

It is not possible to cite conclusive statistical evidence to show that financial savings are being achieved through the use of OER. However, the cumulative weight of evidence from the accounts and experiences of academics strongly suggests that direct and indirect forms of financial savings are being realized. Evidence of direct savings is strongest in the case of complete sets of learning materials or textbooks that students would otherwise be required to buy. OER video productions that are 'enhancements' or supplementary to the normal lecture programme are self-evidently less likely to result in direct financial savings.

Across all types of OER, there is strong evidence of more indirect forms of financial savings brought about through reduced staff time needed for teaching, quality gains in learning, and increased staff collaboration. Moreover, there are examples of OER enabling teaching on topics that would otherwise not be covered. Although indirect and

---

21 This was stated by a prolific OER producer.

very difficult to measure in precise financial terms, these savings represent significant forms of impact.

Indications of a shift from OER production to greater use of existing OER will doubtless increase the level of both direct and indirect financial savings being achieved.

8. USE OF OER PRODUCED OUTSIDE OF THE NETWORK

The formal research question from the ToR (Section 2.1) is phrased in this way:

"Is there any evidence that partner institutions *are proactively starting to use* OER produced outside of the Network in their programmes? Can this use be linked to what we have done?"

The italicized words in this quotation (writer's emphasis) form an important part of the background relevant to this question. From inception, the project has focused strongly on the *production* rather than *use* of OER. Institutions have concentrated on – and achieved considerable success in – developing their own OER and systems for embedding appropriate policies and practices in their own institutions. Nevertheless, the account below shows that the gaze is beginning to shift from OER within the Network, to available OER beyond. Evidence is drawn from OER producers and 'non-OER producers' alike in the partner institutions to illustrate this trend.

8.1 OER PRODUCERS' USE OF OER FROM OUTSIDE OF THE NETWORK

In answer to the question "Have you *used* OER from outside of the Network?" in the OER Producers' Questionnaire, seven of the nine respondents indicated that they had. OER in specialized fields such as "advanced trauma operative management" and "laparoscopic surgery" had been found and used. Even though the sample is small, if 78% of OER producers have used OER from outside of the Network, it is a firm indication that OER producers are expanding their activities to include OER use and reuse.

Support for this view is found in data from staff interviews. Academics from all partner institutions reported increased awareness and use of OER from elsewhere. Even UWC Dentistry reported a "surge in use of OER…we define ourselves as users, not producers, of OER".

Academics at KNUST and UG offered comments such as "We're beginning to know what's out there" and "I'm interested to see how other people have done things", when describing how their work as OER producers was leading to greater awareness of the potential for OER use and reuse. Typical statements were similar to that of the UCT academic reported by Mawoyo (2012):

> Now I am a bit more aware that the materials I am using in my lectures are not necessarily new; it is not the first time it has been done. I am more interested in using the Internet to check to see what has been done so it saves me time especially with new modules; for example, in the Health Promotion one where we are trying to come up with new ways of doing things. It gives me an idea of how others are doing it in the rest of the world. It makes me more conscious. (Mawoyo 2012: 7)

Use of OER from elsewhere is also a matter of institutional choice. UCT and UWC SOPH have each had the services of a 'dScriber' since commencement of the project. dScribers do more than assist faculty with converting existing materials into OER; they also conduct searches for OER that are needed to support new materials. Thus, while UWC SOPH has used and "shared back" learning materials with the University of Washington (Seattle), major effort is being put into the search for OER from other sources that can be built into learning materials. Moreover, the use and sharing of research for OER has been systematized with the establishment of a group known as 'Public Health Case Studies'. This group currently has 34 members and its function is described as follows:

> Group established 2011 by School of Public Health, University of the Western Cape, SA. The contents are intended for the development of cases for teaching in Public Health. They are drawn from the www, and from SOPH's own work. You are free to re-purpose SOPH's cases which are offered with a Creative Commons Share Alike licence and to give us feedback on them. You are encouraged to add case studies or links to cases from your own setting to this site. (Mendeley 2012)

Statistics on OER use of the 219 papers housed on the site are not yet available. However, with a dScriber in post, and an SOPH researcher describing herself simply as an "OER user", research papers for use in OER materials are certainly being accessed and used.[22]

8.2 NON-OER PRODUCERS' USE OF OER FROM OUTSIDE OF THE NETWORK

Of the 28 respondents to the online survey for non-OER producers, 9 had used OER from other universities. However, the most significant feature of these responses is that they provide good reason for believing that awareness and use of OER can be attributed to the Network. Eight of the nine users of OER from other institutions had in fact drawn these OER from other Network partners, namely UCT OpenContent, KNUST OER and Open.Michigan. Only two had used OER from non-Network partners (MedEdPORTAL and MERLOT). Knowledge of OER is recent (30% of respondents having become familiar with it in the past six months), and 41% and 19% respectively had attended OER presentations and demonstrations. These figures strongly suggest that knowledge of OER can indeed be attributed to the Network. Certainly, there is little evidence of knowledge of OER from outside of the Network.

8.3 CONCLUSION: USE OF OER PRODUCED OUTSIDE OF THE NETWORK

The Phase 2 Evaluation of the Network (OER Africa 2011) reported apparent reluctance on the part of OER developers to use OER from elsewhere, and provided a number of cogent reasons for this. That evaluation also cited other research reporting "overwhelming hesitancy" of OER creators to adapt or reuse others' content (OER Africa 2011: 38).

---

[22] The SOPH finds the sharing of research papers less problematic than the sharing of learning materials.

In contrast, the current impact study finds evidence of growing use of OER drawn from wider sources and repositories. This trend is evident at two levels:

a) At the individual level, for both personal and professional reasons, OER producers are beginning to show greater interest in using OER from elsewhere.

b) At the institutional level, in cases where modules and full sets of learning materials are being developed, there are increasingly systematic efforts to locate and use OER or open research material to incorporate into new OER that are being created.

Awareness of OER from elsewhere, and the use of such OER, can be attributed to the Network. This raises the interesting possibility that induction into OER and successful OER production might be creating its own momentum, resulting in greater interest in OER from elsewhere.

9. NON-PARTNER INSTITUTIONS USING OER FROM THE NETWORK

This section moves from the big picture of raw statistics drawn from Section 3 to an account of individual responses to the online Public Survey. Three very brief cameos provide a more qualitative indication of the kinds of OER take-up that have occurred.

9.1 AWARENESS AND USE OF THE NETWORK

9.1.1 OVERALL STATISTICS ON VISITORS AND DOWNLOADS

The relevant section from the earlier Table 4 is reproduced in Table 9 (below).

Table 9: Downloads and visits

Indicator	Notes
# views, downloads and visits from OER Africa, U-M and institutional repositories	OER Africa: 19 416 downloads, 10 824 visitors Total page views 80 446 Internet archive: 856 downloads U-M: 1 500 views per month SlideShare: 1 591 views YouTube Videos: 110 videos; total views 1 093 831 (see Appendix 3, Part C)
# visits, visitors from OER Africa, U-M and institutional repositories, and trends over time	OER Africa: 10 824 visitors U-M: 766 visitors Total page views: 80 446 For the top 20 search terms and top 20 resource downloads, see Appendix 3, Part D.

Derived from web analytics, these impressive statistics are certainly reliable. However, it cannot necessarily be assumed that OER were downloaded for the purpose for which they had been made available. The question must be asked whether they are *valid* markers of project impact. A comparison of statistics on OER topics viewed on YouTube and the African Health OER Network (Appendix 3, Parts C and D) has the potential for

speculation. Curious casual web surfers and possibly even voyeurs may, for example, have inflated the number of YouTube viewers. We have no way of knowing. By contrast, the profile of downloads from the OER Africa and U-M websites creates the impression of users representing a wider range of legitimate medical interests.

Overall, on the basis of project metrics, there are good grounds for inferring that the Network is beginning to meet genuine needs in health sciences education in the developing world. Table 10 (below) reinforces this assertion.

9.1.2 INDIVIDUAL RESPONSES TO THE ONLINE PUBLIC SURVEY

Awareness and use of the Network was also gauged by means of a Public Survey Questionnaire (for the distribution strategy, see Appendix 2). The sample of 52 respondents comprised 35 academics, 5 students and 9 in 'other' occupational categories.[23] As such, it is suitably reflective of institutional rather than purely individual perspectives. Table 10 (below) provides a rank order list of countries from which responses were received.

Table 10: Countries from which online responses to the Public Survey were received

♯responses	Countries in which respondents reside
18	South Africa (of which only two were from a Network partner institution viz. UCT)
9	Ghana (of which six were from the two Network partner institutions)
3	Kenya
8	India, Malawi, Nigeria, Sudan (two responses from each of these countries)
14	Burundi, Canada, Denmark, Ethiopia, Gambia, Guyana, Israel, New Zealand, the Philippines, Switzerland, Tanzania, Uganda, United Arab Emirates, Zimbabwe (one response from each of these countries)

All but three respondents are from developing countries. With only 8 of the 52 respondents being Network partners, it can be inferred that the Network has a profile *beyond* partner institutions.

Table 11 (below) lists indicators of impact outside of the partner institutions alongside inferences about impact that may be drawn from responses.

Table 11: Inferences drawn from indicators of impact

Indicator of impact	%	Possible inferences with respect to impact
Those familiar with	71	The association of familiarity with OER and the Network raises two possibilities, both of which

---

[23] 'Other' includes diverse categories such as 'independent consultant'; 'regional advisor, World Health Organization'; 'ICT director'). Three respondents did not specify an occupational category.

Indicator of impact	%	Possible inferences with respect to impact
the concept of OER **Those aware of the African Health OER Network**	65	reflect well on Network impact: (a) Those in the health sciences who know about OER also know about the Network. (b) The Network has raised awareness of OER.
Respondents who also access other websites	38	It appears as if respondents use the African Health OER Network as their primary source of OER.
Respondents who found relevant/useful resources on the OER Africa website	63	Given the number of specialist fields in the health sciences, this figure reflects very favourably on the *range* of OER in the repository as well as on their *quality*. This inference is reinforced by the fact that 15% reported visiting the site "frequently", 39% "sometimes" and 46 % "occasionally".
Types of resources downloaded	All OER types are used by at least 50% of respondents.	The repository has a full range of types of OER. Types of resources downloaded are: lecture presentations (by 93% of respondents); teaching case studies/lab exercises (by 83%); textbooks/learning guides (by 82%); research articles (by 80%); teacher notes (by 75%); data sets (by 50%).
Respondents who are "very likely" to recommend the African Health OER Network website to their colleagues	80	This reinforces all of the above inferences of favourable impact. Only 11% reported being "very unlikely" to recommend the website.
Respondents who are not subscribed to the Network newsletter	46	71% of the 54% not subscribed would like to subscribe. This reflects positively on their interaction with the website.

Note: Figures above are rounded off to the nearest whole number.

Respondents' open-ended comments fell into two categories:

(a) Appreciation for the site:

- o "A great resource."
- o "It is a great concept. I have access to the US library and have therefore not accessed the OER. I have a tight work and study schedule and simply have not made time to look at the available resources."
- o "Excellent website, it gives me more confidence in my work I do."

(b) Suggestions for ways of extending OER benefits:

- o "This institution should be able to look for funding to assist the people of low-income countries to participate in so many workshops to gain knowledge about research."
- o "Good initiative, but I didn't know about it."
- o "Please see how your courses and programs can be accredited or can be transferred for degree seeking learners."

One negative or plaintive comment was offered:

> Encourage interested contributors who put in personal time and resources. There should be more of inclusion rather than exclusion, beyond institutional or territorial boundaries. I developed the idea of a resource from inception to completion. It was put online and then taken off. What happened to my resource?[24]

9.1.3 THREE CAMEOS OF OER 'TAKE-UP'

Three very brief cameos complement the bigger statistical picture of impact.

(a) Take-up of a single DVD

A multilingual *Clinical Skills* DVD was developed in line with UCT's focus on primary healthcare with the accompanying need for doctors with conversational competence in indigenous languages.

> Professor Hellenberg had originally intended to release the DVD for sale. However, through the Health OER initiative, he and the other authors were exposed to the concept of the Creative Commons licensing framework and its relevance to the FHS [Faculty of Health Sciences] mission. They therefore agreed to license the DVD as OER. The University of Stellenbosch – also located in the Cape region – is now using these resources in its own training programmes. (Mawoyo 2012: 9)

(b) Downloading of textbook chapters

Chapters of a textbook titled *Open Access Atlas of Otolaryngology, Head and Neck Operative Surgery* (Fagan 2012) are hosted on the UCT VULA server (the UCT virtual learning environment), as well as on OER Africa. Contributors to the textbook include the "top sinus surgeon in the world, as well as the top otologist" on rhinology and otology.[25] In the last week of February 2012 the editor of the textbook wrote that chapters had been "downloaded > 1 400 times from all over the world, principally India".[26] The dean added that this textbook had played a key role in the qualification of the first ENT specialist in Malawi.

---

[24] Because this respondent did not reply anonymously, it was possible to find the answer to her question. The resource had been removed at the request of her institution.
[25] Personal email to dean of health sciences, UCT, 28 February 2012.
[26] Personal email to dean of health sciences, UCT, 28 February 2012.

(c) Take-up at national level

> The OER developed by UG and KNUST has been used in other
> African countries. In April 2011, U-M demonstrated the Caesarean
> section module co-developed by UG and U-M to the Minister of
> Health of Ethiopia, who immediately distributed it to several
> community healthcare workers upon his return. The module co-
> author from UG is now advising on how to integrate OER into
> clinical maternal health education at a new medical school in
> Ethiopia. Additionally, two UG alumni happened across the total
> abdominal hysterectomy and Caesarean section modules from UG
> while doing online searches, and have since used them with fellow
> residents in Nigeria. (Ludewig Omollo *et al*. 2012: 69)

9.2 CONCLUSION: NON-PARTNER USE OF OER FROM THE NETWORK

Despite limitations on how one might interpret project metrics in respect of visits and downloads, project metrics indicate that the Network is meeting genuine needs in the teaching and learning of the health sciences in Africa in particular. This conclusion is strongly supported by the views of respondents in the online Public Survey as well as by accounts of take-up from other sources. In addition to the relevance of the OER being made available, data from different sources point to the quality of the OER.

10. EFFECTIVE SOCIAL AND TECHNICAL INSTITUTIONAL INFRASTRUCTURE FOR OER PRODUCTION AND USE

The different approaches to OER development – all successful except for the single unit that halted OER production because of competing pressures on human resources – provide a rich database for extrapolations with respect to factors that contribute to the type of social and technical infrastructure within which OER flourish.[27]

The overarching point arising from experience of the Network is that remarkably successful OER development has taken place in diverse Network partner institutions – but in ways that are consistent with the distinctive ethos, contextual realities, strategies and resources that characterise each of them. As a result, institutions have developed their own creative procedures for making the most of OER, with appropriate support from the project. While no ready template or checklist for OER development emerges, issues of significance do. We begin with the most obvious issue.

10.1 TECHNICAL INFRASTRUCTURE

The promise of making teaching resources de facto OER can be fulfilled only if there are adequate ICT platforms. While project management has succeeded admirably in making resources available (see Section 9 in particular), challenges in partner institutions remain. As well as having been reported in the Network's case study research (Ludewig

---

[27] One of the problems for UWC Dentistry was that although there was a need for OER, production "just didn't work for us".

Omollo 2011: 11), technology infrastructure challenges were mentioned by many students and several academics in interviews and surveys. A case of student exasperation with campus technology was cited in 5.1 above, and there were several others, such as one student's description of his attempts to use zipped files:

> And then when you unpack them – I don't know – I have tried it twice. I tried getting the…oral glucose tolerance test. I downloaded it but then when I unpacked, I couldn't get it. I don't know what format they put it in.

Academics do not appear to have uniformly better access to ICT either. One respondent to the online Public Survey wrote:

> It [OER] is a good thing – but I worry. How open is open access, when access to the Internet in Cape Town is still so uneven? The staff in our local Cape Town Community Health Centres, we still cannot connect them to VULA. We cannot communicate and share docs via VULA. We still deliver docs by car!

The nature of the challenge was driven home in the current study when a number of responses from OER producers had to be handwritten on printed versions of the questionnaire, then scanned and returned from a central office. A number of online responses dispatched from the appointed office did not reach their destination.

Without the infrastructural support of OER Africa, it seems possible that many good resources produced on partner campuses will languish on DVDs issued to students in a home-grown and home-bound manner. A functional Internet connection is a sine qua non for OER to flourish.

10.2 OER CHAMPIONS – AND THE BIG CHAMPION

Earlier project evaluations commented on the existence in all institutions of a core of OER 'champions' from different backgrounds. Of all champions, the most important is the one who takes the lead and who has the necessary institutional power and standing to manage change. At UG and KNUST, the two provosts have led successful institutional OER policy development in addition to creating systems to institutionalize OER production. Innovations at UG included the involvement of retired professors to ease the additional workload that comes with OER production, and the employment of a full-time media specialist to film and package OER. At KNUST, the task of OER production has been harmonized with the work of the Department of Communication Design (DeCoDe), to the mutual benefit of both the project and the DeCoDe and its students. Senior university management at UCT relies on the dean of health sciences to complement its own efforts to make OER normative across all faculties.[28]

UWC presents a contrast. Institutional OER policy has long been in place:

---

[28] The dean also plays an advocacy role on the continent through her position as chair of the African Medical Schools Association and her involvement in other African organizations.

UWC has a long history of supporting the use, development and diffusion of free/open source software and educational resources. In 2005 UWC's Senate passed an ambitious *Free Content, Free/Open Courseware Policy*, which removed institutional obstacles to publication of open educational resources. The Free Courseware project is part of a broader move towards implementation of this strategy. (Free Courseware Project, UWC nd)

Nonetheless, one interviewee noted that the university's "strategic five-year plan for teaching and learning" makes no mention of OER, and another remarked that the Free Courseware website "looks sad and neglected". A head of department added that there seemed to have been "no development since Derek [the academic who championed the passage of the Free Courseware through the senate] left. But it hasn't closed down as far as I'm aware." Two key factors here appear related: (a) the champion who shepherded the OER through the UWC senate subsequently left the university, and (b) both UWC SOPH and Dentistry piloted OER without institutional support. The former has sustained its role largely because there is natural synergy between OER and its own modus operandi of producing research-based learning materials for distance education. The latter, as mentioned above, halted OER production and have become "OER users".

A high-level champion is an asset of critical importance.

10.3 A STRUCTURAL HOME FOR OER

A loosely knit pool of champions working as individuals is not the kind of arrangement that will create sustainable OER momentum in a highly bureaucratic environment like a university. OER has to become part of the formal organizational structure. Project experience shows that an established unit that takes on the role of supporting OER is a decided asset. This is especially true if that unit is able to play the additional role of aligning OER practices and needs with university regulations and blanket issues such as copyright. The academic cited below captures what many academics have expressed in different ways:

We need a bigger team supporting OER, with full-time employees. One of the challenges I found was that people were busy with other things and, because they are part-time, they have other things to do. If you have a full-time person things keep going – it will not slow progress. OER activities need to have a focal point in the faculty – it makes it more real if there is an OER area as opposed to it being part of IT. (Mawoyo 2012: 13; 17)

With the exception of UWC, Network partner institutions have powerful institutional champions and structural homes for OER, staffed by an individual, or individuals, who become the public face of OER.

10.4 AN INTELLECTUAL HOME FOR OER

Partner institutions have been mindful of the fact that OER, being resources for teaching and learning, must be coherently integrated into existing programmes. This

calls for curriculum expertise. KNUST, for example has an instructional model; and UWC SOPH employs two full-time academics with qualifications in education. UCT provides an example of the significant benefits of an established intellectual home for OER. The Centre for Educational Technology (CET) is "a hybrid centre with an expert team of learning technologists, designers, teaching and research staff and curriculum support specialists" (Mawoyo 2012: 3). In addition to managing the university's open access projects and supporting the Network, CET is an extremely powerful intellectual home for OER. The two earlier evaluations noted the number of UCT academics who believed that their work in producing OER had benefited immeasurably from their studies in teaching and learning in higher education offered through CET. Their studies had not only enhanced their knowledge of curriculum and pedagogy. They had also come to grips with "pedagogic content knowledge" (Shulman 1987) – the way in which the content of unique disciplines is recontextualised into procedures to enable systematic learning.

10.5 'RECULTURING' THE CORE: TEACHING AND RESEARCH

The core of academic work comprises teaching and research, but it is the latter that carries greater reward and prestige. Academics who were interviewed showed keen awareness of this, expressed in terms such as: "We're pressurized for higher degrees, for scholarly work," and "Research is what counts here."

Parity in the incentives structure for research and OER production has been achieved in approved institutional policy at KNUST, and is pending at UG. This is a major advance. In the longer term there could be additional merit in building on the way in which some OER production has brought teaching and learning into a closer mutual relation. This has occurred in instances where dScribers have been involved in locating research to be built into OER; and, in the case of UWC SOPH, 'own' case study research is integral to learning materials. Encouragement for the fusion of research and teaching rather than seeing them as oppositional activities has the potential for 'reculturing' (Fullan 1998). Although written with schooling in mind, Fullan's argument on the limitations of restructuring has equal relevance to higher education:

> Restructuring refers to changes in the formal structure of schooling in terms of organization, timetables, roles, and the like. Restructuring bears no direct relationship to improvements in teaching and learning. Reculturing, by contrast, involves changing the norms, values, incentives, skills, and relationships in the organization to foster a different way of working together. Reculturing makes a difference in teaching and learning. (Fullan 1998: 4)

10.6 PEER REVIEW AND QUALITY

Without visible peer-review processes, OER will remain vulnerable to accusations of suspect quality. (Traditional contact teaching remains strangely immune to such suspicion even though many students and former students are sceptical.) Peer review is built into all OER production processes in the Network, at both faculty and Network levels, and this is clearly an essential part of the required OER infrastructure. It is also a necessary form of reassurance for producers, some of whom have anxiety about their

work – which was previously completely private – suddenly being open to public scrutiny.

At a broader institutional level, however, consideration of quality issues would be most meaningful if linked with the 'bottom line' – that is, cost. Section 7 alluded to direct savings achieved through use of OER. Nevertheless, there appeared to be no ready mechanism for quantifying savings or cost benefits. As different sectors of the university play their own roles in the flow of finances, the development of a mechanism for analyzing costs, savings and benefits would have to be an institutional undertaking.

10.7 USE OF OPEN ACCESS SOURCES IN ALL TEACHING AND RESEARCH

This point follows directly on the issue of cost savings. dScribing processes can be very slow when existing materials are being converted into OER. Copyright clearance itself is slow. Much of this difficulty and expense could be obviated if institutions were prepared to make a commitment to using as many open source materials as possible and, in turn, to publishing their own products in open access forums.

There are useful precedents. A recent memo from Harvard's faculty advisory council declares that major scientific publishers had made scholarly communication "fiscally unsustainable".

> Exasperated by rising subscription costs charged by academic publishers, Harvard University has encouraged its faculty members to make their research freely available through open access journals and to resign from publications that keep articles behind paywalls.[29]

10.8 STUDENT EXPECTATIONS

The expectations of students are all too easily neglected when university systems are under consideration. Students in this study emerged as having strong, clearly expressed views and expectations. Their views (Section 5.1) on how teaching can optimize learning opportunities created by OER were as incisive as those of academics. Students expect good resource-based teaching as well as functional ICT systems for accessing resources; and they made a clear call for more publicity about sites like OER Africa and projects like the African Health OER Network.

Student views and demands can be a strong asset to the cause of OER use and reuse. Response to these views could provide a useful way for academics to combine reflective teaching with research for publication.

10.9 EXTERNAL SUPPORT

An intriguing possibility was raised earlier: Do those who are introduced to OER and supported in OER production progress naturally from being producers of original OER

---

[29] I Sample, "Harvard University says it can't afford journal publishers' prices", *Guardian*, 24 April 2012. From: http://www.guardian.co.uk/science/2012/apr/24/harvard-university-journal-publishers-prices, accessed April 2012.

to becoming users of OER? The current study found some evidence of this, but until there is more systematic research this possibility remains the kind of hunch that sometimes guides research. As change takes hold, changes certainly do occur. For example, at UG it was noted that OER came as a "new idea". With much progress having been made, "by and large, the obstacle is no longer fear as much as time in which to work on OER".

Leaving aside the question of whether the OER process acquires its own momentum, external support for OER remains important at a number of levels. At a technical level, the OER Africa website is of key significance, and from university managers there is appreciation for Network support across issues ranging from policy development to simply keeping abreast of fast-moving developments. The dean at UCT was quoted earlier as saying that OER Africa is a "facilitator, inspiration, technical support and management centre".

Similar need for project support is evident on the part of individual academics involved in OER production and use. An academic at UG put it this way: "Funding or no funding, we will continue with OER. But we need an occasional 'brush up' from OER Africa. We need new ideas to maintain the passion."

11. EFFECTIVE CROSS-INSTITUTIONAL COLLABORATION MODEL FOR OER PRODUCTION

11.1 CROSS-INSTITUTIONAL COLLABORATION ACHIEVED THUS FAR

Cross-institutional collaboration on OER production within the Network has not yet developed much beyond the individual networks in existence prior to the inception of the African Health OER Network. The relative lack of networking that is evident confirms the findings of the Luo *et al.* (2010) study on collaboration:

> Most of the interviewees stated that even though they saw the benefits of cross-institutional collaboration, they did not know how to initiate collaboration. In particular, participants did not know "what the person [from other institutions] does, the skill he has, the interest of the person, and productions that he's done". (Luo *et al.* 2010: 17)

Interviewees in the earlier, Phase 2 evaluation (OER Africa 2011) readily acknowledged the need for collaboration, as well as shortcomings in this regard. At the current stage of the project, however, these shortcomings are not perceived by project participants as any kind of failure. As part of general recognition that change is slow and incremental, initial efforts have been strongly focused on the first, essential step: OER *production* within the institution. Partner institutions have focused on "getting things right at home first", as one respondent put it.

At the level of project management, the picture of collaboration is very different. "[M]embers of the African Health OER Network are active participants and networkers on the international front, and enjoy a high profile" (OER Africa 2011: 28–29). The most striking single example of impact is to be seen in agreements for collaboration with the Higher Education Alliance for Leadership Through Health (referred to as the HEALTH Alliance), "a legal organisation that implements regional activities and coordinates

curricula".[30] The alliance comprises seven schools of public health, at the following institutions:

- Makerere University, Uganda.
- Jimma University, Ethiopia.
- Muhimbili University, Tanzania.
- Kinshasa University, Democratic Republic of Congo.
- National University of Rwanda School of Public Health.
- Nairobi University, Kenya.
- Moi University, Kenya.

The impact of the African Health OER Network is best captured in the following statement from a HEALTH Alliance proposal: "The development of standardized curricula and materials for the Master's Programmes in Public Health will be done within an *OER framework*"[31] (writer's emphasis).

It has been consistently argued that OER success within partner institutions was largely attributable to OER development having taken place in logically 'grounded' ways aligned with institutional needs and priorities. It is notable that the Network arrangement with the HEALTH Alliance had its origins in institutional needs. In this instance, Network management was able to respond appropriately to the alliance's wish to increase access to public health education in the region, as well as to synchronize the courses in the masters programme (MPH) so as to facilitate credit transfer and student exchange across regional schools of public health.

There can surely be no better stimulus for cross-institutional collaboration on OER production than the common curriculum of an alliance of institutions working together within an OER framework.

11.2 POSSIBLE MEASURES TO PROMOTE COLLABORATION

Project experiences suggest a number of purposeful measures that might be considered as ways of stimulating collaborations on OER production.

(a) Visiting professorships can bring valuable OER expertise to contexts of need. The two earlier project evaluations draw attention to the immense value of the year-long sabbatical (August 2008–August 2009) that U-M's Professor Cary Engleberg spent at KNUST during which he also worked with academics at UG. This was not only key in 'kickstarting' OER processes. After a subsequent return visit by Professor Engleberg, a lecturer from the DeCoDe at KNUST undertook a six-month research fellowship at U-M to study instructional and interactive design principles (Ludewig Omollo *et al.* 2012). African academics with recently acquired OER expertise could take this to other interested universities as part of routine visiting professor/sabbatical arrangements.

(b) Judging by the interest shown by respondents to the online questionnaires, the African Health OER Network newsletter has much potential for generating the kind

---

[30] http://halliance.org/

[31] From the draft document "Proposal for the development of student-centred OER to support regional MPH programmes in East Africa through the HEALTH Alliance" (23 February 2012).

of publicity for the Network that many student and academic respondents urged. Among other services, the newsletter could be the conduit between institutions offering visiting professorships and OER experts eligible for sabbaticals. Such a service might help overcome the kind of difficulty experienced by UWC Dentistry. During their early involvement in the project, the faculty's efforts to find someone experienced to work with in prosthetics had been unsuccessful, as had their efforts at 'twinning' with another university.

(c) The intellectual home for OER – referred to in 10.4 above – has financial implications. An alternative that could also contribute to inter-institutional collaboration would be the development of OER courses for academics. Modules or higher degree programmes could cover various topics across the production and use of OER in higher education teaching.

(d) Research-productive academics have their own personal networks. Examples of active research being combined with materials production in the production of the more extended types of OER were mentioned above. As more OER of this type are produced, there is increased likelihood of existing research networks broadening into research *and* OER production and user networks. Similarly, if institutions encouraged academics to use openly licensed teaching materials and to publish research in open access journals, this would foster increased OER awareness within specialized communities of practice. Peer-review processes could also raise such awareness, leading to new collaborations.

11.3 CONCLUSION: PROMOTING CROSS-INSTITUTIONAL COLLABORATION

The overall picture strongly suggests that if the Network model that has underpinned successful OER production and extension is sustained, cross-institutional collaboration will follow organically, along the lines of the agreement with the HEALTH Alliance.

The most important principle with respect to extending collaboration would seem to be exactly what the Network has been doing: identifying locally rooted curriculum needs, and then responding with appropriate support. With its sensitivity to demand, this model overcomes what Elmore (1999) identifies as the key reason why educational innovation takes hold in only a fraction of institutions: "The problem…lies not in the supply of new ideas, but in the demand for them" (1999: 256).

12. CONCLUSION

This overall conclusion now draws together the conclusions reached at the end of each of the sub-sections on project impact. Key findings and statistics are highlighted.

12.1 IMPACT WITHIN NETWORK PARTNER INSTITUTIONS

(a) Impact across partner institutions
The project has had high impact across the partner institutions. The committed pool of OER champions continues to increase, albeit slowly. OER production continues apace, accompanied by the recent trend of much increased interest and activity in the use and adaptation of existing OER. The only non-OER *producer*, UWC Dentistry, now focuses on OER *use*.

(b) Impact on teaching and learning
Academics and students strongly affirm the benefits of OER in teaching and learning. Academics report impact in terms of ways in which they are redefining their general approach to teaching. Multimedia resource-based teaching moves naturally in the direction of more active learner-centred methods that promote greater student independence and responsibility for managing their own learning. In some cases, research and teaching were being brought into a more productive relationship. Students were keenly aware of changes in teaching approaches and of how academics could further exploit the potential of OER. They expressed clear expectations that OER-based teaching should become normative and that campus infrastructure should allow them ready and independent access to web-based resources.

(c) Extending from OER production to increasing use of OER
While partner institutions have focused strongly on producing OER, both OER-producing and non-OER-producing academics have begun to *use* OER. Their knowledge of OER can be attributed to the Network, and indeed it is principally OER from partner institutions that are being used.

(d) Moving from OER production to Open Educational Practices
Faculties in partner institutions have moved beyond meeting the original Network contractual obligation of OER production. With take-up having extended to the host institutions themselves, the Network is at the threshold of achieving a shift from Open Educational Resources to Open Educational Practices (OEP). Network impact comes close to this definition of OEP:

> Open Educational Practices (OEP) are defined as practices which support the production, use and reuse of high quality open educational resources (OER) through institutional policies, which promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path. OEP address the whole OER governance community: policy makers, managers and administrators of organizations, educational professionals and learners. (ICDE nd)

With OER having arrived at UG and KNUST as a new concept, the shift in institutional identity towards OEP is a major development. Likewise, UCT now has an explicit position with regard to OEP (see OER@UCT 2011). This development cannot be attributed solely to the Network, which has augmented other OER movements already in progress at UCT. However, the Network has clearly made an important contribution. Moreover, when it comes to overall impact, it is surely the cause of OER or OEP that is more important than the branding that promotes it. The open access cause is likely to be best served when different forces and projects contribute in different ways but with unity of purpose.

(e) Significant OER policy development
Impact extends beyond the partner faculties that have pioneered OER in their institutions. Policy developments in three of the four Network institutions have moved towards OER-amenable open access modes of operation at institutional level. Changing identities are evident at both institutional and individual levels.

(f) New Network connections across higher education institutions

The above point also has relevance to the only significant metrics indicator not fully achieved: "new connections across institutions for sharing knowledge of health education". Connections across a range of institutions beyond the Network partners are arguably a more important development. Moreover, collaboration and networks are too personal to be engineered – they emerge through practice based on common interests and the development of trust. Prospects for new OER connections and collaboration are certainly enhanced by the more widespread availability and use of Network OER. In this regard, Network management has laid the necessary groundwork. Management has brought new institutions into the OER framework. This formal agreement with the HEALTH Alliance brings the standardized curriculum across seven constituent universities into an OER framework.

12.2 IMPACT ACROSS BROADER COMMUNITIES AND NETWORKS

In addition to initiating and supporting project partners in contextually suitable ways, the Network has been successful in achieving the following:

- A visible and accessible engagement process for creating, using, discussing or promoting health OER.
- The assembly of high-quality African-produced OER representing a wide range of health disciplines (310 health resources representing 13 disciplines and 20 sub-disciplines).
- A visible and used portfolio of OER health education learning materials, which augments and highlights institutional and global repositories (OER Africa has a total of 10 824 visitors, while U-M averages 1 500 views per month).
- Scholarly output on OER in conferences and publications.

Impact of the Network is being experienced in the developing world, and in Africa in particular. Resources across a range of disciplines have been downloaded and used; and judged to be useful and of high quality. YouTube video OER have generated 804 individual ratings on quality, with an average rating of 4+ stars out of 5. The most commonly recurring words in viewers' comments are "thanks", "thank you" and "understand".

In the online Public Survey, 63% of respondents reported having found useful resources on the OER Africa website; and 80% were "very likely" to recommend the site to colleagues.

12.3 NETWORK RATIONALE AND PROVISION OF TRAINING IN THE HEALTH SCIENCES

In conclusion, we relate Network impact to its rationale. The plight of universities is well represented in the media. Increasingly, in the jargon that has become popular, they are expected 'to do more with less'. The following gloomy view in the South African *Business Day* reflects this discourse. Under the heading "Excellence has become a luxury universities can no longer afford", an academic (writing in his private capacity) argues:

> From a university management perspective, low pass rates mean less money in the pocket and the spectre of undesirable outcomes…So how does a university respond to this situation? In

> reality it all becomes a numbers game – management by spreadsheet…With the present funding formula for higher education in place, universities talk excellence but they simply cannot afford it. Universities can afford only mediocrity.[32]

Constraints are real, but this kind of argument would be more persuasive had there been no technological development and social change since Johannes Gutenberg. The African Health OER Network has shown that quality and cost-effectiveness are neither mutually exclusive nor unattainable. The current impact study finds examples of direct and significant indirect savings through OER; and enhanced quality is evidenced in the accounts of academics and students as well as in new quality assurance peer-review mechanisms.

The founding project rationale for the African Health OER Network is that poor health outcomes in Africa's developing countries are partly attributable to too few health providers, staff and resources; and to too many students. OER developed through collaborative networks can lead to more productive teaching and learning, and ultimately to more and better healthcare providers (Open.Michigan 2011a; OER Africa & U-M 2010).

Impact of the Network fully justifies the theory of change on which the project is based. High impact has been achieved in a way that serves also as a model for OER adoption in other disciplines in other African universities.

---

[32] C Boshoff, "Excellence has become a luxury universities can no longer afford", *Business Day*, 23 January 2012.

13. REFERENCES

Adanu RMK, Adu-Sarkodie Y, Opare-Sem O, Nkyekyer K, Donkor P, Lawson A & Engleberg NC (2010) Electronic learning and Open Educational Resources in the health sciences in Ghana. In *Ghana Medical Journal* 44(4). From: http://www.ghanamedj.org/pastjournal.php?JID=25, accessed April 2012

African Health OER Network (2011) *African Health OER Network*. From: http://open.umich.edu/education/med/oernetwork/grants/african-health-oer-network/2010, accessed July 2010

Breier M & Wildschut A (2006) *Doctors in a divided society: The profession and education of medical practitioners in South Africa.* From: http://www.hsrcpress.ac.za/product.php?productid=2146&freedownload=1, accessed April 2012

Ebrahim E & Rangan VK (2010) The limits of nonprofit impact: A contingency framework for measuring social performance. Working Paper. Social Enterprise Initiative, Harvard Business School

Elmore RF (1999) Getting to scale with good educational practice. In B Moon & P Murphy (eds) *Curriculum in context.* London: Paul Chapman

Fagan J (2012) *Open access atlas of otolaryngology, head and neck operative surgery.* From: http://www.oerafrica.org/ResourceResults/tabid/1562/mctl/Details/id/39086/Default.aspx, accessed May 2012

Free Courseware Project, UWC (University of the Western Cape) (nd) *Free Courseware at UWC*. From: http://freecourseware.uwc.ac.za, accessed March 2012

Fullan M (1998) Leadership for the 21st century: Breaking the bonds of dependency. *Educational Leadership* 55(7). From: http://michaelfullan.ca/Articles_98-99/04_98.pdf, accessed April 2012

Glennie J, Harley K, Butcher N & Van Wyk T (eds) (2012) *Perspectives on open and distance learning: Open educational resources and change in higher education: Reflections from practice.* Commonwealth of Learning/UNESCO. From: www.col.org/psoer, accessed May 2012

Hoosen S & Ludewig Omollo K (2010) *The African Health OER Network: Advancing health education in Africa through open educational resources*. From: http://open.umich.edu/education/med/oernetwork/reports/ajhpe-article/2010, accessed April 2012

ICDE (International Council for Open and Distance Education) (nd) *Definition of open educational practices*. From: http://www.icde.org/en/resources/open_educational_quality_inititiative/definition_of_open_educational_practices, accessed March 2012

KNUST (nd) *KNUST Open educational resources. Strategic priorities.* From: http://web.knust.edu.gh/oer/pages/sections.php?siteid=knustoer&mid=23&sid=120, accessed April 2012

Ludewig Omollo K (2011) Growing an institutional health OER initiative: A case study of the University of Ghana. From:

http://open.umich.edu/education/med/oernetwork/reports/case-study-ug/2011,
accessed May 2012

Ludewig Omollo K & Mawoyo M (2011) *Reflections on the past two and a half years of a collaborative health OER project*. From:
http://open.umich.edu/education/med/oernetwork/reports/reflections-collaboration/2011, accessed April 2012

Ludewig Omollo K, Rahman A & Yebuah C (2012) Producing OER from scratch: The case of health sciences at the University of Ghana and the Kwame Nkrumah University of Science and Technology. In J Glennie, K Harley, N Butcher & T van Wyk (eds) *Perspectives on open and distance learning: Open educational resources and change in higher education: Reflections from practice.* UNESCO/COL. From: www.col.org/psoer, accessed May 2012

Luo A, Ng'ambi D & Hanss T (2010) *Fostering cross-institutional collaboration for open educational resources production*. From:
http://open.umich.edu/education/med/oernetwork/reports/oer-collab-report/2010, accessed April 2012

Mawoyo M (2012) Growing an institutional health OER initiative: A case study of the University of Cape Town. From:
http://www.oerafrica.org/ResourceResults/tabid/1562/mctl/Details/id/39105/Default.aspx, accessed May 2012

Mendeley (2012) *Public health case studies. About this group*. From:
http://www.mendeley.com/groups/1629163/public-health-case-studies, accessed 1 May 2012

OER Africa (2009) Health OER inter-institutional project formative evaluation of health OER Design Phase. From:
http://www.oerafrica.org/ResourceResults/tabid/1562/mctl/Details/id/37528/Default.aspx, accessed April 2012

OER Africa (2011) *2010-2011 African Health OER Network Phase 2 evaluation: Consolidation and sustainability*. From:
http://www.oerafrica.org/ResourceResults/tabid/1562/mctl/Details/id/38800/Default.aspx, accessed April 2012

OER Africa & U-M (2010) *2010-2011 African Health OER Network.* Proposal to Hewlett Foundation Education Program. From:
https://open.umich.edu/wiki/images/7/71/20091009UM-OERAfricaHewlett2010HealthOER-proposal-public.pdf, accessed July 2010

OER@UCT (2011) *UCT moving towards open education practices*. Posted by Michael Paskevicius. From: http://blogs.uct.ac.za/blog/oer-uct/2011/09/12/uct-moving-towards-open-education-practices, accessed May 2012

Open.Michigan (2011a) *Health OER collaborations*. From:
https://open.umich.edu/wiki/Health_OER_Collaborations, accessed April 2012

Open.Michigan (2011b) *Wiki: What is OERca?* From:
http://open.umich.edu/wiki/OERca, accessed April 2012

Saide & U-M (2011) *African Health OER Network impact research plan*. From:
http://open.umich.edu/wiki/Media:2011.05.09_Health_OER_Network_ImpactResearchPlan_v5.doc, accessed April 2012

Shulman LS (1987) Knowledge and teaching: Foundations of the new reform. In D Hartley & M Whitehead (eds) *Teacher education. Major themes in education. Vol. III Curriculum and change.* London & New York: Routledge

Tagoe N, Donkor P, Adanu R, Opare-Sem O & Engleberg NC (2010) *Beyond the first steps: Sustaining health OER initiatives in Ghana*. From: http://open.umich.edu/education/med/oernetwork/reports/health-oer-ghana/2010, accessed April 2012

14. APPENDICES

APPENDIX 1: INTERVIEWEES (PERSONAL, TELEPHONIC AND SKYPE)

University of Ghana

Academic staff: Professor Aaron Lawson (provost), Professor Richard Adanu, Rev. Dr Thomas Ndanu, Mr Chris Yebuah (all telephonic, 29 March, 4 April, 2 April, 30 March, respectively)

Students (focus group of six third-year clinical students who opted for anonymity) (November 2011, interview conducted by Ms Kathleen Ludewig Omollo)

Kwame Nkrumah University of Science and Technology

Academic staff: Professor Peter Donkor (provost), Mr George Koffour, Ms Nadia Tagoe (telephonic and Skype, 30 March, 3 April, 30 March, respectively)

Students (focus group interview with five 2011 graduates): Dr Emmanuel Adomako, Dr Joceline Afrane, Dr Millicent Amankwah, Dr Philip Oppong-Twene, Dr Ronald Williams (November 2011, interview conducted by Ms Kathleen Ludewig Omollo)

University of Cape Town

Professor Marian Jacobs (dean), Professor Greg Doyle (personal interview and Skype, 28 March, 5 April, respectively)

University of the Western Cape

School of Public Health, Faculty of Community and Health Sciences:

Ms Lucy Alexander, Ms Lisa Belle, Ms Allison Fullard, Professor Uta Lehman, Ms Nikki Schaay, Professor Thandi Puoane (personal interviews, 26 March)

Faculty of Dentistry:

Professor Wendy McMillan (personal interview, 27 March)

APPENDIX 2: DISTRIBUTION STRATEGY FOR QUESTIONNAIRES

There are three surveys in total for the African Health OER Network impact research:

1. Student survey
2. Faculty survey
3. Public Survey

All three surveys will be made available in both an editable Word document version for people who prefer to complete it offline and email their response and an online survey at www.surveymonkey.com.

Faculty Staff and Student Surveys

Both surveys will be shared with the project coordinators at partner institutions to distribute and publicize to health sciences department/faculty to ensure that as many people as possible complete the survey.

The consultant will communicate via email with the project coordinators at the various institutions.

Public Survey

This survey is addressed to the broader public of health sciences faculty staff and students *outside* of the partner institutions listed above. Faculty staff or students from our partner institutions (UCT, UWC, KNUST and UG) need not complete this questionnaire.

The Public Survey will be publicized and distributed as follows:

Websites

- OER Africa website – www.oerafrica.org
- African Health OER Network website – www.oerafrica.org/healthoer
- Saide website and Blog – www.saide.org.za, http://blog.saide.org.za

Newsletter and Mailing Lists

- Sent by Saide via the Saide March 2012 newsletter mailing list
- Announcement on the African Health OER Network mailing list

Partner Institutions

The following partner institutions will be targeted and asked to share/distribute and publicize the survey on their websites, mailing list, intranets, libraries etc.:

- University of Michigan, UCT, UWC, KNUST and UG
- HIBBs, Global Health Informatics Partnership (GHI) and American Medical Informatics Association (AMIA)
- MedEdPORTAL
- MEPI
- HEALTH Alliance
- University of Malawi, Haramaya University, Makerere University

Social Networking Site

- Distributed openly via OER Africa Facebook page, other relevant Facebook pages, discussion lists, blogs, Twitter etc., with an open invitation for institutions and individuals to complete the questionnaire online.

Survey Distribution and Report

- All surveys will be available from 1 March–31 March 2012.
- Result compilation in April, 2012

APPENDIX 3: ADDITIONAL DETAIL ON PROJECT METRICS

PART A: # INDIVIDUAL/ORGANIZATIONAL CONTENT CONTRIBUTORS

Table 12: List of 115 authors representing 12 institutions, and number of resources

Creators/authors	# resources
1. Dave Wood	115[33]
2. Yashik Singh	20
3. Diane Awerbuck	15
4. J Welbeck, JO Oliver-Comey, B Goka, O Rodrigues, E Badoe, C Enweronu-Laryea, C Oduro-Boatey, L Renner, Richard MK Adanu, Chris Andrew Yebuah	13
5. Jessica Cote, Pete Hanke	11
6. Beverly Musick	8
7. Desmond Tutu Tuberculosis Centre	7
8. Nii Armah Adu-Aryee, EQ Archampong, ED Yeboah, Baako, Michael Segbefia, Richard MK Adanu, Chris Andrew Yebuah	6
9. Callie Archibald, Kristen Zwick	5
10. Atinkut Alamirrew, Desalegn Tegabu	4
11. Cary Engleberg	4
12. Jane Yeats	4
13. George Koffour, Samuel Owusu Agyeman-Duah, Benjamin Prempeh, Ella Kasanga	4
14. Tim Noakes	4
15. RA Kwame-Aryee, Richard MK Adanu, Dorothy Adelina Daisy Mensah, Madam Hammond, Chris Andrew Yebuah	4
16. Johan Fagan	3
17. Parvati Dev, Patricia Youngblood	3
18. Desalegn Tegabu	3
19. Richard Adanu, Cary Engleberg	3
20. Sarah Hoosen	3
21. John E Sidle	3
22. Sherrilynne Fuller	3
23. Jonny Myers	2
24. Kathleen Ludewig Omollo	2

---

[33] Correspondence of this number with the total number of authors is purely coincidental!

Creators/authors	# resources
25. George Koffour, Samuel Owusu Agyeman-Duah, Benjamin Prempeh	2
26. Unknown	2
27. Aldo Marchesini	2
28. Matumo Ramafikeng, Lana van Niekerk	1
29. Di McIntyre	1
30. Mignonne Breier, Angelique Wildschut	1
31. Nadia Tagoe, Peter Donkor, Richard Adanu, Ohene Opare-Sem, Cary Engleberg	1
32. Neil Myburgh, Debra Jackson	1
33. People's Open Access Education Initiative	1
34. Peter Donkor	1
35. Ohene Opare-Sem, Cary Engleberg	1
36. Open University, UK	1
37. Tim Noakes	1
38. Roland Eastman	1
39. Rebecca Ngalande, Elizabeth Chodzaza, Chrissie Phiri, Ephraim Banda, Lignet Chepuka, Mary Kamphinda Banda, Wyness Gondwe, Andrew Moore, Christine Randell	1
40. Research Ethics Program Website	1
41. US Agency for International Development	1
42. Uta Lehmann	1
43. Wendy Venter, Kirstie Rendall-Mkosi, Lucy Alexander	1
44. Veronica Mitchell	1
45. World Medical Association	1
46. Yaw Adu-Sarkodie, Cary Engleberg, Charles Agyei Osei	1
47. T Young, T Tucker, M Galloway, P Manyike, A Chapman, J Myers	1
48. Richard Phillips, Stephen Sarfo, Emmanuel Adu, Cary Engleberg, Veronica Okyere-Afriyie	1
49. Rupesh Daya, Maurice Kibel, Stacey Stent	1
50. Sarah Hoosen, Kathleen Ludewig Omollo	1
51. University of Michigan, OER Africa	1
52. Stephen Jeffery	1
53. Stephen Jeffery, Peter de Jong	1
54. George Koffour, Samuel Owusu Agyeman-Duah, Benjamin Prempeh, Anne Acquaah	1
55. Graeme Copley	1

Creators/authors	# resources
56. Inge Petersen, Arvin Bhana, Alan J Flisher, Leslie Swartz, Linda Richter (eds)	1
57. *International Journal of Epidemiology*	1
58. Mohamed Jeebhay, Rodney Ehrlich	1
59. Kathleen Ludewig Omollo, Monica Mawoyo	1
60. Ken Harley	1
61. M Kibel, L Lake, P Pendlebury, C Smith (eds)	1
62. Kirstie Rendall-Mkosi, Lucy Alexander, Nandipha Matshanda	1
63. Kwabena Danso, Cary Engleberg	1
64. KNUST	1
65. Laurel Baldwin-Ragaven, Leslie London	1
66. Leadership Initiative for Public Health in Africa	1
67. Learning Network for Health and Human Rights, School of Public Health and Family Medicine	1
68. Leslie London	1
69. Francis A Yeboah, Cary Engleberg	1
70. Di McIntyre, Lucy Gilson	1
71. Brian Watermeyer, Leslie Swartz, Theresa Lorenzo, Marguerite Schneider, Mark Priestley (eds)	1
72. *British Journal of Surgery*	1
73. Department of Medicine, UCT	1
74. Cary Engleberg, Yaw Adu-Sarkodie	1
75. Celice McDermott, Nana Osem, Osei Tutu, Akua Nketiah Adjapong, Kojo Twum Nimak, Oppong Victor Barnor, Cary Engleberg, Veronica Boatemaa, Owusu-Afriyie	1
76. Mickey Chopra, John Coveney	1
77. Airong Luo, Dick Ng'ambi, Ted Hanss	1
78. Akye Essuman, Cary Engleberg	1

PART B: OER ACROSS DISCIPLINES

Table 13: 310 health OER resources across disciplines

Discipline	Number of resources
Behavioural Sciences	4
Psychology	2
Ethics	54
Clinical Ethics	7

Discipline	Number of resources
Codes of Ethics	7
Ethical Analysis	13
Research Ethics	11
Health Services Administration	3
Organization and Administration	3
Informatics	35
Public Health Informatics	8
Medicine	42
Family Medicine	1
Internal Medicine	3
Microbiology	6
Obstetrics & Gynaecology	14
Otolaryngology	2
Surgery	9
Paediatrics	15
Sports Medicine	5
Travel Medicine	1
Nursing	1
Midwifery	1
Pathology	1
Pharmacology	7
Biopharmaceutics	7
Public and Community Health	150
Community Mental Health Services	1
Epidemiology	1
Occupational Health	6
Medical Sociology	5
Neurology	1
Research design	5

PART C: YOUTUBE VIDEOS

- 110 videos
- 560 minutes
- 1 093 831 (909 365, U-M and 184 466, OER Africa, total views)
- 855 favourites

- 804 individuals have rated the videos, with average rating of over 4 stars out of 5.
- 183 comments

Table 14: OER with the highest number of views

Title	Views
1. *Episiotomy Repair: Infiltration anaesthesia at the time of crowning*	190 311
2. *Examination of the Pregnant Woman: Examination of the chest*	93 873
3. *Real-time Polymerase Chain Reaction (PCR)*	75 025
4. *Enzyme-Linked Immunosorbent Assay (ELISA)*	64 726
5. *Examination of the Pregnant Woman: Examination of the pregnant abdomen*	64 394
6. *Intro to Polymerase Chain Reaction (PCR)*	39 719
7. *Examination of the Pregnant Woman: Reporting the Obstetric Abdominal Examination*	38 031
8. *Episiotomy Repair: Suturing of the muscle layer*	27 292
9. *Total Abdominal Hysterectomy: Catheterisation*	23 948
10. *Episiotomy Repair: Placement of a swab and infiltration of local anaesthetic for the repair*	22 765

PART D: TOP 20 RESOURCE DOWNLOADS FROM THE NETWORK

Table 15: Top 20 resource downloads from the African Health OER Network website

Title	Views
1. *Alcohol Problems: A health promotion approach module guide*	810
2. *Operar Fistulas Vesico-Vaginais (FFV)*	512
3. *Ear, Nose and Throat Tutorial*	510
4. *Managing Change in Healthcare IT Implementations: Selected references*	509
5. *Surgical Repair of Vesico-Vaginal Fistulae (VVF)*	490
6. *Measuring Health and Disease I: Introduction to epidemiology module guide*	489
7. *Data Quality: Missing data* [PPT slides]	430
8. *Growing an Institutional Health OER Initiative: A case study of the University of Ghana*	414
9. *Managing Human Resources for Health Module Guide*	404
10. *Policy for development and use of Open Educational Resources (OER) – KNUST*	380
11. *Adult HIV: Antiretroviral drugs*	355

Title	Views
12. *Adult HIV: HIV infection*	328
13. *Guide to gaining ethical consent from patients for content released as OER*	323
14. *2010-2011 African Health OER Network Phase 2 Evaluation: Consolidation and sustainability*	320
15. *Adult HIV: HIV-associated infections*	303
16. *Caesarean Section*	300
17. *Adult HIV: Managing people with HIV infection*	274
18. *Total Abdominal Hysterectomy*	256
19. *Clinical Chemistry (Glucose Tolerance Test)*	243
20. *Adult HIV: Introduction*	232

PART E: SOURCE OF TOP WEBSITE REFERRALS

- youtube.com
- saide.org.za
- facebook.com
- rainbownation.co
- oercommons.org
- ocwconsortium.org
- ku.ac.ke
- creativecommons.org
- university-directory.eu
- web.knust.edu.gh
- open.umich.edu
- collegeopentextbooks.org
- google.com
- library.stanford.edu
- unam.na
- openeducationweek.org
- elearn.uniswa.sz
- search.mywebsearch.com
- ajol.info
- vuma.ac.za
- ariadne-eu.org

PART F: TOP 20 SEARCH TERMS ON HEALTH OER NETWORK WEBSITE

Search term

- Heat
- Breast
- Clinical
- promoting/mental/health

- promoting/mental/health/scarce-resource/contexts: or emerging/evidence/practice
- postgraduate/diploma/occupational/health
- measuring/health/disease
- vaginal/delivery
- doctors/a/divided/society: or profession/education/medical/practitioners/South/Africa
- alcohol/problems
- biological/monitoring/workers
- gastric/lavage/procedure/animation
- health/human/rights/pamphlets
- heart/exam
- Africaoer
- Genetics
- Ghana
- examination/nervous/system/video/tutorial
- Human/rights/key
- Managing/change/healthcare/information/technology

APPENDIX 4: OER PRODUCTION IN EACH INSTITUTION

UNIVERSITY OF GHANA

Clinical Examinations in Surgery

This is a series designed for medical students, to assist in preparation for clinical examinations in surgery. It contains over 1.5 hours of video and 21 multiple choice questions. The individual multimedia-based modules that make up this series are:

1. *Surgical History Taking* – Dr Nii Armah Adu-Aryee
2. *Breast Examination* –
3. *Examination of the Lump* – Professor EQ Archampong
4. *Examination of the Goitre* – Professor EQ Archampong
5. *Examination of the Abdomen* – Professor EQ Archampong
6. *Examination of Hernia* – Dr Nii Armah Adu-Aryee

These resources can be accessed online at
http://open.umich.edu/education/med/oernetwork/med/surgery/clinical-exam

Clinical Examinations in Gynaecology

This is a series designed for medical students, to assist in preparation for clinical examinations in gynaecology. It contains 51 minutes of video and 11 multiple choice questions. The individual modules that make up this series are:

1. *Basic Guidelines and History Taking* – Dr RA Kwame-Aryee
2. *General Physical Examination* – Dr RA Kwame-Aryee
3. *Examination of the Abdomen* – Dr RA Kwame-Aryee
4. *Pelvic Examination* – Dr RA Kwame-Aryee

These resources can be accessed online at:
http://open.umich.edu/education/med/oernetwork/med/ob-gyn/clinical-exam

Clinical Examinations in Paediatrics

This is a series designed for medical students, to assist in preparation for clinical examinations in paediatrics. It contains nearly 3 hours of video and 38 multiple choice questions. The individual modules that make up this series are:

1. *General Physical Examination* – Professor O Rodrigues
2. *Examination of the Respiratory System* – Professor JO Oliver-Comey
3. *Examination of the Cardiovascular System* – Dr C Oduro-Boatey
4. *Examination of the Abdomen* – Dr L Renner
5. *Overview of the Central Nervous System (CNS)*– Dr E Badoe
6. *CNS Examination of Smell and Sight* – Dr E Badoe

7. *CNS Examination of Facial Nerve and Hearing*   –   Dr E Badoe

8. *Examination of the Peripheral Nervous System (PNS)*–   Dr E Badoe

9. *CNS Examination of the Legs*   –   Dr E Badoe

10. *Examination of the Musculoskeletal System*   –   Professor P Goka

11. *Examination of the New Born: Part 1*   –   Dr Enweronu Laryea

12. *Examination of the New Born: Part 2*   –   Dr Enweronu Laryea

13. *Examination of the Ear, Nose, and Throat Systems* –   Professor J Welbeck

These resources can be accessed online at:
http://open.umich.edu/education/med/oernetwork/med/paediatrics/clinical-exam

Other Resources

1. *Caesarean Section*   –   Professors Richard Adanu and Cary Engleberg
This programme includes narrated surgical video of the procedure as well as interactive case exercises and a brief self-assessment. These resources can be accessed online at: http://open.umich.edu/education/med/oernetwork/med/ob-gyn/caesarean-section/2009

2. *Episiotomy and Repair*   –   Professors Richard Adanu and Cary Engleberg
This programme includes narrated surgical video of the procedure as well as interactive case exercises and a brief self-assessment. These resources can be accessed online at: http://open.umich.edu/education/med/oernetwork/med/ob-gyn/episiotomy/2009.

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

OER: 2009–11 – all http://creativecommons.org/licenses/by-nc-sa/3.0/

Project title	Department
1. *Mental State Examination*	Behavioural Sciences
2. *Laboratory Methods for Clinical Microbiology*	Microbiology
3. *Microbiology*	
4. *Clinical Chemistry (Gluocose Tolerance Test)*	Molecular Medicine
5. *Automated Blood Counts*	
6. *Buruli Ulcer*	Internal Medicine
7. *Examination of the Pregnant Woman*	Ob/Gyn
8. *Frog Heart Preparation*	Pharmacology Lab Procedures
9. *Respiratory Depressant Effect of Morphine on Rabbits*	Pharmacology Lab Procedures
10. *Respiratory Depressant Effect of Pentobarbitone on Rabbits*	Pharmacology Lab Procedures
11. *Setting up the kymograph*	Pharmacology Lab Procedures
12. *Set up an isolated tissue-organ bath experiment*	Pharmacology Lab

Project title	Department
	Procedures
13. Strychnine poisoning in toads	Pharmacology Lab Procedures
14. Muscarinic effect in rats	Pharmacology Lab Procedures
15. Conditions necessary for the maintenance of an isolated smooth muscle preparation invitro	Pharmacology Lab Procedures

KNUST OER web links http://er.knust.edu.gh

Department	Project title	Description
1. Child Health	*Case Scenarios in Paediatric Practices*	This module consists of a set of cases with multiple choice questions and self-answered questions. The module also contains images to aid in the explanation of the clinical cases.
2. Pharmacology	*Blood Glucose Monitoring*	This programme contains a set of videos to demonstrate pharmacological lab procedure on blood glucose monitoring.
3. Pharmacology	*Estimation of Haemoglobin Concentration*	This programme contains a set of videos to demonstrate pharmacological lab procedure on the estimation of haemoglobin concentration.
4. Pharmacology	Haematology –The Red Blood Cell Count	This programme contains a set of videos to demonstrate pharmacological lab procedure on haematology – the red blood cell count.
5. Pharmacology	*Haematology – The White Blood Cell Count*	This programme contains a set of videos to demonstrate pharmacological lab procedure on haematology – the white blood cell count.
6. Pharmacology	*HIV Antibody Test Using a Rapid HIV Card*	This programme contains a set of videos to demonstrate pharmacological lab procedure on HIV antibody test using a rapid HIV card.
7. Pharmacology	*Malaria Antigen Rapid Test*	This programme contains a set of videos to demonstrate pharmacological lab procedure on the malaria antigen rapid test.
8. Pharmacology	*One-step Pregnancy Dipstick Test*	This programme contains a set of videos to demonstrate pharmacological lab procedure on the one-step pregnancy dipstick test.

Department	Project title	Description
9. Clinical and Social Pharmacy	*An Overview on the Therapeutics of Hypertension*	This contains a 2D animation on an overview of therapeutics on hypertension.
10. Maxillo-Facial Sciences-Dental school	*Development of Oro-facial Structures and Its Clinical Correlations*	Part of the course: Oral Anatomy. This is a video presentation of the development of oro-facial structures and its clinical correlations.

UNIVERSITY OF CAPE TOWN

Title	Department	Progress towards completion
1. *ICF Case Studies*	Physiotherapy	50%
2. *The Abuse Project*	Division of Public Health	70%
3. *DOH Mod 4-5 (CD2)*	School of Public Health and Family Medicine	60%
4. *DOH Mod 6-8 (CD2)*	School of Public Health and Family Medicine	60%
5. *Clinical skills video (blood culture procedure)*	Clinical Skills	95%
6. *Inguinal canal* (PowerPoint)	Human Biology	80%
7. *OT Curriculum Seminar* (video clips including Dr Galheigo, Brazil, and Dr Saha, India)	Occupational Therapy	
8. *PHC tree infographic*	Primary Health Care	

Fourteen further OER are under consideration. These are in: Primary Health Care, Human Biology, the Children's Health Unit, the Education Development Unit, and Health and Rehabilitation Sciences.

UCT OpenContent has 41 resources varying from lectures, video productions, and a university certificate in midwifery, to a textbook. These are all available on the OER Africa website.

The faculty is currently working on 10 new resources aimed for publication in the first half of 2012.

UNIVERSITY OF THE WESTERN CAPE

School of Public Health 2009 projects (All: http://creativecommons.org/licenses/by-sa/3.0)

		Deliverables	**Status update**	**Type**
SOPH module guides				
1)	2009	*Managing Human Resources for Health* (MPH)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
2)	2009	*Measuring Health and Disease 1: Introduction to epidemiology* (PG Certificate in Public Health)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
3)	2009	*Alcohol Problems: A health promotion approach* (MPH)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
Slides with 'voice over'				
4)	2009	*Making graphs with Excel* (linked to item 2)	Minor correction edit under way by Lucy Alexander	PowerPoint tutorial with recorded voice
5)	2009	*Writing a Literature Review*	Still to record voice: 80% done; Lucy Alexander	PowerPoint tutorial with recorded voice
Case studies				
6)	2009	*The Revolving Door: Child malnutrition in Mount Frere, Eastern Cape Province of South Africa* (severe childhood malnutrition and mortality in the Eastern Cape Province 1998–2004)	99% done; needs final check by Lucy Alexander	Case study generated by SOPH for this project, presented in MS Word and PDF
7)	2009	*No One's Listening to Each Other: The challenge of urban sanitation in an informal settlement in Sub-Saharan Africa* (title provisional)	85% done; dScribe done; layout and final check to be done by Lucy Alexander and Ruth Stern	Case study generated by SOPH for this project, presented in MS Word and PDF
8)	2009	*Walking the Talk: The role of community health workers in reducing the burden of non-communicable diseases in Khayelitsha, Cape Town*	85% done; dScribe done; layout and final check to be done by Lucy Alexander	Case study generated by SOPH for this project, presented in MS Word and PDF
9)	2009–12	Develop a public health case study repository for the postgraduate programme	100 case studies captured on Mendeley/Zotero and Refworks; Lisa Belle in process of adding PDFs	Repository of OER public health case studies from the Internet and SOPH's cases

2010–12 projects

		Deliverables	**Status update**	**Type**
SOPH module guides				
1)	2010–12	*Health Management I Module Guide* (PG Certificate in Public Health)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
2)	2010–12	*Health Management II Module Guide* (MPH)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
3)	2010–12	*Health Systems Research I Module Guide* (PG Certificate in Public Health)	Complete and on OER Africa site	Distance learning course in PDF and MS Word
4)	2010–12	*Health Promotion I Module Guide* (PG Certificate in Public Health)	MS Word in process of "cleanup"; to be sent within 10 days	Distance learning course in PDF and MS Word
5)	2010–12	*Health Promotion II Module Guide* (MPH)	With OER Africa	Distance learning course in PDF and MS Word
6)	2010–12	*Health Promoting Schools* (MPH)	MS Word in process of "cleanup"; to be sent within 10 days	Distance learning course in PDF and MS Word
7)	2010–12	*Micronutrient Malnutrition Module Guide* (MPH)	MS Word in process of "cleanup"; to be sent within 10 days	Distance learning course in PDF and MS Word
8)	2010–12	*Public Health Nutrition: Policy and Programming Module Guide* (MPH)	MS Word in process of "cleanup"; to be sent within 10 days	Distance learning course in PDF and MS Word
9)	2010–12	*Globalisation and Health – Introductory session* (MPH)	Content to be edited for OER by Lucy Alexander or Nandipha Matshanda	Distance learning session in PDF and MS Word
Case studies				
10)	2010–12	*Addressing Avoidable Deaths from Gastro through Public Health Action*	Writing complete; final edit by Lucy Alexander needed; layout Cheryl Ontong. Check authorship issue (Lucy Alexander)	Case study generated by SOPH for this project, presented in MS Word and PDF
11)	2010–12	*Worms Open Doors: Worms as an entry point to health promotion in schools*	First draft complete by Wendy Walton;	Case study generated by SOPH for this

		Deliverables	Status update	Type
			content editor Ruth Stern will check it by 5 April; then revise, layout	project, presented in MS Word and PDF
12)	2010–12	*Causal Factors of a Child's Malnutrition: Nikki Schaay interviews Emeritus Professor David Sanders, SOPH, UWC, 2011*	Complete; checking permission with DS and NS	Podcast
Slides with 'voice over'				
13)	2010–12	*Plagiarism: Don't do it*	50% complete	Tutorials (voice over PPT)
14)	2010–12	*An Introduction to Research*	Slides developed; recording on 12 April	Tutorials (voice over PPT)
15)	2010–12	*What Do We Mean by "Scholarly Literature" for your Literature Review?*	To be confirmed	Tutorials (voice over PPT)
Open resources on qualitative research methods				
16)	2010–12	Mendeley Qualitative Research Methods Group	Complete except for a technical problem with downloading PDFs	Mendeley Group containing open resources on qualitative research methods

African Health
OER Network

Nairobi Office
Catherine Ngugi
OER Africa Project Director

catherine.ngugi@oerafrica.org
Office: +254 (0) 20 240 3836

P O Box 66093 – 00800
Nairobi, Kenya

www.oerafrica.org

OER Africa is an initiative of

Saide
South African Institute
for Distance Education