
Final Report

Public Health Resources in the University Sector

PHORUS

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1. PHORUS: Public Health Open Resources in the University Sector

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3. Acknowledgements

Project PHORUS is part of an initiative to release open educational resources funded by HEFCE and managed by the Higher Education Academy in collaboration with the JISC Open Educational Resources Programme. PHORUS focused on public health in the Higher Education sector and was led by the Health Sciences and Practice Subject Centre working with the Royal Society for Public Health, Bournemouth University and other UK Higher Education Institutions and health organisations

The core project team, including staff from the Health Sciences and PracticeSubject, the Royal Society for Public Health and Bournemouth University, would like to thank:

- a) the external evaluator, Professor Lesley-Jane Eales Reynolds, for her critical friend role as well as support for the project as a whole and the project manager in particular,
- b) Professor Richard Parish, Chief Executive of the Royal Society for Public Health,
- c) Members of the Teaching Public Health Networks and other bodies represented on the Advisory Group and in other project activities, including John Ennis from Skills for Health, colleagues from the Public Health Research Unit and the Faculty of Public Health
- d) Participants in the PHORUS research and contributors of resources, for their continuing help and support.

4. Executive Summary

This project began with three principle objectives:

- To critically assess the enablers and barriers to releasing learning resources in Public Health
- To develop a conceptual framework to inform OER implementation, and
- To actively release resources

PHORUS has been a great opportunity to move Public Health forward. In this discipline, more than any other, the release of Open Educational Resources has the potential to save lives by bringing up to date and accurate educational materials to people across the UK and indeed the world.

But herein lies one of the most challenging issues faced by the project. All our contributors were acutely aware that materials made freely available may be misinterpreted, or used past their sell-by date. Much of our research has centred on how to make resources accessible, whilst minimising the risk of their being misused.

The project launched with an event hosted by RSPH, where an audience of some 50 delegates were introduced to the project and started to contribute their views on the feasibility of releasing resources and potential stumbling blocks. The key issues to emerge at this stage were concerns about ownership of materials, the resource that would be required to bring materials into a suitable format, and the competitive position of universities if they released their materials more widely.

This group formed the basis for a Delphi study, designed to understand more about what the barriers and facilitators to releasing resources would be, and how they could be overcome or enhanced. In parallel, a benchmarking study was underway, to establish the nature of resources that were currently available, and which organisations were most active in this respect.

An important finding from this work was that many relevant resources were not being accurately tagged, leading to a misleading view on how prevalent these resources were, and also making it virtually impossible for potential users to find vital information.

The final months of the project focussed on encouraging and supporting institutions and individuals to release resources. Resources were (and continue to be) deposited into JorumOpen repository. The keywords were reviewed carefully and the appropriate labels tagged e.g. UK OER and Public Health at the broad level and then detail.

In order to provide a firm foundation for long term release of OER, the project team has developed a conceptual framework to inform future developments and to highlight the dynamics within the process. This framework comprises seven levels that develop from context to theory to practice and then draw out seven elements that summarise the synthesis from the range of resources: i.e. critical reflection, inquiry and consultation, dialogue as resources were released, the research, and other discussions as the project progressed.

5. Background

PHORUS is a project in the Subject Strand in the Open Educational Resources Programme. The topic focus is open educational resources in Public Health in UK Higher Education. The key issues addressed included:

- Who has an interest in Public Health OER currently?
- The facilitators and barriers to OER in Public Health
- Development of a conceptual framework to enhance the sustainability of resource release and guide future initiatives in Public Health.
- Linking resources to the Public Health Skills and Careers Framework (PHSCF)

Public Health is of both local and global importance, albeit with different emphases in different contexts. OER underpins the future of Global Public Health although truly open, free and accessible resources still required considerable development in order to meet the needs in the UK and beyond. The Royal Society of Public Health (RSPH) saw the opportunity to build a more coordinated approach to the provision of quality resources as an essential service with the potential to have a wide ranging impact on population health. Skills for Health created the Public Health Skills and Careers Framework, (this complements the National Occupational Standards [NOS]) and this was beginning to be used in curriculum development, mainly for the FE level / CPD.

We planned to deposit the resources into two repositories, building on INTUTE that the subject centre had already used as a repository, and then into the JorumOpen repository which was ready in January 2010 and the designated repository of UKOER. Funding was withdrawn from INTUTE early in the project so once JorumOpen had been tested and made live we used this repository only.

The Department of Health, the Teaching Public Health Networks and other organisations, including HEIs, had commissioned resource development, however, the culture and /or the mechanisms for sharing were embryonic. OER expertise was yet to be developed.

The Public Health Skills and Careers Framework had been published and has been useful in delineating and describing the various roles and requirements for the workforce. As far as we knew, there had been little success in identifying appropriate resources to help people learn and prepare for being competent in the articulated and differentiated requirements (particularly at level 4 and above i.e. HE)

The cultures of OER and Public Health in the UK were not yet cemented, however the importance of sharing underpins both the philanthropic approach and the ability to bring groups with different interests and approaches to Public Health together. The idea of being able to draw on a number of resources to enhance learning and teaching was very attractive to both organisations and individuals. RSPH had extensive stakeholder networks across the wider public health workforce and employer organisations and the community of Universities who are delivering programmes in public health and related areas. They were clear that there is latent demand for degree level education, learning and ongoing development amongst our practitioner stakeholders (i.e. for new entrants into the public health career framework and for many existing practitioners without a first degree attainment). This could be met through OER provision. RSPH in particular have worked for several years with a small number of University partners who we hoped would have an interest in supporting the development and access to open education resources in public health. Our own interest was originally stimulated by our involvement in an international OER public health project developed by Professor Dick Heller (ex University of Manchester) and this encouraged us to contact our partner Universities to involve them in the PHORUS project where possible.

The project aimed to explore and critically assess barriers and enablers to OER. The literature review was conducted to help identify existing OERs as well as any gaps of OERs in the Public Health context. Mapping the resources against the Public Health Skills and Careers Framework (PHSCF) would enable to raise stakeholder awareness and possibly provide information regarding potential opportunities for OER release. The Delphi study approach was employed in this context and was considered as an effective method of bringing together participants as a potential community of practice.

6. Aims and Objectives

The aims and objectives of project work set out following review during the initial stages of the project were:

Aims

- 1) Critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- 2) Identify and work towards openly releasing existing Public Health learning resources.

Objectives:

1. Explore and develop business approaches & determine IPR challenges applicable to enabling the release of resources
2. Strengthen the community of practice to encourage contributions from participating universities
3. Identify and critically assess enablers and barriers
4. Promote the culture of sharing across various health related disciplines
5. Use the concept of OER to encourage reflection on developing educational processes through sharing experiences
6. Include a range of stakeholders: students, learning technology roles, ISS, 3rd sector (NGO – Public Health Forum)
7. Identify and release Public Health Learning Resources for open access
8. Synthesise, review, and capture emerging themes and open resources through a single access point on the Health Sciences and Practice Subject Centre website
9. Disseminate findings and share good practices with the HE community
10. Evaluate the underpinning processes and outcomes of the project

The only change from the aims and objectives set out in the funding application and project plan is that reference to a specific network the 'Universities Public Health Network' was removed. The group of universities with which the Royal Society for Public Health holds individual memoranda of understanding was anticipated to form a network which would be the backbone of the project. However initial interest in the project from almost all these institutions did not transform into strong commitment for reasons set out in the project interim report, and discussed in later sections of this report. As the project developed there have been shifts in terms of the weighting of the objectives because of reassessment of the degree to which they could realistically be achieved within the project period and current climate, but all have been tackled.

With regard to open educational resources to be released, it was initially envisaged that among the tangible outputs of the project, a significant number would be published (in line with the bid requirement guide of the equivalent of 360 credits of material). This was reassessed at an early stage by the project team as being unrealistic within the project time period due to the complexity of the environment of public health education, although the identification and release of resources has been a key objective of the project.

7. General approach

The project was started as a collaborative work with a strong lead from the Royal Society of Public Health (RSPH) and Bournemouth University; using the potential for their existing but notional commitment to an embryonic Universities' Public Health Network. The initial conception was somewhat opportunistic. The 15 RSPH accredited Universities were envisaged as the main depositors although other organisations were also to be invited.

The work was structured through six work packages and each work package has a designated lead responsibility from one of the three main organisations:

1. Management and Co-ordination
2. Online mapping and scoping review

3. Enablers and Barriers to releasing Open Public Health learning resources and the development of the conceptual framework
4. Releasing and enabling access to open resources
5. Dissemination and exploitation of project results
6. Evaluation

The PHORUS project is a major opportunity not just to release OER in Public Health, research issues in the release of resources and develop a conceptual framework for an action plan for continuing release of resources, but also to engage the individuals, groups and institutions involved in Higher Education in Public Health. This is significant for identification of OER and essential for sustainability. It is also a great challenge for the project within the very short timescale. Two key and potentially related developments are work by the Teaching Public Health Networks (Department of Health (DoH) funded to run until 2010) on identifying educational resources for potential open release, and the development of educational resources funded by the DoH in association with the Faculty for Public Health, and ground work has been done for PHORUS to provide a potential channel for open release of these resources. Early contact was also made with the People's University¹ which is a new consortium member.

Our approach included inviting RSPH partner Universities to be actively involved in the PHORUS project from the outset as early adopters and to support the general need to provide better access to public health education. Users were seen as new and existing practitioners in the first instance (evidence of this potential usage comes from interest in the Department of Health **Phast project**² which has created a major repository of public health learning resources).

Our expectation at the beginning of the project was that our consortium partners would work with us to provide the bulk of the resources we needed. They formed a strong group of Public Health academics with a wide network within their own institutions and beyond. However, as mentioned that the development of the Universities' Public Health Network was not ready for us to exploit their connection yet and as the Public Health arena is so fragmented, it seemed most practical to talk directly to our partners, and use a range of other dissemination techniques to reach a wider audience.

Our communication programme was divided into three stages:

1. Raising awareness of the project and the benefits of open resources
2. Driving understanding of how sharing learning and teaching resources could work
3. Encouraging action, by promoting ways in which sharing resources can be put into practice and publicising practical examples of successful implementation.

The key audiences for this activity were:

1. Individuals within academic institutions, who would be responsible for identifying and contributing materials, and would ultimately draw on the bank of resources to improve their learners' experience,
2. Partner organisations, who needed to understand how the project was progressing and what action would be required from them,
3. Public health practitioners, who would be able to use the resources for their own continuing professional development,
4. Teachers and lecturers in subjects relating to Public Health, who would be able to draw on these resources for the benefit of their students, and
5. Third sector organisations, which would be able to further disseminate the key messages within the public health arena, and benefit from the resources once available.

The hub for audience engagement is the dedicated PHORUS website, which contains all the project documentation as well as clear and accessible information about the concept of open resources and the benefits to each key audience. All our dissemination activities are designed to direct interested parties to the website and to encourage repeat visits through frequently updated content. This site went live on September 21st to coincide with our launch event held in London. It contains a full range of content, both about our project and other related projects. It has a number of links to other useful

¹ The People's Open Access Educational Initiative, the Peoples-uni: <http://www.peoples-uni.org/>

² The Public Health Action Support Team (PHAST): <http://www.phast.org.uk>

sites, and a news section that highlights OER in the media. There is also a Members section, accessible by password, which hosted the discussion section of the Delphi study. This is the portal for contributors to make contact with the project and outline what resources they have available. It also allows web visitors to search for open resources using keywords.

We have used a number of core Public Health titles to provide an understanding of the project and the concept of open resources, through articles and news items. In particular, we have had coverage in *Perspectives in Public Health*, which carried an article in its September issue (Vol. 129 No 5 page 195)³, and the Health Sciences and Practice News (Issue 27 page 10 and Issue 28 page 5, See Appendix-A). Subsequent editions of *Perspectives* have included an update on the Delphi study, a call for resources, and a project round-up. We have also had regular coverage in a number of tailored Public Health newsletters, such as @RSPH, Health Sciences and Practice monthly e-bulletin, Shaping the Future newsletter, and the NGO Forum newsletter.

At intervals during the project, press releases have been issued to the specialist media targeting public health practitioners and academics. They have been distributed to 250 publications and freelance health journalists, and in addition, were carried on both the RSPH and HSaP websites, with links back to the PHORUS site.

In order to drive engagement amongst the academic community, we have communicated information about PHORUS at a number of Public Health conferences. We have included our promotional materials in the delegate packs at the Royal Society of Public Health AGM and Awards Ceremony, attended an e-Learning in Public Health Conference, presented the project at OER10 and UKPHA Annual Forum and hosted a PHORUS information lunch at King's College London. In addition, our materials were available at the American Public Health Association conference in Philadelphia. See a full list of dissemination events in Appendix-B.

Legal, Organisational and Technical Issues:

Legal issues appeared to be at most concerns both individual and institutional levels. It has proved very difficult to build the consortium as envisaged in the project plan. Explanations for this are related to concerns about open release, current characteristics of the discipline and the project set-up, including the limited time for engaging prospective partners and developing relationships with the wide range of bodies involved in public health education. A range of strategies is being put in place to ensure that the project achieves most of its objectives but the impact has been to delay completion of consortium agreements and release of resources, ongoing changes to the project plan and the budget in response to the concerns of participating organisations, a more fluid consortium, and the necessity of focussing on establishing sustainable relationships with potential partners, rather than on releasing resources. Work on these strategies has also taken more core staff time than envisaged. The degree of difficulty in engaging some of the partners named in the bid in the project was unexpected but this has provided an important opportunity for exploring the issues for OER in public health education in the UK and potential for developing a rigorous conceptual framework for future application, as well as an educational role concerning the meaning of open access and potential benefits to resource providers.

When making institutional visits, legal staff, librarians, and learning technologists, etc. were invited to participate in our meetings and to discuss issues, concerns and implications in contributing and releasing OERs. We also put in plan to develop guidelines and relating documents to accommodate the contributing/ depositing resources, which covered some guidance in rights clearance prior to depositing resources to JorumOpen. A sheet providing details of what is required for each OER resource was produced and circulated, giving the contributors an idea what would be required from them and also providing them with the detail of the Creative Commons license that will be attached to each resource.

Some small grants were also offered as an incentive to institutional partners when signing in the Memorandum of Understandings (MoU). This is to help release and repurpose resources if some work is required. The idea in using the Memorandum of Understandings (MoU) is to reduce rigidity of the Consortium Agreement and to make the institutional partners felt comfortable to participate in the project.

³ Perspective in Public Health: <http://rsh.sagepub.com/cgi/reprint/129/5/195>

Contacting the relevant people, i.e. learning technologist and librarian, specialist in the field of public health, from each of the partner institutions gave us some insights and understanding what resources each HEIs are willing to contribute. This in turn has put us in touch directly with authors of the resources and to find out what they were willing to share. The resources that are submitted by the participating HEIs were made available through the JorumOpen.

8. Implementation

A Project Manager (60%) and administrator (100%) were appointed to drive the project on the operational front. The Project Director and the Chair of the Project Advisory Group provided strategic guidance and support - guiding and being guided by the Advisory group. There were considerable difficulties from a number of perspectives, not least the lack of anticipated support from the named institutions, thus the net for depositors had to be cast further afield and created a huge burden on the project manager in getting agreements finalised. Although the bid team had agreed the aims and objectives as well as the plan, there were times when these needed considerable clarification in order for shared understandings to be reached; these difficulties persisted to the end, particularly about what constituted a conceptual framework.

In order to maximise success we appointed an external evaluator to act as a critical friend and to facilitate intensive and longer meetings when we could reflect constructively and evaluate formatively from both internal and external perspectives.

Regular team meetings, both face to face and online, using Skype, were timetabled so that progress and actions were monitored closely.

We were pleased that the late/ slow start was recognised and that additional time was offered in order to ensure the best possible end point.

PHORUS included a focus on research, both a mapping and scoping exercise and a Delphi Study which was used to identify barriers and enablers to the development and release of Public Health OER. Work package 2 provides the context of the PHORUS project through a critical review of the literature and the identification and mapping of existing Public Health OER.

Literature Review: A key element of the literature review was to clarify the terminology used in the PHORUS study. Both Public Health and Open Educational Resources (OER) are complex and are constantly subject to development and change, and have different meanings depending on context. The literature review identified that, whilst there is a considerable body of work relating to OER in general, very little of this relates specifically to Public Health OER. This is unfortunate because it would seem that there could be a beneficial relationship between Public Health and OER.

Identifying and mapping existing Global Public Health OER: This involved online searching for websites containing resources related to Public Health. The search terms used were derived from key words in the definition of Public Health. These terms were agreed and refined by the PHORUS Advisory group, but this was an area of considerable debate because of the wide scope of Public Health. Inclusion/exclusion criteria were identified using online search techniques and the definitions of OER and Public Health previously agreed.

Cataloguing Public Health OER: This was a time consuming activity because of the number of 'hits' generated by the search terms. 42 Public Health OER sites were identified.

Consultation with Public Health academics: This demonstrated that there was a mismatch between the sites found and the OER providers that they commonly used. To enable Public Health educators and practitioners to cross reference resources to recognised skills, the existing Public Health OER that were identified were mapped against the UK Public Health Skills and Career Framework. Again this was time consuming and required considerable Public health education expertise, but appeared to be the most meaningful way of mapping the OER resources currently available.

Consulting OER providers: Each of the OER providers identified were contacted and given the opportunity to check and amend the description of their site and resources on the catalogue. In total eight responses were received and only one made an amendment to the information collected about their website.

Mapping of existing Public Health OER was a complex and time consuming task. Resources were not as numerous or diverse as expected, and in many cases a number of sites provided links to the same small pool of resources. Very clear search terms and inclusion/exclusion criteria were required to ensure consistency and focus.

The Delphi study: This involved three iterations and sought to identify issues related to the development and use of Public Health OER amongst HE educators and learning technologists. The 1st iteration involved 25 participants, the 2nd iteration involved 15 participants, and the 3rd iteration continued with 6 participants. It proved quite difficult to engage participants in the research, particularly in workshops, telephone interviews and online discussion forums. Considerable communication and incentives were required to ensure sufficient participants remained in the study, although at each iteration an appropriate number were involved, in line with other Delphi studies.

Communication and dissemination: RSPH were responsible for work package 5 i.e. communication and dissemination about the project objectives, its ongoing progress and its final outcomes. The first major task was to form a small working group to develop a strong identity and name for the project and worked on the conceptual ideas for how to achieve this with the project team. Several options were then selected which had strong messages about public health, open access and the university sector. The options went to an external designer to develop as project logos and to test in terms of look and feel through various media. The final logo was selected by the project team and this was then used throughout the project on all communication literature and in all channels e.g. website.

We believed it was important to engage potential stakeholders and particularly the RSPH partner Universities as early adopters and therefore organised a PHORUS launch event in September 2009. RSPH via its key speaker Professor Richard Parish (CEO of RSPH) were keen to promote the wider impacts of access to open education resources and particularly its connection to addressing health inequalities and the social determinants of health. We believed that this broader appeal would have a positive impact on the positioning and involvement in PHORUS – however the lesson learnt was that the message should have been also aimed at vice chancellors within Universities (particularly in terms of linking with institutional corporate and social responsibility agendas).

The other communications messages promoted at the launch about why get involved, what involvement meant and how to take next steps were taken on board by a number of participants. All were followed up by the PHORUS project manager who then began to address the legal, technical, organisational and cultural issues that began to emerge at individual HEI level.

The communication challenge was to continue to present information about the benefits of OER generally as well as the importance of PHORUS as a project to get public health learning and teaching resources more widely and openly available. In some ways we had to counter act the issues of protectionism and self interest and promote more openness and the need for it. However this did not get over the need to provide a business case for why a University should be involved – it could be that there were some underlying conflicts between presenting a ‘social good and or CSR’ message with one the reality of universities as more commercial entities looking at business models and return on investment.

Contributing and publishing resources: In terms of contributing and publishing resources, online form for suggesting new resources was put on the PHORUS website with guideline how to contribute resources and clarifying steps towards cataloguing resources to JorumOpen. The online form to suggest new resources had been revised a few times to keep it short and simple to fill in. The cataloguing workloads afterwards until the resources were deposited to JorumOpen were absorbed by the project team. We would encourage any users to deposit resources directly to JorumOpen, although they would have to register an account to do so and their institutions have to be a member of UK Federation to have access permission. This has caused problems for us as some users may not have subscribed to this, particularly many Professional Bodies’ connections. In addition, subject list

on JorumOpen was not applicable to us as the JAC Code there did not cover “public health” on the subject list. We were suggested to add any specific keywords we would like to have in general keywords section. Although this may be a limited solution in many respects as we were unable to browse the list by subject; it was at best from JorumOpen service at that time. Indeed, there was no easy way for resources deposited to JorumOpen to be searchable on the PHORUS website as Jorum was not in a position to provide any services to support this. This has been put on the project in-house development and will appear later in an additional stage of the project.

The project initial plan did not consider setting up or hosting any digital repository, but to use Intute, through AIRDIP Project, and JorumOpen as primary and secondary sources respectively to deposit resources. However, due to the Intute funding had been ceased and JorumOpen was in development, these had caused more work on the project team on both technical development and dissemination strategy. Using digital repository at host institution (Fedora - <http://www.fedora-commons.org/>) was explored as an alternative, but found the development was very slow with limited functionalities available to use, which were not applicable to our work, e.g. file types were limited to documents only, not other types of media files, etc. Further development in this area has been put in plan in an additional stage to explore and implement other alternatives, which could be used as a foundation for developing an online community to share resources and experience and leading towards pedagogical development, e.g. exploring possibility in implementing Connexions (<http://cnx.org/>) or Discover-Ed search (<http://discovered.creativecommons.org/search/>) as an attached or embedded module to the project website.

To populate number of resources to PHORUS Project we have started with the project core partners and their networks. Bournemouth University has institutional repository in place called “Bournemouth University Research Online (BURO)” and we had liaised with BURO Project manager to share some resources from there with the PHORUS project under Creative Commons (CC) License. RSPH also disseminated this through their networks and many resources were suggested and deposited/ catalogued to the PHORUS.

The project also explored the use of controlled keywords in searching for public health resources. It appeared that MESH has been using as a main controlled keywords in health disciplines in many institutions. Public Health Language (PHL)⁴ developed by the National Institute for Health and Clinical Excellence (NICE) supported by NHS, which has been using in many organisations in relation to NHS, had been unknown to many academic institutions particularly King’s College London and Bournemouth University Research Online. Issues about how users search or discover resources either by using internet search engines, e.g. Google, Yahoo, Bing, etc. or using controlled keywords are still unclear. Due to a limited timescale and capacity, we decided not to go beyond what we originally planned, but keep looking for other studies elsewhere that may be adjustable and could help provide us with these inputs.

9. Outputs and Results

The PHORUS project achieved three major sets of outputs:

- a) Research
 - b) Conceptual Framework
 - c) Resources
- a) The **research** elements produced a mapping and scoping of the literature and the resources that were already freely available elsewhere (not a lot). This enabled the team to proceed in a well grounded way and learning from what others had done before. The literature review⁵ and the Delphi study outputs⁶ are attached to this report and downloadable from the PHORUS website. Three papers have been submitted to journals independently by the three project research staff.

1. Angell C, Hemingway A. and Hartwell H. (2010) Surfing the net for Public Health (submitted to Public Health)

⁴ <http://www.phl.nhs.uk/>

⁵ Workpackage-2: http://phorus.health.heacademy.ac.uk/document/wp2_finalreport

⁶ Workpackage-3: http://phorus.health.heacademy.ac.uk/document/wp3_finalreport

2. Angell C, Hartwell H, and Hemingway A. (2010) The emergence of Public Health Open Educational Resources (submitted to Health Education)
3. Hemingway A., Hartwell H., Angell C, and Heller R. (2011) The emergence of a model for publishing and using open educational resources in Public Health – a toolkit for workforce development (submitted to special issue Perspectives in Public Health – publish Jan 2011)

b) **The conceptual framework:**

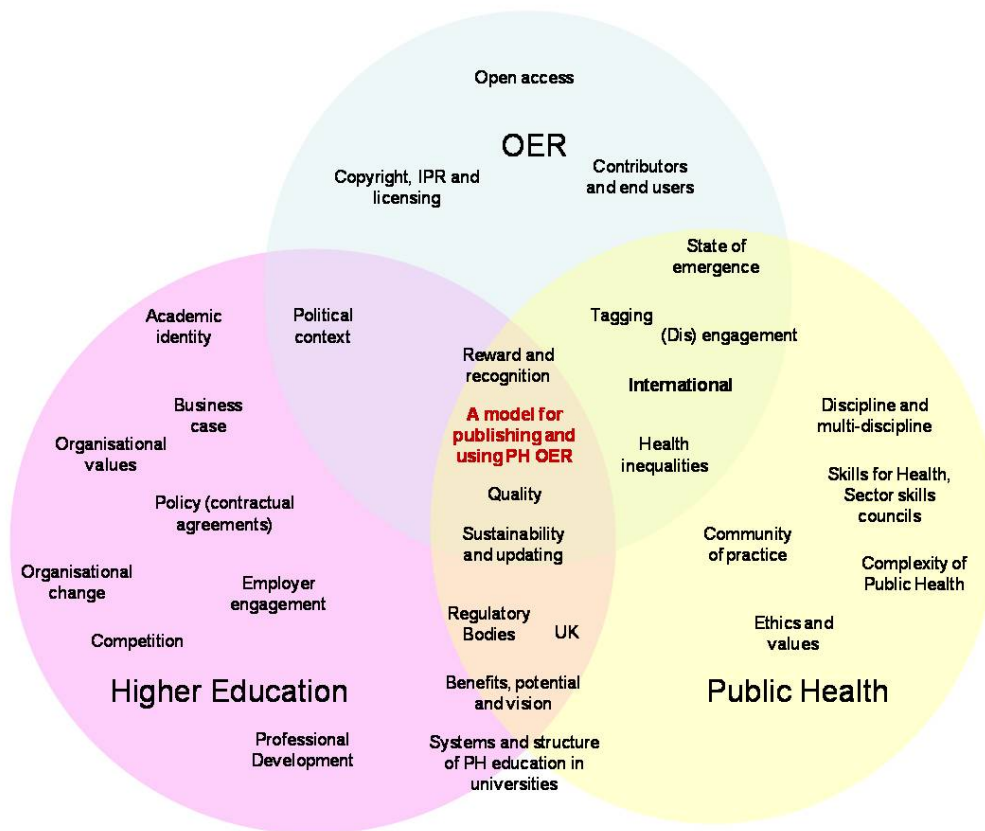
In this project we defined the term “Conceptual Framework” as

“A model for publishing and using OER for Public Health based on a synthesis of principles and ideas informed by research, inquiry and critical reflection on experience for organisations (HEIs) and individuals”.

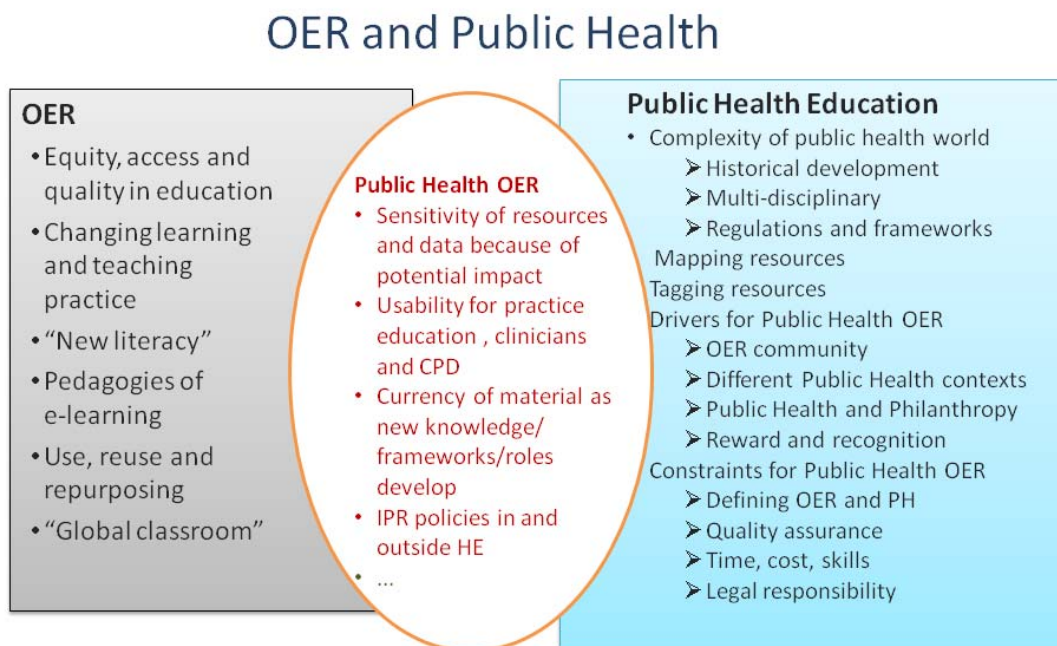
The **conceptual framework** is presented in several layers as a result of consultation with the field. There was an initial intention for this to be one representation, however, the complexity of public health and OER and the synthesis of the two indicated that disaggregation of levels would be helpful in both policy and practice contexts. The guidance on OER release and associated issues and processes are captured as follows.

Figure 1 illustrates the context within which OER for Public Health are released and used. This is derived from the research, dialogue with the community, the development of a rich picture and focused critical reflection over a number of sessions. Whilst this may not include absolutely everything the context within which OER are released and used in Public Health is complex and this needs to be considered at every stage. Any model for the release and use of OER in Public Health is set in this context and underpins the development of the rest of the conceptual framework.

Figure 1: The context for the release and use of OER in Public Health⁷



⁷ PHORUS: Context Diagram <http://phorus.health.heacademy.ac.uk/document/contextdiagram>



From Figure 1, we explored scope/ concepts of OER and Public Health under five categories, ethics and values, quality, rewards, risks and processes and practice. From this scope of work, we have extracted issues what we do know about OER as well as Public Health as a discipline, and have listed out what have become unique in Public Health OER. This result derived from different sources of information throughout the process of this project, namely: PHORUS research, Inquiry and consultation, Theories, Experience and Critical reflection.

Following three consultation workshops where the connections of the above three elements (see Figure 2) were explored it was noted that several elements from both OER and Public Health could be distilled and thus a distinctive view of OER in Public Health is offered in Figure 2.

Attention was paid to the questions emerging from the research and the experience of supporting resource release. These questions related to the likely steps that were identified by the Public Health community in relation to the publishing and use of OER. Thus a two way flow diagram was produced to guide Public Health Educators in the practical application of OER. Figure 3 provides a model for publishing and using OER in Public Health⁹ and is best viewed electronically at http://phorus.health.heacademy.ac.uk/document/model_publishingoer since here the interactive nature is maximised; background information is highlighted as the cursor moves over the connecting cells, please see http://phorus.health.heacademy.ac.uk/document/model-devoer_details

In parallel to the development of the model offering guidance for the practical elements of OER it was also important to ensure that the evidence emerging from the literature and the research was analysed critically and linked to other sources of evidence. Figure 4 presents a collation of the theory and evidence emerging only from the literature and research aligning it with concepts and issues for both institutions and individuals thus underpinning the development of the practice flow diagram (Figure 3)

⁸ OER-Public Health: <http://phorus.health.heacademy.ac.uk/sites/phorus/files/documents/1144/OER-PublicHealth.pdf>

⁹ http://phorus.health.heacademy.ac.uk/document/model_publishingoer

Figure 3: A model for publishing and using OER for Public Health

Figure 2. A model for publishing and using OER for Public Health

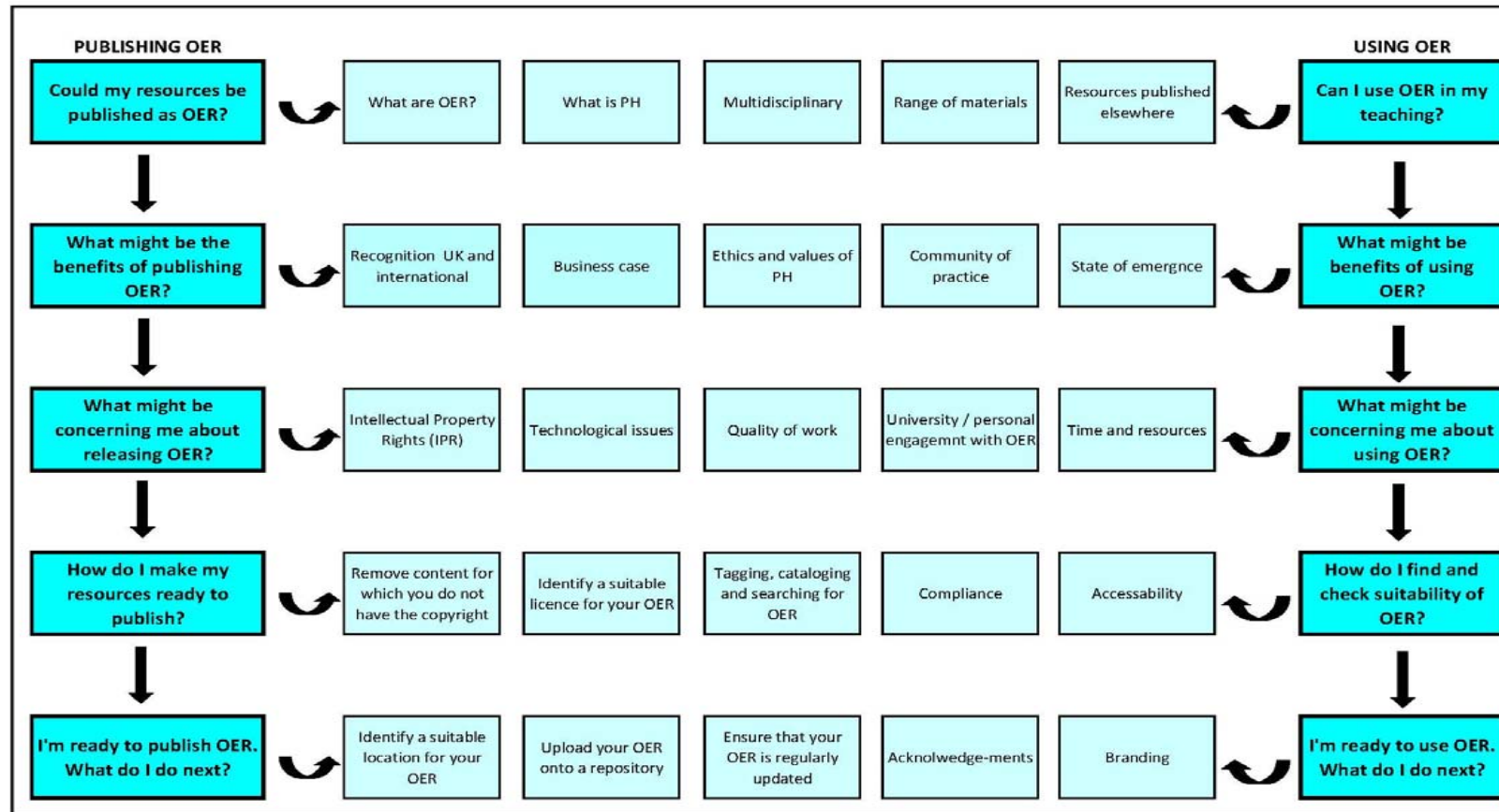


Figure 4: Concepts and evidence from the literature and PHORUS research ¹⁰

Overall Concepts	Issues for the institution	Evidence (from the literature and the PHORUS research project)	Issues for the individual
Quality	Quality enhancement and assurance Reputation Updating Reuse and repurposing Legal responsibilities	<ul style="list-style-type: none"> Quality is a central issue in the development and use of OER (Joyce, 2006). There is evidence to show that replacing traditional lectures with online learning activities may improve the quality of education (Geith & Vignare, 2008) although staff may also feel that their reputations may be damaged by publishing OER, particularly where their resources do not 'translate' well to a virtual environment. Lee et al. (2008) . The quality of repurposing and adaptation of resources may also be a concern (Boulos et al., 2006) and original producers of OER may fear that poor quality repurposing might reflect adversely on them (Lee et al., 2008). Few repositories provide 'quality control' measures, although even where these do exist this may still be of concern (Littlejohn, 2003). Professional review has slowed down the release of resources so much that it has been described as 'a crisis in OER' (Hanley, 2005). It has been suggested that peer reviews and used communities might be possible ways to resolve some concerns regarding quality of resources (Larsen & Vincent-Lancrin, 2005). Users should therefore make their own judgement regarding value and appropriateness (Hylén, 2006). Institutional investment and control (Hylén, 2006), the desire to maintain professional reputations (Lee et al., 2008) and ongoing updating and repurposing by the OER community could be seen as effective in ensuring high quality resources (Hylén, 2006). Quality is perhaps of particular concern in health sciences, where up to date and accurate information is essential (Lee et al., 2008). Whilst there is little published evidence directly relating to quality issues in Public Health OER recent research has demonstrated that this is a central concern for those producing and using resources (PHORUS). Recognition that the dissemination of inaccurate Public Health information through poor quality resources may compromise both individuals and population groups has raised suggestions of international 'editorial boards' to work towards ensuring accuracy and raise confidence amongst users (Lee et al., 2008). 	Quality assurance Reputation Updating Reuse and repurposing Legal responsibilities

¹⁰ Concept and Evidence from the literature and PHORUS research:
http://phorus.health.heacademy.ac.uk/sites/phorus/files/documents/1145/concept_framework_phorus_june_10_final_AH-HH.docx

Ethics and values	Ethics and values of OER Corporate social responsibility Public funding Reducing inequalities Accessibility for all	<ul style="list-style-type: none"> • OER may be seen as providing “an affordable and credible solution” (Heller et al., 2007) to the growing disparity in health between developing and developed countries. The practical application and potential of OER in these contexts, particularly Africa, was noted by IJsselmuiden et al. (2007). The notion of human rights, relating to education and health, may also be a consideration when seeking to justify the development of OER (Geith & Vignare, 2008), particularly in relation to Public Health. • There is a suggestion that publically funded organisations have a responsibility to share and disseminate information for the benefit of all (Atwell et al., 2008; Geith and Vignare, 2008). For individuals this may be articulated in a desire to participate in a community of practice around OER, in which sharing of resources and expertise are expected and valued (Lee et al, 2008). For universities sharing of information in this way may be regarded as ‘a good thing’ and ‘in line with academic tradition’ (Joyce, 2006). • OER are ideally placed to enable resource development and educational opportunities for those with additional learning needs, often offering few barriers than teaching or studying in traditional settings (Geith and Vignare, 2008). There are a range of technological tools to assist with this (Geith and Vignare, 2008). Many resources are also now available in multiple languages and OER offer a relatively easy means of translating and sharing information throughout the global community (Lee et al., 2008). 	Ethics and values of Public Health Reducing inequalities Communities of practice and sharing Accessibility for all
Rewards	Recognition Business case Staff time Cost savings Inter-professional links	<ul style="list-style-type: none"> • Professional recognition and enhanced profile through OER contributions is important for both individuals and institutions (Downes, 2007). On an individual level teaching staff need to feel that their efforts to develop OER will be recognised and rewarded as other academic outputs are valued (Lee et al., 2008, PHORUS). Where this is not the case lack of recognition and reward may act as a disincentive to OER development (Joyce, 2006). • For institutions recognition and reward from OER development may be closely aligned to their business plan (Joyce, 2006). Some organisations identify that OER will enable them to extend their profile, both nationally and internationally (Lee et al., 2008) and attract new students (Yuan et al., 2008) or funding from commercial and government bodies (Geith and Vignare, 2008). • Institutional OER models where there is a high level of management enthusiasm and clearly understood case for developing OER, appear most likely to result in projects that are extensive and sustainable (Hysten, 2006). • Other business considerations for institutions include potential savings in staff time and costs (Caswell et al., 2008), although it is clear that this may be an area of concern for staff, who may fear job losses (PHORUS). • Whilst institutional support for OER may be a key element in developing resources it appears that the emergence of OER communities of practice may also encourage participation and be an essential element in ensuring cohesive and effective OER collections (Downes, 2007). These may occur within or across disciplines, and between institutions (Lee et al., 2008). In Public Health the diversity of the subject and range of professional groups involved offers the potential to enable the development of useful and effective OER for that community but also help to ensure that it is updated and sustained (Geser, 2007). 	Time savings Breadth of public health content Communities of practice Inter-professional links

Risks	IPR Competitive advantage Staff time, costs, training	<ul style="list-style-type: none"> • Intellectual Property Right (IPR) is of concern in the development of OER at two levels. Firstly, institutions may be concerned about ownership of OER and the competitive and commercial implications of providing resources openly on the internet. Secondly, individuals are often concerned, and indeed confused (Yuan et al., 2008), about their right to release work that they have produced because in many cases their employers own the rights to their work. The solution to the first issue has been through the development of 'Creative Commons' licences, which provide an alternative to 'all rights reserved' copyright (Downes, 2007). This relies on the concept of 'fair use' and the adoption of a Creative Commons 'culture' that respects the sharing ethic in OER use (Hylén, 2006). The second issue is more challenging to staff in some institutions than in others. Where institutions embrace and encourage the development of OER the organisational culture appears to reduce anxiety and confusion about this aspect of OER (Atkins et al., 2007). • In addition to the legal implications institutions may also identify risks in relation to the business aspect of developing OER. 'Giving away' resources and sharing with competitors may appear to be counter intuitive (Hylén, 2006), although, as discussed earlier, it appears that many large institutions have clearly been convinced of the benefits of developing OER (PHORUS). • Time and costs involved in both development of resources and staff training to enable the process may be regarded as a disincentive by institutions (Downes, 2007). This may be particularly problematic where there is a culture of developing, but not using OER, so that it is difficult to recoup the time and money expended or ensure sustainability (Downes, 2007). In health sciences this may be a particular issue due to the inherently complex and dense nature of the content (Lee et al., 2008). 	IPR Time, costs, training, job losses
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<p>Practical support</p>	<p>Repositories Technology IT/library support University policy Supporting sustainability</p>	<ul style="list-style-type: none"> • It is important to note that providing access to digital material is more complex than providing repositories and sophisticated browsing and searching tools are essential if OER development and use is to expand (Hanley, 2005). • A crucial issue identified by the PHORUS project, specifically relating to Public Health, but with relevance to all disciplines, has been the issue of subject matter tagging of OER. It has emerged that Public Health OER are frequently not tagged or identified as 'Public Health' when uploaded online, which may be problematic for those searching for resources. Technical considerations and complexity, such as this, may hamper universal dissemination, adaptation and use of OER (Downes, 2007). • At present whilst it appears that repositories may offer a means of supporting and encouraging communities of practice there is little evidence demonstrating the most effective means of achieving this (Geser, 2008). • There have been notably successful projects, such as those at Massachusetts Institute of Technology and The Open University (PHORUS). Managing legal, business and technological considerations, and encouraging staff to believe that OER development and use is a recognised and valued aspect of their role (PHORUS) is essential. • The sustainability of OER has become an area of academic study in its own right. Several models for sustainability have been noted in the literature, based on a range of factors, such as finance, technology and content development (Downes, 2007). The need for institutions to embrace OER on a university wide basis rather than by faculty is seen as particularly important, and it is also suggested that sustainability is improved if enrolled students are expected to actively use and learn using OER produced by their institution, rather than OER development being separate from traditional academic teaching (Atkins et al., 2007). It seems reasonable to suggest that sustainability in Public Health OER is of significance because outdated materials may pose a risk if use inappropriately and there is a responsibility on OER providers to continue to support users of resources who may be reliant on their materials to complete a learning programme or provide up-to- date care (PHORUS). 	<p>Repositories Technology IT/library support Sustainability Organisational policy</p>
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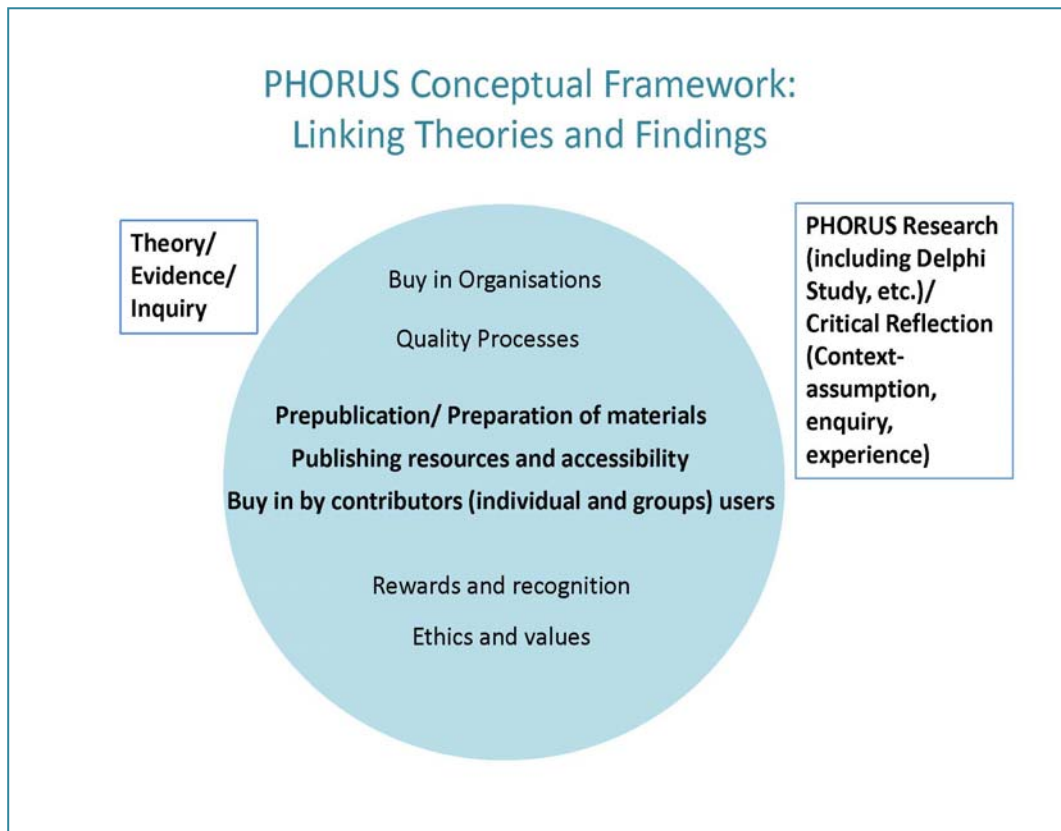
The above research and literature review results (Figures 3 and 4) were built on by taking into account the detailed dialogues with those involved with publishing Public Health resources as well as the facilitated critical reflection involving key people in the project. An example of a reflective output in the form of a list of underpinning assumptions follows:

Assumptions underpinning OER for Public Health

1. Publishing learning materials for open access promotes public good
2. OER is especially good for public health education since increasing access to knowledge concerning health and well being promotes human rights
3. OER concerning public health (including health and social care) education differs from that of many other disciplines because of the potential for direct impact on human and animal health and behaviours
4. There are ethical issues that need to be taken into account in publishing OER in public health because of the potential impact on human and animal health and wellbeing.
5. OER is a 'paradigm shift' in (higher) educational practice in public health.
6. The broad objectives of OER are in alignment with developments in public health education which promote inclusivity in terms of disciplines and collaboration based on knowledge and respect between professions in practice
7. The context for promoting OER in public health is complex, involving many stakeholders and both 'hard' and soft issues, histories and traditions.

The synthesis of the salient issues then allowed the construction of an overall conceptual framework. This is given in summary in Figure 5 and Figure 6 with more detail

Figure 5: PHORUS Conceptual Framework: Linking Theories and Findings¹¹



¹¹ PHORUS Conceptual Framework: Linking theories and findings: http://phorus.health.heacademy.ac.uk/sites/phorus/files/documents/1146/PHORUSConceptualFramework_Theories-Findings.pdf

Figure 6: PHORUS Conceptual Framework - Linking theories and findings (2)¹²

	Theories/ evidence/ Inquiry	PHORUS Research (including Delphi study etc), Critical reflection (Context - assumption, enquiries, experience)
Buy in by organisations	<p>Change theories; (conditions for) communities of practice; competitive advantage (prisoners' dilemma!) diffusion of innovation theory, corporate and marketing strategy theories (stakeholder analysis)</p> <p>Change agents and champions; institutional policies, costs/benefit analysis, mission of HEI, map of key stakeholders (and usage and access to information future)</p>	<p>University business model, strategic direction and positioning (regional, national or global), costs, competitiveness, CSR, reward and recognition, differences between universities, OER may detract from formal courses.</p> <p>Needs both organisation (including senior management) and individual buy in and these need different strategies External influencers that may drive future buy in by HEIs (eg predicted demand for access from students) Early adoption of OER as an innovation and relationship with competitive positioning in HE market (particularly at global level)</p>
Quality processes	<p>Currency; utility</p> <p>Peer review; dates of usage and uploading; take down policies; consent; acknowledgement; transparency</p>	<p>Quality assurance responsibility, identifying quality i.e. peer review, quality when materials repurposed i.e. audit trail, keeping up to date quality, standards.</p>
Prepublication/pre preparation of materials	<p>IPR theories and legal issues; human/computer interface; pedagogic theory (social construction, student-led); metadata</p> <p>IPR, copyright and licences; digitalisation and choice of format; structure of material; accessibility; tagging.</p>	<p>IPR, public liability, copyright for pictures, indexing, Disability Discrimination Act, breadth of PH expertise and different PH contexts.</p> <p>IPR as inhibiting creativity?</p>
Publishing resources and accessibility	<p>OER research and theory</p> <p>Choice of repository; ease of use (publishing); coherence of materials; searchability; granularity for reuse; safeguards (e.g. Disclaimer statement); work flows; disintermediation</p>	<p>Time and cost, providing resources for which there is demand, content management, learning outcomes.</p>
Buy in by contributors (individuals and groups) users	<p>Technology Acceptance Model; critical mass; community of practice; diffusion of innovation; states of change</p> <p>Training</p>	<p>Profit from work of others, citing authorship, OER community, developing PH communities, job security, reducing costs of developing materials.</p>
Reward and recognition		<p>Reward and recognition identifying ownership and controlling release.</p>
Ethics and values	<p>Human rights;</p>	<p>Philanthropic</p>

¹² http://phorus.health.heacademy.ac.uk/document/phorus_cf2

There are thus seven conceptual elements emerging from this project that are keys to OER in Public Health. The importance of a quality system emerged very early in the processes involved in publishing OER. Buy in from both organisations and individuals took some time in an arena not already deeply engaged in the policy and practice of OER. Although the organisations involved had many questions and some could not overcome the challenges during the year, it was the buy in from individuals that was the stronger in PHORUS. This is joined by the preparation of materials and the accessibility focus of the process of publishing the resources that were the other front runners in PHORUS. Last but not least were issues to do with reward and recognition for the academics publishing resources and how this might come alongside research publications. Not to be ignored were the ethical issues arising, for example the potential life and death nature of Public Health. Values of philanthropy and human rights are key in this area and with the ethical issues promoted much discussion with more to come. Suffice to say for now that these seven elements resulted from the sources available during the year of the project. The final Figure 6¹³ offers some detail lying behind these seven elements.

There was some concern that the suite of sources and figures of the conceptual framework development may be confusing. However, after consultation with regard to usability and level of understanding a decision has been made to retain the stages and levels, at least for the time being. Further work, particularly as the use of the resources is tracked, may lead to further refinements but for the time being the conceptual framework outputs are as discussed.

- c) **Resources:** Over 40 resources were contributed to the PHORUS Project by May 2010. These have been catalogued to JorumOpen and some were adjusted to be repurposed and reusable prior to depositing to JorumOpen. Resources continue to be collected and catalogued. See details of resources in Appendix-E or visit the PHORUS website: <http://phorus.health.heacademy.ac.uk/accessing-resources-0>

Three sets of guidelines have been produced to help clarify detail required for contributing resources and how resources will be checked prior to depositing to the JorumOpen and making it available to public.

1. Guideline for resources submission – see Appendix-D
http://phorus.health.heacademy.ac.uk/document/guide_resourcesubmission
2. PHORUS Resources Checking Procedure – see Appendix-F
<http://phorus.health.heacademy.ac.uk/document/resourcechecking>
3. PHORUS Resources Workflow – see Appendix-H
<http://phorus.health.heacademy.ac.uk/document/workflow>

During the project time we have held 20 events, e.g. conference, workshop, meeting, launch etc. throughout the year to disseminate the concept of OER and all project deliverables as well as stimulate discussion and encourage involvement to contribute and share resources through the PHORUS website, both in the UK and abroad. See details of events held by the PHORUS Project for dissemination activities in Appendix-B. Other dissemination events will take place over the next year,

Evaluation process

The PHORUS Project Evaluator is Professor Lesley-Jane Eales-Reynolds, University Director of Learning and Teaching, University of Westminster. She was previously Director of the EXPeRT CETL at the University of Portsmouth, and on the Advisory Board of the Subject Centre for Health Sciences and Practice until 2008. The evaluation plan is attached at Appendix-G and has included potential contributions of the PHORUS project to the OER Programme evaluation, as identified by Helen Beetham. The evaluation of the project included not only the achievement of aims and deliverables, but also the process of developing, implementation and working together. Lesley-Jane is acting as critical friend to the project and evaluation activities include face to face and telephone discussion with the Project Manager and the Project Researcher, as well as participation in the Advisory Group, the project meetings, project team residential meeting and project team critical reflection day. The first evaluation report was submitted in January 2010 and the final report on 30th June 2010. An addendum to the final report for the project extension time will be provided as the extension period comes to an end.

¹³ http://phorus.health.heacademy.ac.uk/document/phorus_cf2

1. Evaluation - Interim Report
http://phorus.health.heacademy.ac.uk/document/eva_interimreport
2. Evaluation – Final Report
http://phorus.health.heacademy.ac.uk/document/eva_finalreport
3. Evaluation – An addendum to the final report will be submitted after the extension activities are agreed and completed.

Lessons Learned:

- From the beginning of the project the wide repertoire of benefits of OER for Public Health (including, for example the relationship to human rights) needed to be clearly demonstrated. Partners may have been engaged earlier if there had been stronger evidence and examples from the beginning.
- Building credibility for the project, which is essential to its success, takes time. It cannot be assumed that it is sufficient for it to be in a national programme and relatively well funded when there is experience in the discipline community that such projects are not sustained in the longer term and can disappear with little warning or perceived impact.
- A systematic scoping study specifically aimed at recent developments, planned work and prospective projects to develop electronic resources for public health education in the UK would have contributed to a more focussed strategy to involve key partners and other influential organisations. However, this was not available at the initial planning stage.
- Timescale of the project was such that it could only begin the process of change or adoption of innovation in this context. Initial delays in completing the project set up, e.g. staff recruitment, office facilities, and in sorting out legal agreements with institutions, that have different requirements and pace of work meant delays in starting the substantive part of the project. Time was also needed to understand the complexity of the context and to develop networks in both academic and practice settings. Sharing requires developing “trust” and that took longer than anticipated. It would be much more beneficial to spread this pilot project over two years since the starting point turned out.
- A key learning point of WP2 is the essential need for resources to be tagged specifically as ‘public health’. Many online resources used by experienced public health academics in building curricula are not tagged as ‘public health’.
- Where is the passion – OER or public health? The latter has been most influential in the development of the PHORUS project. More passion for OER, at least initially, might have helped to address the first point and to have helped in ensuring alignment of activities (research, organisation development and the identification and release of resources) with all the aims and objectives.
- The timescale for funding applications precluded detailed agreements being in place prior to the PHORUS application consequently the ongoing level of negotiation impinged on other project activities. This is not unusual but needs to be taken into account.
- The process of consortium development needed more transparency since there was some concern expressed. The existence of an embryonic network was insufficient.
- The overall project needed more emphasis to ensure that everyone saw the whole not just their part. The work-packages and delegated responsibilities generally provide a sense of direction but in this case created some fragmentation in what should have been a holistic approach.
- The conceptual framework provided theoretical and practical challenges that were overcome by providing developmental levels that incorporated the process of construction. With further refinement this may be able to be distilled further.

- Perhaps have a stronger central OER benefits statement and greater central communications about the OER programme and why it was seen as an important platform for Higher Education and outreach, access and participation in England. This would have added greater weight and strategic impact to the communications that each project undertook in its own way which at times perhaps could have done with a helping hand.
- It would have been beneficial to have set up a communications / marketing user group or similar to discuss how best to get key messages across and engage with stakeholders and others. This was something in hindsight that we could have set up however time was not on our side.
- There was lots of information passing through our in-boxes and lots of opportunity to share our thoughts and issues with colleagues – however there was from a personal perspective information overload and too much of the minutiae of projects and detail being sent rather than big picture stuff. It just wasn't possible given the number of days we had committed to the PHORUS project to get involved in all the invitations to participate.
- The RSPH website could have been used to much greater effect to promote the PHORUS project at www.rsph.org.uk/projects The PHORUS website is hosted by the Health Sciences and Practice Subject Centre – this was important to ensure the commitment to sustain it over the three years.
- Below are quotes from the Delphi Study to reflect and emphasise on issues and concerns in this context.
 - *'I think the philosophy is.....of being part of that community'*
 - *'Surely we're talking about 2 things here. One is the development of the open learning, like what you're doing at the OU. The other side of it is everybody using it, and so there are 2 sides and not necessarily that everybody in all Universities will be developing a huge amount of material, and we don't need to duplicate it.'*
 - *'we have a duty to share the information and resources that are available for everybody and that's a prime driver against health inequalities'*
 - *'We have a moral duty to give back. But in order for people to carry out their duty they have to have the capacity...It's about taking and giving'*
 - *'I think the difficulty is that the material changes so quickly and as soon as you think you've written it there's another rule, another policy and you've got to update it, you're not teaching the same thing each year or each month because you've changed it,...that would be my concern is that it could be changed in line with things as they change'.*
 - *'You can't define it, I wouldn't know where to start, maybe it needs to be an evolutionary thing that gets changed as people decide, as users decide, what is public health?'*
 - *'I think some universities are more corporate than others and I think on the whole that the opposition we've encountered so far and that I spent a lot of time talking about has been 'what's in it for us'*
 - *'I've slaved away doing this why should I do it for the benefit of others there will not be enough of us at academic PH level to teach so we have a well prepared workforce at a basic level of public health'*

- *'It's not about an evaluation; it's an ongoing dialogue with the creator of the material that could be shared on an open site'*
- *'that's one of the fears that people have that if we talk about separating content, and you don't need people to develop content anymore that they just sit there in universities assessing and grading you will need fewer staff so it is a worry people have'*
- *'Well I think as we were suggesting there is a strong relationship between quality and use, people aren't going to go chasing after these websites on the whole because they know a lot of the stuff on there is not very useful so there is a big issue about quantity not quality'*

10. Outcomes and Impact

- The relationship between the Subject Centre and RSPH has been strengthened which bodes well for future collaborations.
- The research undertaken fulfilled all of the aims and objectives for the relevant workpackages. It appears that Public Health OER release is subject to the same enablers and barriers seen in other disciplines. However, the diversity and breadth of Public Health makes it difficult to identify or encourage a community of practice. In addition, quality is a very significant concern in a discipline where academics and practitioners are conscious of public safety and legal responsibilities in relation to out of date or incorrect resources.
- The research has provided a directory of existing Public Health OER providers, which have been made available to the stakeholders. In addition a schematic model, conceptual framework and flowchart for OER release and use have been generated to enable better understanding of the issues and processes involved in OER development and use.
- Public Health and OER are both complex areas so clearly defined parameters for the scoping/mapping exercise and literature review were essential. Experience and profile within Public Health education from some of the research team was valuable, as was the range of experience of different aspects of Public Health amongst the research team.
- The value of the project for RSPH partner universities has been to start to raise awareness and the level of debate about the need for open access resources in public health. This can only be a good thing as it means that a much more informed discussion is starting to emerge that we can now build on. Part of the myth that has been created about OER means giving away intellectual capital and the problems of return on previous investment in this can now start to be dispelled if we can pursue the argument that OER adds value rather than dissipates it.
- It would be good to see a top table event to discuss these issues in a deeper way with vice chancellors and interested government departments e.g. the Department of Health and Strategic Health Authorities who are involved in and manage the development of the public health workforce. The latter are working directly with Universities and are commissioning the education and training programmes that support the ongoing development of public health practitioners.
- The impact of linking the PHORUS project and resources to the Public Health Skills and Careers framework is significant. This will become even more important as public health education and training is reviewed as part of the wider regulatory review of practitioners (currently being conducted by the Department of Health). The fact that the many Universities had not linked their own public health degree modules to the framework is telling and indicates there is a potential lack of locating teaching of public health in practice.
- We are now seeing the emergence of careers tool and set of resources for both entrants into public health and those already working in it – funded by the Department of Health and hosted by the East Midlands Deanery at the University of Nottingham – this presents a further influencer on the growing interest in public health as a career and potential demand for

education. (www.phorecast.com??) The PHORUS project provides further support as an educational resource to users of **Phorecast** and links can be created between the two areas.

- A further positive outcome has been the interest shown by public health teaching networks in the project who are showing signs of committing to provide resources. This will be beneficial for all and will provide a good bedrock of new resources to many universities who are involved in PHORUS– The networks are funded by the Department of Health who will also hopefully show an interest in OER in general and in particular in supporting public health education.
- Having a strong communication platform and branding
- Building successful relationships over time
- Understanding the cultural and organisational of HEIs and being willing to work within their timetables and within their boundaries
- Good project manager and administrator who managed to stay focussed on project tasks
- Accepting there was a longer cycle of engagement and adoption than had been anticipated at start of project and adjusting to this
- Universities working to a profit and business model this was used as an excuse for not getting involved
- Not being able to get buy in from VCs and gatekeepers preventing this from happening – this meant that the important strategic discussion didn't take place
- Ownership of resources and sticky IPR issues that many don't want to tackle – this meant that it became very difficult for some potential partners to get involved
- Competition between Universities – we wrongly assumed that there would be more joined up thinking and a 'social good' ethos in many of the universities we invited to participate in PHORUS because of their teaching of public health. Competition means unwillingness to share and a suspicion about the motives for OER!
- When resources checking procedures were carried out we also discovered that numbers of resources associated with public health were not tagged with the correct metadata and keywords, so reducing the chances of searches to discover them.
- In JorumOpen all the resources were tagged with specific keywords and also with keywords that relate to the contents of the resource. This means that the resources will be found easily similar to searching by using the terms "UKOER" and also "PHORUS".

11. Conclusions & Recommendations

- Sharing learning and teaching resources in Public Health community is important and requires active engagement, enthusiasm and high commitment.
- Gradual increase of momentum and buy in as people learnt more about the project and what it was going to achieve. Clear and regular press releases also help raise awareness and encourage engagement.
- The literature review in workpackage 2 has helped identify several important key issues:
 - Quality,
 - Ethics and values,
 - Enablers (including rewards, business case, time/cost savings, profile and participation in communities of practice),
 - Barriers (including risks such as IPR issues, commercial competition, time/costs) and
 - Practicalities (including repositories, technological tools, institutional policies and sustainability).

- The Delphi study identified influences on OER relating to Quality, Rewards, Time/costs, IPR, Communities of Practice and Sustainability.
- Established networks may agree to contribute and participate in Projects, but this cannot guarantee that there will be contributions made by their organisation.
- One major success is to have identified the fact that OER resources have not been tagged correctly/properly and that the search for public health resources can be made easy by ensuring that keyword tagging is done correctly.
- The process for assessing OERs, determining the IPR of OERs and finally contributing the public health OERs has been set in place and can continue given the necessary funding.
- Below is a good example of resource that we provided support in updating, re-designing and making it reusable. This is now available and accessible through the following link (Author: Ann Wylie, Resource: Smoking):
http://www.health.heacademy.ac.uk/site/phorusoer/phase3_smoking/player.html
- Descriptions of OERs should have a basic format and explain if there are any specific tools required in order to repurpose the resource. Although this will extend the description of resources, it will provide necessary detail to the intended audiences not just what the OER is about but cover any technical requirements.
- Further work can be done on the BURIO repository, particularly on keywords and descriptions. This will help the resources appear in consistent format and make them more searchable as well as metadata exchangeable with other repositories. If repository search was developed based on metadata structure, this work is worth considering though it may be labour-intensive prior to completion. Changing of the research groups at the university could be an opportunity to put some new procedures in place and emphasise on making the resources publicly accessible.
- The OER Pilot Programme tends to focus on releasing resources, while it is also important to understand the complexity of the study context, particularly from disciplined-focus, prior to developing appropriate strategic and practical approaches. In addition, there are needs in the communities to demonstrate how OER can help in the learning process. Development in pedagogic direction should be considered. This will give participants a clearer picture about OER and how it could be beneficial to institutions from policy to individual levels.
- Process of adjusting resources to make them “repurposable” and “reusable” is very time-consuming and it would be much helpful if institutions/ organisations will be able to provide some support team/ unit with learning technology skills to help resource owners/ authors in managing this.
- In an aspect of project management, systematic management and administration should be put in place in an early stage. Preparing processes in advance will also help when contingency plans need to be put into action. Having more strict deadlines and follow-ups to ensure that deadlines were kept to need and if the deadlines are not met then another plan of realising the outcomes should be followed.
- It would be valuable to continue this research through case studies of individuals/institutions as they engage in the process of releasing Public Health OER. There is also a clear need for more research into the barriers to involvement in OER by public health educators and their institutions – to start to elicit solutions to this.
- The barriers are potentially more imagined than real and a national communications campaign would be very useful to also include some encouragement to sign up and get involved.
- We would strongly recommend a top table event to get VCs, Dept of Health and Strategic Health Authorities talking about the public health practitioner education and resource challenges faced over the next 5 years.
- The processes and use of the Toolkit can be used across various subject areas, so it can be repurposed and used with other disciplines and organisations.

- Any institutional repositories that offer resources as OER should have clear guidelines in place to ensure that the resources are made available to the wider community and easily repurposed.
- OERs that are created with specific tools that are going to be harder to repurpose as the individuals who try to re-use the resource will need to have access to the development tools that were used in the creation of the learning or teaching resource.

12. Implications for the future

There is a critical need to think about the need for more education and OER for the public health workforce, including for example those who will be involved in volunteering for the Olympics in 2012. This is a major public health initiative in its own right and will require a strong educational infrastructure that could be greatly enhance via OER (and PHORUS).

The new political agendas, both in health and in higher education, will demand flexibility in learning and in workforce development as well as a greater emphasis on Public Health, thus OER for Public Health will be important to sustain and develop further. The Higher Education Academy may not have this as one of the overall priorities; however it will be important to the Health Sciences and Practice community.

There is the potential, and indeed a real probability, for the development of Chartered Practitioners in Public Health and the concomitant strengthening of Continuing Professional Development requirements in the near future so again pointing to an ongoing CPD requirement which the PHORUS initiative could help fulfil.

Now that Public Health resources have been released there is an imperative to track the quantity and quality of their use, this will require additional funding to ensure this task is completed effectively although some tracking will continue as part of the ongoing commitment to OER and the provision of high quality resources.

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Workpackage 2 Report

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31st January 2010



PHORUS includes two Work packages that focus on research, both of which have been conducted by Bournemouth University. Work package 2 consists of a literature review together with a mapping and scoping exercise and a summary of the main findings is provided below.

- The complexity and multi-disciplinary nature of Public Health makes a definition challenging.
- Public Health Open Educational Resources (OER) is in a state of emergence and appears at present to be mainly centered for use in developing countries.
- In general it was clear from the literature and the online search that those Public Health OER that were most widely available and easy to locate had been produced by large universities and institutions where enthusiasm, technological support and funding for OER development and continuation originated centrally and formed part of their ongoing business plan.
- The literature suggests the existence of communities of practice is influential in the development of OER.
- The social model of capacity building within Public Health education reflects a philanthropic focus.
- The main barriers to OER have been identified as IPR, accuracy and quality of resources and sustainability
- 42 OER providers were identified in the mapping exercise mostly originating outside the UK.
- Public Health OER are frequently not tagged as 'Public Health' which makes identification difficult.
- Feedback from the Delphi exercise would suggest that frequently used Public Health OER sites are from personal association rather than through online searching.
- Mapping these sites against the Public Health Skills and Career framework was complex and time consuming.
- The pool of Public Health OER is rather limited as many sites redirect to existing providers.

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Introduction; PHORUS and the context of Workpackage 2

Public Health Open Resources for the University Sector (PHORUS) is a collaborative project coordinated by the Health Sciences and Practice Subject Centre. PHORUS is one of thirty projects across the UK created in an initiative designed to test practical considerations and benefits of providing Open Educational Resources (OER)¹⁴ in Higher Education. The PHORUS project consists of six Workpackages. Each of these focuses on a specific area of the study. Although different organisations and institutions are leading the various Workpackages the project is collaborative and decision making has been shared across the management team.

PHORUS aims

- To critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- To identify and work towards openly releasing existing Public Health learning resources.

PHORUS Objectives:

- To explore and develop business approaches and determine IPR challenges applicable to enabling the release of resources
- To strengthen the Community of Practice
- To identify and critically assess enablers and barriers to the development of Public Health OER
- To promote the culture of sharing across various health related disciplines
- To use the concept of OER to encourage reflection on developing educational processes through sharing experiences
- To include a range of stakeholders
- To identify and release Public Health Learning Resources for open access
- To synthesise, review, and capture emerging themes and open resources through a single access point on the Health Sciences and Practice Subject Centre website
- To disseminate findings and share good practices with the HE community

Research aspects of PHORUS

PHORUS includes two Workpackages that focus on research, both of which have been conducted by Bournemouth University. Work package 2 consists of a mapping and scoping exercise, which is described in detail in this report. Work package 3 involves a Delphi Study, which has been used to identify barriers and enablers to the development and release of Public Health OER. This aspect of the research will be documented in a separate report.

¹⁴ Throughout Workpackage 2 the term Open Educational Resources (OER) will be used.

Work package 2: Mapping and scoping exercise

Work package 2 provides the context of the PHORUS project through a critical review of the literature and the identification and mapping of existing Public Health OER.

Aim of work package 2:

- Critically review and analyse relevant literature and identify existing online open Public Health learning resources

Objectives of work package 2

- Critically review relevant literature
- Identify existing open resources
- Map resources against Public Health Skills and Career Framework

This report identifies the work undertaken to achieve these aims and objectives, and the findings of this aspect of the research.

Literature review

Introduction

A wealth of literature has been generated around the subject of OER. Much of this documents the growth of OER over recent years and offers a justification of the development of OER as an essential element in providing education and reducing inequalities in learning. There is also considerable debate regarding the barriers and enablers to OER, and the technological requirements for developing them effectively. Very little of the existing literature refers to Public Health OER. This literature review has drawn together the key elements relating to OER in general, and seeks to relate these to Public Health where possible.

Defining Public Health and Open Educational Resources

A key element of the literature review is to clarify the terminology used in the PHORUS study. Both Public Health and Open Educational Resources (OER) are complex and are constantly subject to development and change, and have different meanings depending on context. The terms defined here are specifically suited to the PHORUS project.

Public Health

Defining the term 'Public Health' is a key element in identifying OER which might be relevant to the subject. There are a wide range of perceptions of the nature and scope of public health, and therefore little consensus has been reached in defining the term. The Royal Society for Public Health (RSPH) and the United Kingdom Public Health Association (UKPHA) (RSPH, 2009; UKPHA, 2009) both cite the definition provided by Sir Donald Acheson (1988) in the Report of the Committee of Enquiry into the Future Development of the Public Health Function. This identifies Public Health as;

“the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of society”
(Acheson, 1988)

In addition, the UKPHA (2009) describes the scope of Public Health practice in greater detail. As such it is identified as an approach which;

- focuses on the health and well being of a society and the most effective means of protecting and improving it
- encompasses the science, art and politics of preventing illness and disease and promoting health and well being
- addresses the root causes of illness and disease, including the interacting social, environmental, biological and psychological dimensions, as well as the provision of effective health services
- addresses inequalities, injustices and denials of human rights, which frequently explain large variations in health locally, nationally and globally
- works effectively through partnerships that cut across professional and organisational boundaries, and seeks to eliminate avoidable distinctions
- relies upon evidence, judgement and skills and promotes the participation of the populations who are themselves the subject of policy and action

For the purposes of this research the definition provided by Acheson (1988) on the previous page was used because it provides a broad definition widely accepted by public health educators and professionals.

Open Educational Resources

In 2002 the United Nations' Educational, Social and Cultural Organisation (UNESCO) first adopted the term 'open educational resources' (OER). UNESCO defined OER as;

“the provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes.”

(Johnstone and Witherspoon, 2002, p1)

A number of different interpretations of OER have since emerged. In order to identify existing Public Health related OER it is essential to establish a definition of OER which offers clear parameters with which to distinguish suitable resources. The definition provided by UNESCO is broad, and impractical for use in identifying Public Health OER amongst the wealth of resources and information available on the internet. Some organisations working with OER have since provided more detailed interpretations. The Joint Information Systems Committee (JISC), which is co-funding this pilot project, identifies OER as;

Open educational resources could include full courses, course materials, complete modules, notes, videos, assessments, tests, simulations, worked examples, software, and any other tools or materials or techniques used to support access to knowledge. These resources will be released under an intellectual property licence that permits open use and adaptation.

(JISC, 2009, online)

This definition is sufficiently detailed to enable OER to be identified effectively. Further to this, Jorum, the repository created to store OER identified by the JISC projects, has identified additional parameters. This requires that;

- *Access to open content (including metadata) is provided free of charge for educational institutions, content services and end users such as teachers, students and lifelong learners.*
- *Content is liberally licensed for reuse in educational activities.*
- *Open content standards and formats are employed to facilitate easy reuse of content.*
- *Software is used for which the source code is available (i.e. open source) along with open Application Programming Interfaces and authorisations to reuse web based services (e.g. RSS feeds).*

(Fleming and Massey, 2007, pii)

Fleming and Massey (2007) note that these are demanding requirements and not all resources may fully adhere to them. It is also important to be aware that the concept of 'free' is not meant in terms of free of costs but instead refers to resources that are offered free of constraints (Downes, 2007). However, Hylen (2006) states that even open resources have 'conditions attached'.

The ability to "define a learning objective for the (learning) object" was noted by Duncan (2003, p16) as a key element of OER. In addition, Rehak and Mason (2003) identified that "many practitioners have drawn a distinction between 'information objects' and 'learning objects'. This distinction separates mere facts from learning contexts within which facts are used" (p21). These statements offer clear direction regarding this aspect of defining OER.

The role of Public Health OER

Whilst a considerable volume of literature has been published relating to general OER there is far less information regarding Public Health resources. However, the principles of OER, would appear to have more relevance to Public Health than to many other subject areas. Smith et al. (2006) note that;

At the heart of the OER movement is the simple and powerful idea that the world's knowledge is a public good and that technology in general, and the World Wide Web in particular, provide an extraordinary opportunity for everyone to share, use, and reuse that knowledge.

(Smith et al., 2006, p10)

This has clear links with the definitions of Public Health shown above, which focus on improving health and sharing knowledge on a local and global scale. Indeed, in the few papers relating to Public Health OER the focus is almost exclusively around the notion of sharing as a philanthropic means of reducing inequalities. This particularly relates to the use of OER in developing countries, where access to Public Health education is limited by lack of teaching facilities and resources. OER may be seen as providing "an affordable and credible solution" (Heller et al., 2007) to the growing disparity in health between developing and developed countries. The practical application and potential of OER in these contexts, particularly Africa, was noted by IJsselmuiden et al. (2007). Some researchers and commentators (Heller et al., 2007) have identified the key requirements for implementing effective OER projects. These include the development of repositories, with the Cochrane Collection cited as an example of how these might be structured. The development of educational approaches, evaluation and accreditation strategies has also been suggested. Once these are in place the key element is clearly the development of resources, and in some cases the availability of online teaching and assistance for students (Heller et al., 2007).

The international context of Public Health OER

It is clear from the literature that different countries have responded in varying ways to the development of technologies that enable the release of OER, and in particular to the development of Public Health OER. The earliest major initiatives in developing OER began in 2001 with the release of Massachusetts Institute of Technology's (MIT) OpenCourseWare (OCW) project. Since then more than 3000 open access courses, and the resources that accompany them, have been made available by 300 universities worldwide (OECD, 2007).

US: In the United States thousands of courses have been made available by large university-based projects, such as MIT OpenCourseWare, John Hopkins Bloomberg School of Public Health and Rice University's Connexions project.

Japan: More than 400 courses have been made available by 19 member universities of the Japanese OCW Consortium from its 19 member universities. It is notable that amongst these are the nine most prestigious Japanese universities (Huyen, 2006).

China: At least 750 courses have been made available by 222 university members of the China Open Resources for Education (CORE) consortium.

Europe: In France, 800 educational resources from around 100 teaching units have been made available by 11 member universities of the ParisTech OCW project. (Yuan et al, 2008). Again, participation in OER in France has been particularly noted amongst the most prestigious institutions (Huyen, 2006) OpenER has been developed in the Netherlands as part of a programme to engage older learners in education (Geser, 2007). In the UK the Open University has created Openlearn, which provides some true OER, as well as a range of resources accessible for more formal learning. Other OER have begun to be developed as a result of funding for pilot schemes around a range of subjects and institutions. These have yet to be evaluated.

Australia: The geographical issues associated with education in parts of Australia have created a suitable environment for OER to develop. In many areas OER are not an 'add on' to the education system but an essential means of providing education and training in remote communities. Of most significance here is The People's University founded by Dick Heller, which provides a large quantity of Public Health related resources. Although this does not at present provide resources that are 'free', in terms of lack of constrain (passwords are required for access), it does in many ways provide an example of a workable model of OER. The resources here are provided for both developed countries such as Australia but also seek to reduce inequalities in health education in developing countries.

Africa: A number of OER projects have been established in Africa. It has been noted that, whilst it is often anticipated that African countries may be net consumers of OER that many resources may be unsuitable in the context of the continent and individual countries. As such localisation and collaboration may be key to ensuring that resources are not only freely available but appropriate (Stacey, 2007).

OER projects are also emerging at universities in Brazil, Canada, Hungary, India, Iran, Ireland, Portugal, Russia, South Africa, Spain, Thailand and Vietnam. In countries such as China and South Korea there has been a particular drive towards translating existing OER from elsewhere in the world into local languages (Huyen, 2006).

Sustainable OER models

There are many funding models currently used by an open educational resource initiative. Downes (2007) provides the most comprehensive evaluation of these and helpfully summarises the models:

Institutional Model; an institution will assume the responsibility itself for an OER initiative and the most well known of these is MIT's OpenCourseWare project.

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Governmental Model; funding for OER projects directly come from government agencies, including the United Nations. Because OER initiatives have different goals and exist in different institutional contexts, no single funding model fits every project.

Sponsorship Model; this model underlies a form of open access that is available in most homes: free radio and television. In online educational initiatives, various companies have supported OER projects on a more or less explicit sponsorship basis, often in partnership with educational institutions.

Examples include the MIT iCampus Outreach Initiative and the Stanford iTunes project.

Endowment Model; the project obtains base funding and a fund administrator manages this base funding and the project is sustained from interest earned on that fund.

Donations Model; a project deemed worthy of support by the wider community requests, and receives donations. Numerous open source and open content projects are funded in this manner, including Wikipedia and the Apache Foundation. Donations can take the form of money or content / code.

Membership Model; a coalition of interested organizations is invited to contribute a certain sum, either as seed only or as an annual contribution or subscription.

Conversion Model; by giving something away for free and then converting the consumer of the freebie to a paying customer.

Contributor-Pay Model; a mechanism that contributors pay for the cost of maintaining the contribution, and the provider thereafter makes the contribution available for free. For example, the PLoS Open Access, research articles and supporting documentation will be made freely available online to view immediately upon publication. The charges for this process will be met by funding bodies.

(Adapted from Downes, 2007)

Enablers to the development of OER

The literature identifies some enablers to OER development. Few of these specifically relate to Public Health, around which there appears to be very little literature at present, but the general principles may be applied to Public Health OER.

Communities of practice

The literature suggests that the existence of communities of practice are influential in the development of OER (Downes, 2007). However, it is also noted that some commentators have observed that OER development is often driven by a 'top down' model rather than a 'bottom up' one. It is suggested that communities of practice in OER should be encouraged to develop and promote OER themselves through their common interest and the acquisition of skills. This will not only enable the development of useful and effective OER for that community but also help to ensure that it is updated and sustained (Geser, 2007).

Willingness to participate in philanthropic activities

Heller (2009) identifies a social model of capacity building in Public Health education that has helped to encourage participation in the development of OER. In addition Heller comments on the importance of contributors volunteering their time and expertise, which is often essential to the development of OER, and notes that this may be an issue in terms of future sustainability (Heller, 2009).

Repositories

Repositories for OER could form large resource 'warehouses' for educational purposes, particularly if technologies are developed to assist in depositing and accessing resources. It is important to note that providing access to digital material is more complex than providing repositories. The development of OER networks with tools to enable browsing, searching, syndication, and even resources such as a 'virtual speaker's bureau' (Hanley, 2005), are essential if OER development and use is to expand. Technical considerations and complexity may hamper universal dissemination, adaptation and use of

OER (Downes, 2007) unless repositories are sufficiently funded and the relevant technology is available to all.

Barriers to OER

The OER literature focuses, almost universally, on several common issues regardless of country and institution of origin or subject area. Several major studies have explored the barriers to OER. No literature has been identified that specifically relates to barriers to Public Health OER development, although it would seem obvious that updating and accuracy of health related OER is particularly important.

IPR

The concept of Intellectual Property Rights (IPR) is of concern in the development of OER at two levels. Firstly institutions may be concerned about ownership of OER and the competitive and commercial implications of providing resources openly on the internet. Secondly, individuals are often concerned, and indeed confused (Yuan et al., 2008), about their right to release work that they have produced because in many cases their employers own the rights to their work.

The solution to the first issue has been through the development of 'Creative Commons' licences, which provide an alternative to 'all rights reserved' copyright (Downes, 2007). This relies on the concept of 'fair use' and the adoption of a Creative Commons 'culture' that respects the sharing ethic in OER use (Hysten, 2006).

The second issue is more challenging to staff in some institutions than in others. Where institutions embrace and encourage the development of OER the organisational culture appears to reduce anxiety and confusion about this aspect of OER (Atkins et al., 2007).

Accuracy and quality of resources

This issue has been noted by a number of commentators, and is perhaps of particular concern in health sciences, where up to date and accurate information is essential. One solution to this, employed by MERLOT, has been to subject material to professional review, but this has slowed down the release of resources so much that it has been described as 'a crisis in OER' (Hanley, 2005). Certainly slowing down the release of OER is contrary to the inherent nature of OER, and in itself means that resources may not be up to date. It is suggested that peer reviews and user communities might be possible ways to resolve this (Larsen & Vincent-Lancrin, 2005).

Sustainability

Sustainability of OER is also repeatedly mentioned in the literature. It is clearly a significant concern and has become an area of academic study in its own right. Several models for sustainability are suggested, based on a range of factors, such as finance, technology and content development (Downes, 2007). The need for institutions to embrace OER on a university wide basis rather than by faculty is seen as particularly important, and it is also suggested that sustainability is improved if enrolled students are expected to actively use and learn using OER produced by their institution, rather than OER development being separate from traditional academic teaching (Atkins et al., 2007). In addition Downes suggests that;

it also seems clear that the sustainability of OERs – in a fashion that renders them at once both affordable and usable – requires that we think OERs as only part of a larger picture, one that includes volunteers and incentives, community and partnerships, coproduction and sharing, distributed management and control.

(Downes, 2007)

It is clear that strategies are required to ensure sustainable development and updating of OER, and that initial funding for OER projects requires consideration of the ongoing future of resources.

Developing OER

The origin, funding, design and sustainability of OER projects shape them into unique entities. There is currently a lack of conceptual frameworks relating to OER development, and none specifically related to health sciences OER. It has been suggested that OER development relates to existing theory, such as change management, social learning theory, technology acceptance model, and teaching and learning theories.

Change management theories suggest that OER will develop because universities have a model of educational development and change. However, no literature was located that linked OER to change management theory. Social learning theory may also be of significance, in that it suggests that observing the development of OER in teaching environments may encourage further development and use of OER amongst staff and students in universities and other organisations. At present there appears to be no literature relating this to OER.

It may be suitable to consider the development of OER in the context of the technology acceptance model (TAM). This identifies how people relate to changes related to technology based on ease of use, existing use of technology, perceived potential for improving effectiveness in working environments, motivation, and compliance with organisational procedures (Park et al., 2007). However as Park et al. (2007) note, there is a lack of theory relating TAM to OER or electronic learning at present. Indeed they also point out that TAM has been unable to entirely explain behaviour in relation to technology. In the case of OER there may be many other issues affecting acceptance and development that are not related to technology but to other factors.

Other relevant information may be derived from teaching and learning theories. There is an ongoing debate regarding whether OER teaching is effective as a result of the technology that is employed, or whether the technology is simply a vehicle for transferring teaching materials that already exist in an effective format. Kozma (2001) argues that the ability to animate and bring learning 'to life', and also to provide flexible learning, is unique to computers. In addition it is argued that the internet enables novel approaches to learning and unique opportunities for collaboration. Other commentators state that learning is reliant on the quality and aims of the resource itself. Koohang and Harman (2007) note that OER must stem from a pedagogical basis. They also take this further and identify that the design of teaching materials in OER should relate to the 'learning from experiences' aspect of constructivism theory (Dabbagh, & Murphy, 2000; Koohang & Harman, 2005). The development of OER is perhaps reliant on educationalists identifying the teaching value, and perhaps enhancement, that is possible using OER.

Further work on this aspect of the PHORUS project may be possible when data from the research has been analysed, but at this point it is inappropriate to speculate in more detail regarding theories that may have a bearing on Public Health OER development.

Conclusion

This literature review has identified that, whilst there is a considerable body of work relating to OER in general, very little of this relates specifically to Public Health OER. Indeed, whilst Heller has produced several useful papers in this field, it is difficult to identify relevant work by other authors. This is unfortunate because it would seem that there could be a beneficial relationship between Public Health and OER. As this review has identified Public Health has an international and philanthropic identity, and OER are ideally placed to provide a vehicle for promoting this. However, it is also clear from the evidence that there are a number of barriers to OER, especially relating to issues such as quality and sustainability, that are problematic, and which may be a particular problem for Public Health OER.

Identifying and mapping existing Global Public Health OER

Introduction

The second element of research for Workpackage 2 was the identification and cataloguing of existing Public Health OER. This involved online searching for websites containing resources related to Public Health. The aim of this research was to scope the range of resources available and identify trends in their origin and format. In addition the finished catalogue was identified as a tool, that will possibly be of value to those seeking Public Health OER for teaching purposes.

Search strategy

Search terms

The search terms used were derived from key words in the definition of Public Health; in particular the UKPHA definition (3.2.1) identifies the search terms used. These terms were agreed and refined by the PHORUS Advisory group. The search terms used are identified in appendix 1.

Inclusion/exclusion criteria

Public Health OER were identified using online search techniques. Searching was initially carried out in Google, with further searches using Yahoo and MSN. Smaller, more specific search engines and databases were not utilised because the nature of OER suggests that it should be possible to locate them using common search techniques. The dates searched included 2002, when OER were first formally recognised, to the present. Only English language sites were included. As well as original sources of OER a number of collections or indexes of OER were identified. These were only included where it was possible to search for specific subject areas or topics and where there was a direct link to the resource in the host website. A number of other inclusion/exclusion criteria were used. These are documented in appendix 2.

Cataloguing Public Health OER

Country of origin

Some OER originate from only one original source, whilst others are the result of collaborations between different institutions or individuals. As such the country of origin for OER could either be national or international.

Type of resources

The Public Health OER resources were identified by type, such as syllabi, lecture notes, video, assignments and other forms of resource. There were wide variations in the type and size of resources available. The term 'granularisation' is widely used to describe the size of OER, in relation to the smallest learning blocks that a resource can meaningfully be broken down into. For example, a single OER might comprise a power-point presentation, assignment or video clip. Some OER may therefore be very small, whilst others may be more substantial. Public Health OER are identified here

by source, not by individual items. As such some sources offer a large volume of OER, for instance The John Hopkins Bloomberg School of Public Health, whilst others might provide a single item.

Intended users

Some OER were identified as being of use to educators, students and independent learners. In some cases the nature of the OER made it more suitable for use by an educator, as a basis for teaching. Elsewhere other OER were better suited to independent study, particularly where online assessments were involved. However, by definition all OER should be open and adaptable, making them potentially beneficial to many different users.

Mapping against the UK Public Health Skills and Career Framework

To enable Public Health educators and practitioners to cross reference resources to recognised skills, the existing Public Health OER that were identified were mapped against the UK Public Health Skills and Career Framework (appendix 3). This process was undertaken by two experienced Public Health educators/practitioners. Each provider's website was searched using the nine competencies in the framework. In five¹⁵ cases it was not possible to follow this procedure, either because there was no 'search' facility, or because this approach did not yield any results. In these few cases a range of resources available from the site were identified, their content was reviewed and mapped against the framework.

Findings in identifying and cataloguing existing Public Health OER

General findings

In total 42 OER providers were identified (see appendix 4). In common with the literature this research found that many resources originated in the United States, with Europe, Australia, Africa and China hosting a smaller number of providers. A number of sites appeared to be international, with no clearly identifiable hub and contributors from a number of locations. It was noted that only a few Public Health OER websites from the UK appear to be supported by universities, unlike sites in the United States. In total far fewer sites were identified than were expected, despite saturation being reached in the online searches.

Search engines

When searching academic literature it is usual to use specific databases. However, online teaching resources are far broader in origin and it was necessary to undertake the search using general online search engines. It was necessary, for reasons of time and resources, to limit the search to the three largest search engines. These had the advantage of enabling access to a very wide range of sites. However, the range of websites linked to these search engines meant that many of the 'hits' were not Public Health OER. As such multiple online pages had to be viewed before search saturation was reached.

Search terms and inclusion/exclusion criteria

Clear search terms and inclusion/exclusion criteria were developed. However, because of the scope of Public Health some subject areas, identified by some academics and practitioners during

¹⁵ Commonwealth of Learning, Connexions, Health Educations Assets Library, Open Course Ware Consortium, The Open University.

consultation, were not included in the search terms. In addition, the presence of some OER on both their originator website and on other sites is confusing. Where a direct, automatic link existed from a secondary site to the provider this was included, but where OER were shown simply as a listing then they were not. In some cases it was difficult to distinguish whether links were automatic, and several visits to the site were required to check this where the links appeared faulty.

Tagging

A key issue in searching for OER was the 'tagging' of resources by providers. A succinct description of their function identifies that:

Tags are a bottom up, user-generated classification system for educational resources, and frequently serve as an alternative or addition to a top down, expert-created classification system. Tags are words assigned to resources by the users of those resources. Once assigned by users, tags are tied to the given resource, and become a searchable way to find that resource as well as other resources that are tagged or associated with the same labels.

(OER Commons, 2009)

It appears that Public Health OER are frequently not tagged as 'Public Health' resources, but rather by their specific content, such as smoking or HIV. Because of the range of subject areas covered by Public Health it can therefore be difficult to identify sites containing a wide range of resources, and a tendency to find very specialist sites or individual resources. This was clear during the search process. It was also evident when consulting with Public Health educators and professionals, who noted that some of the sites that they use for resources were not included in the list of existing OER. The sites mentioned that were not identified by the search terms are noted in Appendix 5. Their expert knowledge of these sites appeared to come from personal associations or other links, rather than through online searching. Whilst these sites were checked for content they were not included in the final list because they did not fit, at the time of searching, match the search criteria. This finding demonstrates that the list of existing OER that was produced is not a complete list of all currently available resources and that existing resources are frequently poorly tagged in terms of their Public Health content. It will also inform the tagging process for new OER collected and catalogued by PHORUS.

Mapping against Public Health Skills and Career Framework

Identifying websites as Public Health OER required that there was at least one resource on the site that met the Public Health search terms. As such it was not necessary to look at every resource on each website. However, mapping resources against the Public Health Skills and Career Framework was more complex and required many individual items to be reviewed. Searching the resources using the competencies was necessary in order to provide consistency to the mapping process. However, it was also problematic because OER were not usually tagged using the terms of the Public Health Skills and Career Framework. In addition, the terms used in the framework would probably not be used by those using search terms to seek particular teaching resources around a particular topic.

Seeking permissions

Each of the OER providers identified were contacted and given the opportunity to check and amend the description of their site and resources on the catalogue. In total eight responses were received and only one made an amendment to the information collected about their website.

Changes to websites

Mapping against the Public Health Skills and Career Framework was undertaken two months after the initial search for resources. In that time several providers had changed their websites substantially. It seems likely that any data collected in this kind of exercise will only be valid for a short period.

Conclusions

Mapping of existing Public Health OER was a complex and time consuming task. Resources were not as numerous or diverse as expected, and in many cases a number of sites provided links to the same small pool of resources, notably those from John Hopkins Bloomberg School of Public Health and The Massachusetts Institute of Technology. Very clear search terms and inclusion/exclusion criteria were required to ensure consistency and focus. However, a disparity was revealed between the OER used by Public Health academics and practitioners, and the resources that were identified using these clear parameters. Feedback from Public Health educators resulted in an additional list of widely used sites that were not identified during the online search (see Appendix 5). This issue appears to have been largely the result of tagging. It proved difficult to identify Public Health OER sites due to tagging issues, and some widely used sites were not identified using the search criteria. In addition search facilities within websites were not always easy to navigate. Mapping OER against the UK Public Health Skills and Career Framework provided a means of noting the learning outcomes of resources that might be available, but was not effective in identifying the range of subjects covered.

Conclusion

There is currently a lack of literature relating to Public Health OER, although there are some notable exceptions, such as Heller (Heller et al., 2007; Heller, 2009). However, general literature around OER suggests that the inherent nature of freely available teaching and learning resources may be in accord with the philanthropic aims of Public Health. The literature suggests that issues such as IPR, technological issues and sustainability, may present barriers to OER and may affect their development (see 3.7). In the case of Public Health OER other problems, such as the lack of a community of practice and minimal existing research and literature in Public Health OER, may also contribute to this. Whilst a number of OER were identified during the online search it was notable that many sites did not offer unique resources, but redirected the user to existing providers, so that the pool of OER actually appears to be quite limited.

It is also clear that the complexity of defining Public Health presents not only an academic challenge, but offers practical difficulties for developers and users of Public Health OER in effectively tagging resources. Indeed, it is problematic that the existing tool for mapping resources, the UK Public Health Skills and Career Framework, is not ideally suited to either tagging or searching for resources. The online search for existing resources identified similar problems to those noted in the literature, in terms of tagging and search terms.

In general it was clear from the literature and the online search that those Public Health OER that were most widely available and easy to locate had been produced by large universities and institutions where enthusiasm, technological support and funding for OER development and continuation originated centrally and formed part of their ongoing business plan.

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Appendix

Appendix 1 OER search terms and search term 'hits'

		Key terms							
Alternative terms	public health			AND	open	AND	education	AND	resources
	OR		OR		OR				
	Health	AND	medicine	AND	open	AND	education	AND	resources
			OR		OR		OR		OR
		AND	nutrition	AND	online	AND	learning	AND	objects
			OR		OR		OR		
			promotion	AND	free	AND	teaching		
			OR				OR		
			protection				courseware		
			OR						
			population						

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public health		OER			241,000
public health		open	education	resources	44,800,000
public health		open	learning	resources	2,630,000
public health		open	teaching	resources	76,100,000
public health		open	courseware	resources	12,200,000
public health		open	education	objects	1,030,000
public health		open	learning	objects	530,000
public health		open	teaching	objects	1,450,000
public health		open	courseware	objects	951,000
public health		online	education	resources	57,400,000
public health		online	learning	resources	17,200,000
public health		online	teaching	resources	63,100,000
public health		online	courseware	resources	41,000
public health		online	education	objects	1,220,000
public health		online	learning	objects	742,000
public health		online	teaching	objects	701,000
public health		online	courseware	objects	22,400
public health		free	education	resources	68,100,000
public health		free	learning	resources	18,900,000
public health		free	teaching	resources	133,000
public health		free	courseware	resources	51,000
public health		free	education	objects	1,440,000
public health		free	learning	objects	715,000
public health		free	teaching	objects	1,570,000
public health		free	courseware	objects	22,700
public health	medicine	OER			16,500
public health	medicine	open	education	resources	1,830,000
public health	medicine	open	learning	resources	756,000
public health	medicine	open	teaching	resources	2,560,000
public health	medicine	open	courseware	resources	1,060,000
public health	medicine	open	education	objects	192,000
public health	medicine	open	learning	objects	101,000
public health	medicine	open	teaching	objects	95,800
public health	medicine	open	courseware	objects	148,000
public health	medicine	online	education	resources	2,520,000
public health	medicine	online	learning	resources	1,470,000
public health	medicine	online	teaching	resources	2,590,000
public health	medicine	online	courseware	resources	8,140
public health	medicine	online	education	objects	256,000
public health	medicine	online	learning	objects	130,000
public health	medicine	online	teaching	objects	142,000
public health	medicine	online	courseware	objects	5,680
public health	medicine	free	education	resources	2,650,000
public health	medicine	free	learning	resources	1,280,000
public health	medicine	free	teaching	resources	11,100,000
public health	medicine	free	courseware	resources	8,300
public health	medicine	free	education	objects	274,000
public health	medicine	free	learning	objects	114,000
public health	medicine	free	teaching	objects	106,000
public health	medicine	free	courseware	objects	5,680
public health	nutrition	OER			4,280
public health	nutrition	open	education	resources	760,000
public health	nutrition	open	learning	resources	329,000
public health	nutrition	open	teaching	resources	989,000
public health	nutrition	open	courseware	resources	318,000
public health	nutrition	open	education	objects	63,500
public health	nutrition	open	learning	objects	56,800
public health	nutrition	open	teaching	objects	49,500
public health	nutrition	open	courseware	objects	4,910
public health	nutrition	online	education	resources	1,290,000
public health	nutrition	online	learning	resources	801,000
public health	nutrition	online	teaching	resources	1,170,000
public health	nutrition	online	courseware	resources	5,440
public health	nutrition	online	education	objects	84,400
public health	nutrition	online	learning	objects	56,800
public health	nutrition	online	teaching	objects	49,500
public health	nutrition	online	courseware	objects	4,190
public health	nutrition	free	education	resources	1,280,000
public health	nutrition	free	learning	resources	766,000
public health	nutrition	free	teaching	resources	1,720,000
public health	nutrition	free	courseware	resources	12,700
public health	nutrition	free	education	objects	109,000
public health	nutrition	free	learning	objects	57,100
public health	nutrition	free	teaching	objects	298,000
public health	nutrition	free	courseware	objects	8,050
public health	promotion	OER			27,400

public health	promotion	open	education	resources	1,020,000
public health	promotion	open	learning	resources	455,000
public health	promotion	open	teaching	resources	1,280,000
public health	promotion	open	courseware	resources	529,000
public health	promotion	open	education	objects	95,600
public health	promotion	open	learning	objects	54,100
public health	promotion	open	teaching	objects	290,000
public health	promotion	open	courseware	objects	72,800
public health	promotion	online	education	resources	1,330,000
public health	promotion	online	learning	resources	797,000
public health	promotion	online	teaching	resources	1,700,000
public health	promotion	online	courseware	resources	20,500
public health	promotion	online	education	objects	335,000
public health	promotion	online	learning	objects	147,000
public health	promotion	online	teaching	objects	113,000
public health	promotion	online	courseware	objects	16,400
public health	promotion	free	education	resources	1,570,000
public health	promotion	free	learning	resources	1,020,000
public health	promotion	free	teaching	resources	7,960,000
public health	promotion	free	courseware	resources	30,400
public health	promotion	free	education	objects	273,000
public health	promotion	free	learning	objects	101,000
public health	promotion	free	teaching	objects	878,000
public health	promotion	free	courseware	objects	17,100
public health	protection	OER			130,000
public health	protection	open	education	resources	1,460,000
public health	protection	open	learning	resources	677,000
public health	protection	open	teaching	resources	1,750,000
public health	protection	open	courseware	resources	994,000
public health	protection	open	education	objects	310,000
public health	protection	open	learning	objects	103,000
public health	protection	open	teaching	objects	861,000
public health	protection	open	courseware	objects	184,000
public health	protection	online	education	resources	1,540,000
public health	protection	online	learning	resources	947,000
public health	protection	online	teaching	resources	1,700,000
public health	protection	online	courseware	resources	20,500
public health	protection	online	education	objects	335,000
public health	protection	online	learning	objects	147,000
public health	protection	online	teaching	objects	113,000
public health	protection	online	courseware	objects	16,400
public health	protection	free	education	resources	1,570,000
public health	protection	free	learning	resources	1,020,000
public health	protection	free	teaching	resources	7,960,000
public health	protection	free	courseware	resources	30,400
public health	protection	free	education	objects	273,000
public health	protection	free	learning	objects	101,000
public health	protection	free	teaching	objects	878,000
public health	protection	free	courseware	objects	17,100
public health	population	OER			56,300
public health	population	open	education	resources	2,320,000
public health	population	open	learning	resources	986,000
public health	population	open	teaching	resources	2,990,000
public health	population	open	courseware	resources	1,410,000
public health	population	open	education	objects	1,030,000
public health	population	open	learning	objects	534,000
public health	population	open	teaching	objects	1,450,000
public health	population	open	courseware	objects	951,000
public health	population	online	education	resources	6,100,000
public health	population	online	learning	resources	1,340,000
public health	population	online	teaching	resources	2,840,000
public health	population	online	courseware	resources	27,600
public health	population	online	education	objects	220,000
public health	population	online	learning	objects	133,000
public health	population	online	teaching	objects	133,000
public health	population	online	courseware	objects	12,900
public health	population	free	education	resources	3,140,000
public health	population	free	learning	resources	1,400,000
public health	population	free	teaching	resources	4,570,000
public health	population	free	courseware	resources	31,000
public health	population	free	education	objects	627,000
public health	population	free	learning	objects	195,000
public health	population	free	teaching	objects	935,000
public health	population	free	courseware	objects	13,500
health	medicine	OER			25,000
health	medicine	open	education	resources	2,650,000

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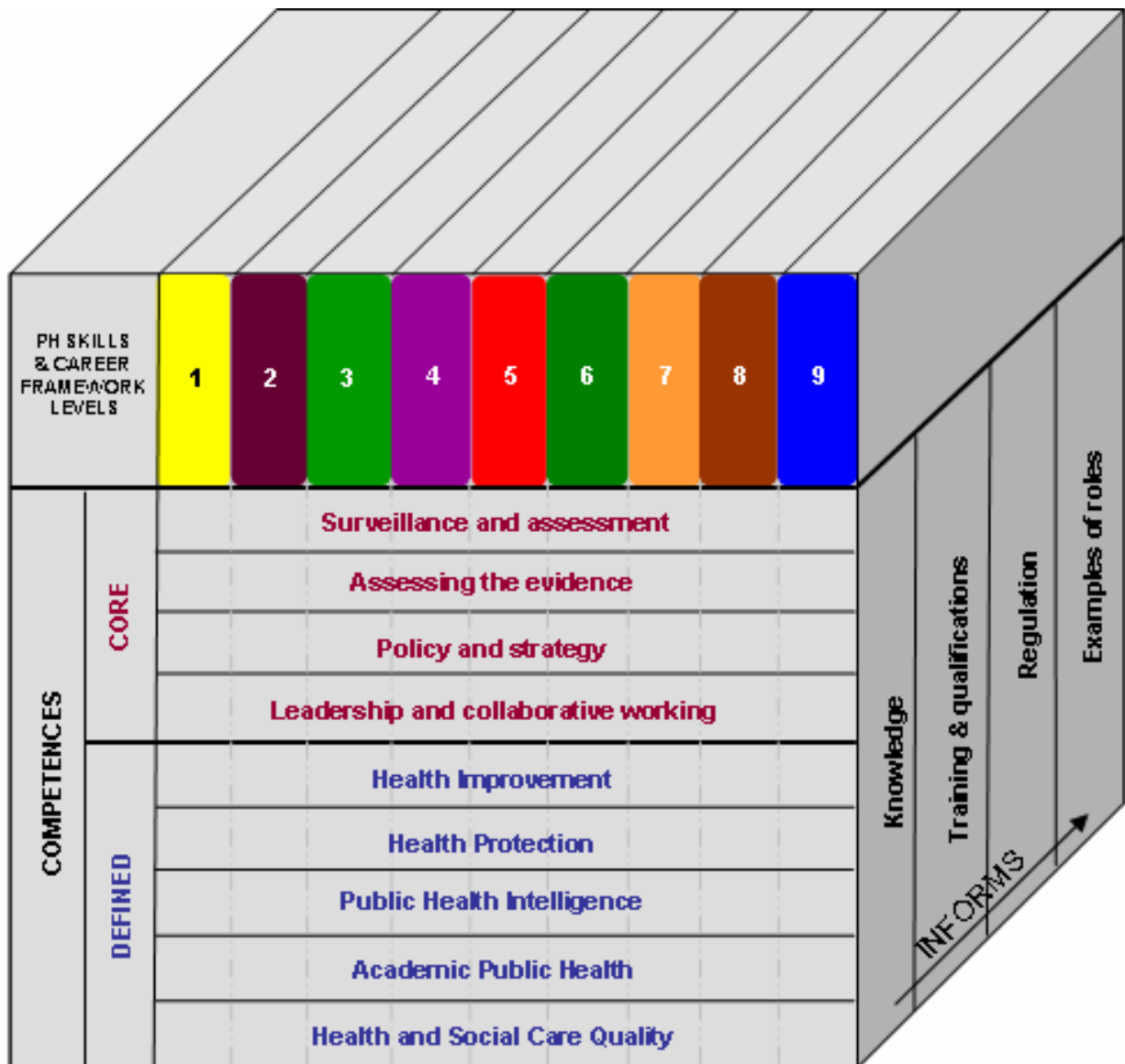
health	medicine	open	learning	resources	1,020,000
health	medicine	open	teaching	resources	13,000,000
health	medicine	open	courseware	resources	1,440,000
health	medicine	open	education	objects	339,000
health	medicine	open	learning	objects	156,000
health	medicine	open	teaching	objects	131,000
health	medicine	open	courseware	objects	279,000
health	medicine	online	education	resources	13,900,000
health	medicine	online	learning	resources	2,090,000
health	medicine	online	teaching	resources	14,000,000
health	medicine	online	courseware	resources	12,000
health	medicine	online	education	objects	667,000
health	medicine	online	learning	objects	228,000
health	medicine	online	teaching	objects	2,170,000
health	medicine	online	courseware	objects	6,440
health	medicine	free	education	resources	16,500,000
health	medicine	free	learning	resources	1,970,000
health	medicine	free	teaching	resources	56,100,000
health	medicine	free	courseware	resources	11,200
health	medicine	free	education	objects	580,000
health	medicine	free	learning	objects	200,000
health	medicine	free	teaching	objects	154,000
health	medicine	free	courseware	objects	6,440
health	nutrition	OER			19,500
health	nutrition	open	education	resources	1,170,000
health	nutrition	open	learning	resources	504,000
health	nutrition	open	teaching	resources	1,840,000
health	nutrition	open	courseware	resources	610,000
health	nutrition	open	education	objects	189,000
health	nutrition	open	learning	objects	118,000
health	nutrition	open	teaching	objects	120,000
health	nutrition	open	courseware	objects	5,270
health	nutrition	online	education	resources	12,300,000
health	nutrition	online	learning	resources	1,390,000
health	nutrition	online	teaching	resources	5,760,000
health	nutrition	online	courseware	resources	697,000
health	nutrition	online	education	objects	189,000
health	nutrition	online	learning	objects	118,000
health	nutrition	online	teaching	objects	3,19,000
health	nutrition	online	courseware	objects	5,270
health	nutrition	free	education	resources	13,700,000
health	nutrition	free	learning	resources	1,270,000
health	nutrition	free	teaching	resources	31,900
health	nutrition	free	courseware	resources	8,700
health	nutrition	free	education	objects	233,000
health	nutrition	free	learning	objects	122,000
health	nutrition	free	teaching	objects	267,000
health	nutrition	free	courseware	objects	5,290
health	promotion	OER			31,400
health	promotion	open	education	resources	1,260,000
health	promotion	open	learning	resources	596,000
health	promotion	open	teaching	resources	714,000
health	promotion	open	courseware	resources	53,100
health	promotion	open	education	objects	1,820
health	promotion	open	learning	objects	71,600
health	promotion	open	teaching	objects	305,000
health	promotion	open	courseware	objects	94,000
health	promotion	online	education	resources	1,750,000
health	promotion	online	learning	resources	1,060,000
health	promotion	online	teaching	resources	1,650,000
health	promotion	online	courseware	resources	9,880
health	promotion	online	education	objects	151,000
health	promotion	online	learning	objects	92,300
health	promotion	online	teaching	objects	85,900
health	promotion	online	courseware	objects	8,220
health	promotion	free	education	resources	1,880,000
health	promotion	free	learning	resources	999,000
health	promotion	free	teaching	resources	10,200,000
health	promotion	free	courseware	resources	13,600
health	promotion	free	education	objects	168,000
health	promotion	free	learning	objects	85,300
health	promotion	free	teaching	objects	315,000
health	promotion	free	courseware	objects	8,300
health	protection	OER			12,800
health	protection	open	education	resources	1,800,000
health	protection	open	learning	resources	834,000

health	protection	open	teaching	resources	13,400,000
health	protection	open	courseware	resources	1,120,000
health	protection	open	education	objects	334,000
health	protection	open	learning	objects	138,000
health	protection	open	teaching	objects	80,600
health	protection	open	courseware	objects	297,000
health	protection	online	education	resources	10,700,000
health	protection	online	learning	resources	1,370,000
health	protection	online	teaching	resources	2,870,000
health	protection	online	courseware	resources	8,030
health	protection	online	education	objects	451,000
health	protection	online	learning	objects	108,000
health	protection	online	teaching	objects	135,000
health	protection	online	courseware	objects	4,720
health	protection	free	education	resources	19,000,000
health	protection	free	learning	resources	1,430,000
health	protection	free	teaching	resources	38,000,000
health	protection	free	courseware	resources	8,080
health	protection	free	education	objects	447,000
health	protection	free	learning	objects	155,000
health	protection	free	teaching	objects	135,000
health	protection	free	courseware	objects	4,720
health	population	OER			167,000
health	population	open	education	resources	3,030,000
health	population	open	learning	resources	1,315,000
health	population	open	teaching	resources	4,250,000
health	population	open	courseware	resources	1,680,000
health	population	open	education	objects	358,000
health	population	open	learning	objects	150,000
health	population	open	teaching	objects	6,580,000
health	population	open	courseware	objects	321,000
health	population	online	education	resources	3,830,000
health	population	online	learning	resources	2,040,000
health	population	online	teaching	resources	4,070,000
health	population	online	courseware	resources	84,800
health	population	online	education	objects	480,000
health	population	online	learning	objects	221,000
health	population	online	teaching	objects	187,000
health	population	online	courseware	objects	66,000
health	population	free	education	resources	4,340,000
health	population	free	learning	resources	2,020,000
health	population	free	teaching	resources	18,500,000
health	population	free	courseware	resources	155,000
health	population	free	education	objects	580,000
health	population	free	learning	objects	174,000
health	population	free	teaching	objects	6,630,000
health	population	free	courseware	objects	72,500

Appendix 2 OER inclusion/exclusion criteria

	Inclusion	Exclusion	Reference
Language	English language or translation at source	Not available in English language	
Definition of PH OER provider	Provider has released at least one OER which may be of use in Public Health education	Provider has not released any OER relevant to Public Health education	
Definition of Public Health	OER described as relating to Public Health as defined by the OER provider or in subject areas identified by the search terms	OER not described as relating to Public Health by provider and not within terms defined by search terms	see search terms
Nature of provider	Single organisations/ collaborations. Educational institutions, charitable organisations, commercial organisations, government bodies, Individuals	No exclusions	
Search facility	OER providers and/or indexes with facility to search for PH OER	Indexes of OER providers without facility to search specifically for PH OER	
Accessing OER	Specific PH OER can be identified and there is a direct link to named learning object	No direct link to named learning object	
Learning outcomes	Explicit or implicit specific learning outcomes	No explicit or implicit specific learning outcome	Duncan, 2003
Learning context	Learning objects, where learning context is provided	Information objects, factual information without learning context	Rehak and Mason, 2003
Reuse and adaptation	Reusable, adaptable OER	Non-reusable or adaptable OER	JISC, 2009
Licensing	OER content liberally licensed for educational uses	Licences which restrict educational use	Fleming and Massey, 2007
Costs	Access to OER not dependent on payment	Access to OER dependent on payment	Fleming and Massey, 2007
Controls on access	No password required, free access	Password or other access controls	
Search limit	To first 1000 hits identified by each set of main search terms (in bold). Then to saturation by page using other search terms. Providers of OER identified by experts.	Beyond first 1000 hits identified by each main set of search terms. Duplications of providers, for example indexes which offer only links to OER from providers already listed individually.	

Appendix 3 UK Public Health Skills and Career Framework



1. Surveillance and assessment of the population's health and well-being
2. Assessing the evidence of effectiveness of health, healthcare and health related interventions, programmes and services
3. Policy and strategy development and implementation
4. Leadership and collaborative working for health and wellbeing
5. Health improvement
6. Health protection
7. Public health intelligence
8. Academic public health
9. Health and social care quality

Appendix 4 Existing OER providers

Provider	Origin	URL	Users	Resources	Notes	PHSCF													
						1	2	3	4	5	6	7	8	9					
African OER	Africa	www.oerafrica.org	Educators, students, independent learners	Video, information	Website still under construction. Some health related information, such as introductory video, details about OER in Africa.														
ARIADNE	Europe	www.ariadne-eu.org	Educators	Open source software, simulations, PH practice tools	Resources for health professionals, closely related to practice.														
Biology4all	UK	www.biology4all.com	Educators, students, independent learners	Resources including PowerPoint, information sheets, visual resources and tests.	Biology resources relating to PH are available, with specific area for undergraduate teaching.														
Centres for Disease Control and Prevention	US	www.cdc.gov	Educators, PH professionals, students, independent learners	Information resources, PH blog and PH image library.	Information resources, PH blog and PH image library.														
China Open Resources for Education CORE	China/ Int	www.core.org.cn	Educators, students, independent learners	Lectures, video, assessments	Links directly to a number of PH OER providers plus some original material, most available in English.														
Colombia State University	US	www.fathom.com	Educators, students, independent learners	Syllabi, lecture notes, video and other media	Several PH or related health modules available.														

Commonwealth of Learning	50 C'wealth states	www.col.org	Independent learners	Course structure, lecture notes, includes anticipated learning outcomes	Resources for those training in health professions in developing countries. Resources relating to various subjects including child health, communicable diseases.														
Connexions @Rice University	Int	www.cnx.org	Educators, students, independent learners	General educational material, lectures	Small number of learning resources relating to PH.														
Dgcommunities	Int	www.developmentgateway.org	Educators, students, independent learners	Documents, PowerPoint, video, animations	Wide range of open educational resources. PH resources may be located under Health in website search terms. This website is difficult to exit.														
Dmoz	Int	www.dmoz.org	Educators	Papers, guidelines, policies, information sheets, video, archive and photographs	Not specifically teaching resources but offers a 'human edited' directory which allows very specific topic searching.														
Global Health Education Consortium	Int	www.globalhealthedu.org	Educators, students, independent learners	Lectures, slides, web based teaching modules	Varied list of specific PH resources from some OER providers, as well as general links to PH OER websites.														
Global Health, Kaiser Family Foundation	US	www.globalhealth.kff.org	Educators, students, independent learners	Information links	Policy relating to global PH, webcasts, US PH Government publications														
Higher Education Academy	UK	www.heacademy.ac.uk	Educators	Journals, podcasts, video	Some resources relating to PH and also to using OER in teaching														
Health Education Assets Library	Int	www.healtheducationassets.org	Educators, students, independent learners	Lectures, information, case studies	This site is home to 'Supercourse', a continuously updating series of PH lectures														

Health Knowledge	UK	www.healthknowledge.org.uk	Educators, public health pros, independent learners	lecture notes, PowerPoint, work books, case studies	Wide range of PH resources. Some are available to all, but registration required to access many learning objects														
intute	UK	www.intute.ac.uk	Educators, PH professionals	Range of resources, such as white papers, guidelines, databases and links to websites	Many areas of PH covered														
John Hopkins Bloomberg School of Public Health	US	www.ocw.jhsph.edu	Educators, students, independent learners	Syllabi, lecture notes, video, PowerPoint, assignments and tests. Additional learning materials available to support learning.	Resources available at undergraduate and postgraduate level. All aspects of PH covered.														
Knowledge Hub @ Tecnológico de Monterrey	Int	www.khub.itecm.mx/en	Educators, students, independent learners	Lecture notes, PowerPoint, assignments and tests.	Direct links to resources for different educational levels. Particular emphasis on PH and the media, and the impact of global issues on health.														
Massachusetts Institute of Technology	US	www.ocw.mit.edu	Educators, students, independent learners	Syllabi, lecture notes, video, PowerPoint, assignments and tests. Additional learning materials available to support learning. Audio available.	Resources available at undergraduate and postgraduate level. Wide range of PH resources available.														

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MCH Training products	US	www.amchp.org	Educators, PH professionals, students, independent learners	Wide variety of resources including video, podcasts, information documents, assessments	Links to wide range of organisations, across a range of different PH issues. Many items relate to issues in the US.														
MERLOT	US	www.merlot.org	Educators	Syllabi, lecture notes, video, PowerPoint, assignments and tests	Learning resources for various educational levels from different education institutions and individuals. Diverse areas of PH. Simulations, tutorials, presentations. Star system of peer reviewing.														
National Human Genome Research Institute	US	www.genome.gov	Educators	Slides, fact sheets, video, education modules	Resources for range of educational levels relating specifically to human genome, with some probable links to PH.														
National Institute of Dental and Craniofacial Research	US	www.nidcr.nih.gov	Educators, health professionals	Information pages, lecture notes, assessments	Dental health implications of some health and PH issues. Specialist and specific to dental health.														
OER Commons	Int	www.oercommons.org	Educators, students, independent learners	Range of presentations, lectures, video, podcasts, images, information.	Direct PH links to many online resource sites, clear search facility, helpfully identifies those resources on which there may be restrictions in access.														
Open Course Ware Consortium OCW	Int	www.ocwconsortium.org	Educators, students, independent learners	Range of lectures, video, podcasts, images, information.	Direct links to PH resources from many leading OER providers via search engine														

Open Michigan	US	www.open.umich.edu	Educators, students, independent learners	Syllabi, lecture notes, video, PowerPoint, assignments. Whole courses and individual lectures.	Two PH courses running for post grad practitioners, plus resources in schools of medicine and nursing.														
Partners in Information Access for the Public Health Workforce	US	www.phpartners.org	Educators, PH professionals, students, independent learners	Wide range of resource types, mainly in form of public information documents, policies, papers and statistical information	Links to wide range of organisations, across a range of different PH issues.														
Promethean Planet	Int	www.prometheanplanet.com	Educators	PowerPoint, white board resources	Small number of undergraduate resources, relating to alcohol and drug use.														
Resource Guide for Public Health Preparedness	US	www.phpreparedness.info	Educators, public health professionals	Information sheets, policies, protocols, links to journal databases	Wide range of resources focussed on PH during emergencies. Does not provide specific teaching resources, but many items that could be incorporated into teaching.														
Royal Society for Public Health	UK	www.rsph.org.uk	Educators PH professionals, students, independent learners	Presentations, policies, guidelines, links to other websites related to PH	Not strictly open educational resources but a wide range of documents and other material which may be of use to PH educators, professionals and students														
Slide share	Int	www.slideshare.net	Educators	PowerPoint	Range of resources, some linked to PH														

Teachers Without Borders	Int	www.pcourse.s.teacherswithoutborders.org	Educators	Small number of resources mainly in form of lecture notes	Links to resources from various OER providers, mainly relating to health and PH issues in developing countries													
The Open University - Open learn	UK	www.openlearn.open.ac.uk	Students, independent learners	Syllabi, lecture notes, video, PowerPoint, assignments and tests. Available as learning sessions with approximate timing of session and user rating.	Resources for undergraduate and postgraduate level. Wide range of subjects, for example, healthy lifestyles, environment, nutrition, health and safety, preventative medicine.													
Treatobacco.net	Int	www.treatobacco.net	Educators, health professionals	Slides, guidelines, information sheets, journals, reports and links to other resources	Varied range of resources on tobacco related PH issues.													
Tufts University	US	www.ocw.tufts.edu	Students, independent learners	Syllabi, lecture notes, PowerPoint presentations, student work, images, quizzes and tests	Resources for undergraduate, postgraduate and professional level. Wide range of subjects, including health sciences, medicine, dental medicine, veterinary medicine, oral health, population health, health surveillance, veterinary PH.													
Unite for Sight	US	www.uniteforsight.org	Independent learners	Lecture notes	PH course for health volunteers working in developing countries													

United States Department of Agriculture, Food and Nutrition Information Centre	US	www.fnici.nal.usda.gov	Educators, public health professionals, students.	Resources from many sources, including DVD, information sheets, interactive tools and links to other websites	Resources from a range of sources, relating to food and nutrition aspects of PH. Resources not specifically aimed at university level teaching.														
University of California Berkley	US	www.berkeley.edu	Students, independent learners	Mainly podcasts of entire lectures, some other resources	Large volume of PH related lectures available														
U-Now University of Nottingham	UK	www.nottingham.ac.uk	Educators, students, independent learners	Lectures, podcasts	Small number of PH resources at present														
Virtual Campus for Public Health	Pan Am	www.campusvirtualsp.org	Educators	Learning objects and simulations	Although it appears to be possible to view this site in English rather than Portuguese only a small number of resources could be accessed in English.														
Wikiversity	Int	www.en.wikiversity.org	Educators, students, independent learners	Lesson plans, definitions of PH	Diverse range of resources from range of contributors.														
Zunia Knowledge Exchange	Int	www.zunia.org	students, independent learners	Lecture notes	Resources for undergraduate and postgraduate level. Wide range relating to public health, many focussing around international issues, economics and organisation. Available in 26 languages.														

Appendix 5 Additional resources identified by public health educators or researchers but not identified by search terms

Association of Public Health Observatories <http://www.apho.org.uk/>

Gapminder <http://www.gapminder.org>

Public Health Resources Unit <http://www.phru.nhs.uk>

UK Public Health Association <http://www.ukpha.org.uk/resources.aspx>



Workpackage 3 Report

Dr Catherine Angell
Dr Heather Hartwell
Dr Ann Hemingway





Executive Summary – Workpackage 3

PHORUS includes two Workpackages (2 and 3) that focus on research, both of which have been conducted by Bournemouth University. Workpackage 3 consists of a Delphi Study, which has been used to identify barriers and enablers to the development and release of Public Health OER.

The Delphi process involved three iterations and sought to identify issues related to the development and use of Public Health OER amongst HE educators and learning technologists. The 1st iteration involved 25 participants, the 2nd iteration involved 15 participants, and the 3rd iteration continued with 6 participants.

- Results from the 1st iteration identified five main themes focussed around enablers, barriers, IPR, business case and sustainability.
- The 2nd iteration explored divergence in opinion around these using questionnaires and discussion groups.
- In the 3rd iteration involved further online discussion of these issues and several key areas emerged that were of interest to Public Health educators relating to OER.

The six key themes identified by the study were;

1. Quality and review process for resources
2. Community of practice
3. IPR and copyright
4. Time and resources to develop material
5. Reward and recognition
6. Sustainability

These issues are discussed, with reference to the literature around OER. In addition a model identifying the issues in the context of Public Health education has been produced.

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Introduction

Public Health Open Resources for the University Sector (PHORUS) is a collaborative project coordinated by the Health Sciences and Practice Subject Centre. PHORUS is one of thirty projects across the UK created in an initiative designed to test practical considerations and benefits of providing Open Educational Resources (OER)¹⁶ in Higher Education. The PHORUS project consists of six Workpackages. Each of these focuses on a specific area of the study. Although different organisations and institutions are leading the various Workpackages the project is collaborative and decision making has been shared across the management team.

PHORUS aims

- To critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- To identify and work towards openly releasing existing Public Health learning resources.

PHORUS Objectives:

- To explore and develop business approaches and determine IPR challenges applicable to enabling the release of resources
- To strengthen the Community of Practice
- To identify and critically assess enablers and barriers to the development of Public Health OER
- To promote the culture of sharing across various health related disciplines
- To use the concept of OER to encourage reflection on developing educational processes through sharing experiences
- To include a range of stakeholders
- To identify and release Public Health Learning Resources for open access
- To synthesise, review, and capture emerging themes and open resources through a single access point on the Health Sciences and Practice Subject Centre website
- To disseminate findings and share good practices with the HE community

Research aspects of PHORUS

PHORUS includes two Workpackages that focus on research, both of which have been conducted by Bournemouth University. Workpackage 2 consists of a mapping and scoping exercise, which is described in a separate report. Workpackage 3 consists of a Delphi Study, which has been used to identify barriers and enablers to the development and release of Public Health OER. This aspect of the research is ongoing, but a review of the data and findings to date are documented in this interim report.

¹⁶ Throughout Workpackage 3 the term Open Educational Resources (OER) will be used.

Delphi as a research method

The Delphi technique is a qualitative research method that relies on the judgement of individuals presumed to be knowledgeable and expert at what they do. It has been widely used as a means of 'priority setting and guideline development' in health related research (van Teijlingen et al., 2006). Accepting geographical challenges this methodology enables the respondents to interact 'virtually' and reflect on their response before submission thereby allaying any fear of 'snap' judgement. This is likely to increase the accuracy of the study findings and make them more reliable (Ayton et al, 1999).

The Delphi technique is a means of measuring consensus (van Teijlingen et al., 2006). It allows anonymous elicitation of group judgements using an iterative survey technique with a feedback loop and statistical aggregation of the group response (Garrod and Fyall, 2004).

Using Delphi for PHORUS

The Delphi process used for the PHORUS study will have had three iterations.

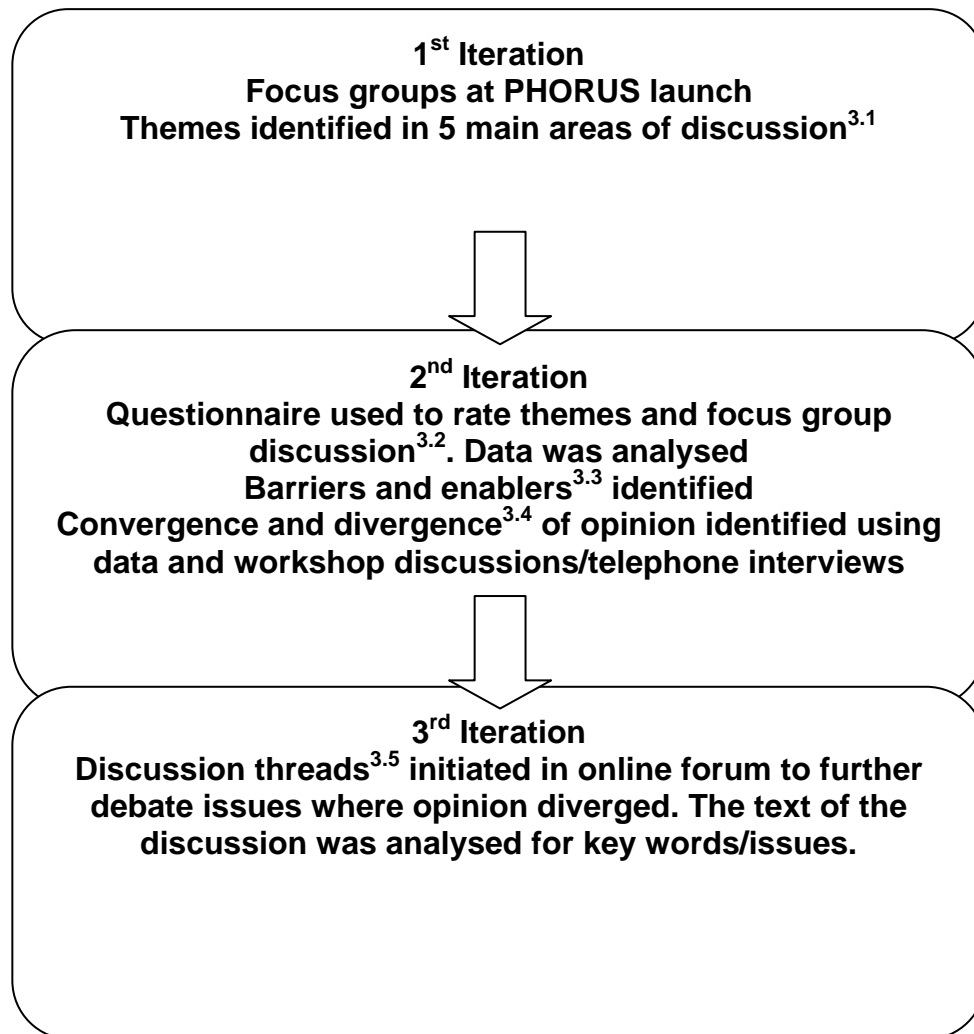
- **1st Iteration:** Notes were taken from focus group discussions conducted with Public Health academics, practitioners and learning technologists at the PHORUS launch. A number of themes were identified, which were sorted into five main areas. The PHORUS advisory group provided additional information.
- **2nd Iteration:** A questionnaire was developed from these themes and research participants were asked to rate these based on a Likert scale. In addition, participants were asked to discuss specific aspects, based on the themes from the first iteration, and the notes from these discussions were transcribed and analysed. Issues where there was a divergence of opinion were identified for further discussion. Participation in this further discussion took place either at the PHORUS workshop in York or by telephone.
- **3rd Iteration:** An online forum was developed focussing around eight discussion threads that reflected the issues where there was a divergence of opinion in the second iteration. Participants were encouraged to log into the PHORUS site and offer further thoughts and comments in each of the discussion threads.

In general the same participants or participants from the same institution were engaged in each stage of the Delphi study. The 1st iteration involved 25 participants, the 2nd iteration involved 15 participants, and the 3rd iteration continued with 6 participants.

The Delphi process is shown in the diagram overleaf.

Delphi study flow chart

The analysed data and research tools developed from each iteration are cross referenced to the relevant points in section 3 of this report.



Data and outputs from research

1st Iteration; themes identified in 5 main areas of discussion

Five key areas of discussion were identified during the 1st iteration;

Enablers

Issue	Details
OER community	Presence of community encourages participation? Networking?
Different Public Health contexts	Opportunity for OER release for wide range of educators due to scope of public health
Public Health and Philanthropy	PH lends itself to philanthropic activities Aligned with ethics and values of PH?
Reward and recognition	Means of educators being recognised in across professional group and between professions? Peer review as means of recognition? Opportunity to participate in high profile project

Barriers

Issue	Details
Credits	What kinds of resources count as credits? Learning objects do not inherently carry credits
Defining OER and PH	How to decide what can be classed as appropriate resources?
OER may detract from formal courses	May reduce registration on formal courses? Commercial implications of this?
Quality assurance	Who is responsible for quality? How do educators identify quality? Will OER cause drop in quality? What about quality of repurposed materials?
Reward and recognition	Identifying ownership? Controlling release of resources? Modification of resources, loss of identity of author?
Learning outcomes	Geographical differences eg in policy between different parts of UK., Mapping to UK SCF
Disability Discrimination Act	Who is responsible for compliance? Time and resources required to comply?
Time and cost	Preparing resources takes time, therefore costs money
Job Security	Might redundancies occur due to faster and easier production of resources?
Legal responsibility	Who is responsible for ensuring correct use of resources? Who is liable if an incident occurs relating to resources?

Business Case

Issue	Details
PH ethic versus University business model	Opposing points of view?
Strategic direction	Does OER represent a new strategic direction for universities?
Competitiveness	Does OER represent loss of competitive edge? Does OER offer a potential marketing tool?
Profit from work of others	Might repurposed resources be used for commercial activities by universities and other 'for profit' training organisations?
Costs of creating resources for OER release	Costs of producing high quality resources are high – staff time, quality control, IT costs etc.
Corporate social responsibility	Do publicly funded organisations have a responsibility to release materials to the general population?
Differences between universities	Is there likely to be a difference in attitudes to OER release between universities? Is it fair if some do not release resources but use those released by others?
Reward and recognition	How do universities benefit in terms of rewards? How do universities benefit in terms of recognition?
Reducing costs	Is sharing cheaper than developing materials from scratch? Will fewer staff be needed if resources can be generated from repurposed OER?

IPR

Issue	Details
Licences	For repurposing of material For redistributing OER
Institutional approaches to IPR	Lack of clarity across university sector
Confusion relating to IPR	Individual v. Institutional Who gives consent to release resources? What about work done in own time?
Shared IPR	Individuals and Institutions Authors and Journals
Citing authorship	How can authorship be recognised? How does repurposing affect authorship?
Copyright issues	Pictures/Photographs/Graphics Who is liable for infringements?
Public Liability	Who is liable for quality of information? What is the legal implication?

Sustainability

Issue	Details
Breadth and depth of material	Will there be a broad spread of material? Will resources be 'a motley collection'?
Breadth of public health expertise	Resources from range of disciplines Resources from range of geographical locations
Maintenance of resources	How can OER be kept up to date? How can indexing be kept up to date?
Developing Public Health communities	How will this contribute to PH communities?
Audit trail	How can original authorship be identified? How can changes to the resource be identified? How can integrity and context be retained?
Providing resources for which there is demand	What kinds of resources are required? Eg Video, asset bundles, research data? Will the 'right kinds' of resources be released?
Standards	Will reflection and comparison raise standards? Will peer review raise standards? Might 'off the shelf' teaching undermine standards?
Content management	How will indexing etc be kept up to date?
Community of practice	Will OER support community of practice? Will community of practice support OER?

2nd Iteration; questionnaire and discussion groups

Participants were asked to complete a questionnaire (figure 1) during the 2nd iteration of the Delphi study, and also participated in discussion groups. The data collected from the questionnaire (see below) was cross-referenced against key words and phrases from transcripts of the group discussions.

Fifteen participants completed the questionnaire and took part in discussions, either at the York PHORUS Workshop or during a telephone interview.

The aim of this aspect of the research was to identify issues around which participants ideas diverged, so that these could be followed up in more detail in the online forum. It also sought to identify issues which were of particular importance to participants and where their views were either strong or converged.

The questionnaire responses were analysed to identify a mean score for each question and the standard deviation for each question. Although the number of participants was small these simple statistics offered some means of analysing the data.

Mean score:

The scale for the questionnaire was

1=strongly disagree

2=disagree

3=neutral

4=agree

5=strongly agree

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Mean scores of <2 (disagree to strongly disagree) and of >4 (agree to strongly agree) were identified as issues that participants had consistently strong feelings about. This group comprised one quarter (9 of the 34) of the questions. These are marked in grey on the table below.

Standard deviation:

This was used to identify issues around which there was a divergence in opinion. The 9 questions (around one quarter) with the highest SD (which equated to those of SD >1.1) were identified. These are marked in grey on the table below.

No	Question	Mean Answer	Standard Deviation	Number of each type of response				
				1	2	3	4	5
1	Commercial organisations will gain financial benefits by repurposing and reusing OER meant for use by educators and students	3.7	0.6	0	0	5	8	1
2	'Competitive edge' may be gained through the use of OER as a marketing tool by universities	3.6	0.7	0	1	4	8	1
3	Complicance with the Disability Discrimination Act makes the development of OER more difficult	3.0	1.2	2	2	5	4	1
4	Disparity between universities in their release and/or use of OER may be seen as unfair	3.1	0.9	1	2	6	5	0
5	Educators from a wide range of disciplines would be able to participate in producing OER because of the wide scope of Public Health	4.4	0.6	0	0	1	7	6
6	Identifying changes made when repurposing OER is important in order to maintain their integrity and context	4.4	0.6	0	0	1	7	6
7	Imbalances and inconsistencies in the breadth and depth of available Public Health OER will be a problem when seeking appropriate teaching	3.7	0.9	0	1	5	5	3
8	IPR is of no concern in relation to OER	2.2	1.4	6	4	0	3	1
9	Issues of liability arising from incorrect use or adverse incidents arising from the use of OER is of concern	3.1	1.4	3	1	3	5	2
10	Job security amongst Public Health educators may be affected by OER because sharing resources will require fewer staff	2.4	1.0	2	7	2	3	0
11	Keeping OER and OER indexing up-to-date is an important issue	4.4	0.9	0	1	1	3	9
12	Lack of clarity in defining OER and Public Health make it difficult to identify which resources would be suitable for release	3.7	1.3	1	2	1	6	4
13	Lack of clarity within universities regarding IPR issues is a problem in relation to OER	3.8	1.1	1	1	1	8	3
14	Loss of author identity and control during reuse of OER is a concern when releasing resources	3.7	0.9	0	2	2	8	2
15	Mapping OER against the Public Health Knowledge and Skills Framework will identify learning outcomes	3.8	0.9	0	1	4	6	3
16	OER release would assist educators in gaining recognition amongst professionals from other groups	3.3	0.6	0	1	8	5	0
17	OER release would assist educators in gaining recognition amongst their own profession	3.6	0.8	0	1	5	6	2
18	Participation in an OER community enables networking	4.1	0.5	0	0	1	10	3
19	Peer review of OER resources would be a means of gaining professional recognition	3.8	0.9	0	1	4	6	3
20	Publically funded organisations have a duty to release materials to the general population	3.9	0.9	0	1	3	6	4
21	Reflection on personal OER contributions and comparison with the work of others will raise the standard of teaching resources	4.1	0.6	0	0	2	9	3
22	Registration on formal Public Health university courses will be adversely affected by the availability of OER	2.1	0.9	3	8	1	2	0
23	Reward and recognition are important for universities when considering the release of OER	4.4	0.6	0	0	1	6	7
24	Sharing resources will reduce costs of producing teaching materials for universities	3.6	0.5	0	0	5	9	0
25	Staff will need additional skills to develop OER	4.1	1.1	1	0	1	6	6
26	The concept of academic credits in relation to OER is problematic	3.5	1.2	0	4	3	3	4
27	The ethics and values of Public Health supports philanthropic activities such as OER development	3.6	1.0	1	0	5	6	2
28	The opportunity to participate in a high profile project through the development of OER is an important consideration for Public Health	3.5	0.9	1	0	5	7	1
29	The presence of an OER community encourages participation in OER development	4.0	0.4	0	0	1	12	1
30	The Public Health philanthropic ethic contrasts with the university business model	3.1	0.9	0	3	7	3	1
31	The time and cost of developing OER is of concern	3.8	1.1	0	3	0	8	3
32	The use of repurposed OER will result in a decline in the quality of teaching	2.6	0.9	2	4	6	2	0
33	There may be disparity between the types of OER which are released and the types of OER that educators want to use	4.1	0.5	0	0	1	11	2
34	Universities can identify a new strategic direction through the release of OER	3.4	1.1	1	0	8	2	3

2nd Iteration; strong/convergent opinions

Participants appeared to have strong opinions on a number of issues relating to barriers and enablers:

- Educators from a wide range of disciplines would be able to participate in producing OER because of the wide scope of Public Health
- Identifying changes made when repurposing OER is important in order to maintain their integrity and context
- Keeping OER and OER indexing up-to-date is an important issue
- Participation in an OER community enables networking
- Reflection on personal OER contributions and comparison with the work of others will raise the standard of teaching resources
- Reward and recognition are important for universities when considering the release of OER
- Staff will need additional skills to develop OER
- The presence of an OER community encourages participation in OER development
- There may be disparity between the types of OER which are released and the types of OER that educators want to use

2nd Iteration; divergence of opinion in workshops/ telephone interviews

There were several key areas emerged where the opinions of the participants diverged. These were:

- IPR is of no concern in relation to OER
- Issues of liability arising from incorrect use or adverse incidents arising from the use of OER is of concern
- Lack of clarity within universities regarding IPR issues is a problem in relation to OER
- Staff will need additional skills to develop OER
- The concept of academic credits in relation to OER is problematic
- The time and cost of developing OER is of concern
- Universities can identify a new strategic direction through the release of OER

Discussion threads were initiated in the online forum to enable further discussion of these points, see 3.5.

3rd Iteration; discussion threads initiated in online forum

A number of threads were started on a discussion forum on the PHORUS website. Participants were provided with a username and password to enable them to log on to the forum.

The threads started were:

1. Keeping resources up to date – do you feel resources would need to be updated regularly? Why? How often? By whom?
2. IPR – Are IPR of concern in relation to OER? Is this due to issues of cudos and professional recognition? Or is it due to concerns about misuse or alteration? Or are anxieties related to IPR caused by lack of understanding of university policies?
3. Defining Public Health - How would you define Public Health? How do you feel this relates to subject areas in Higher Education establishments? What do you think are the important areas of Public Health to include?
4. Defining OER - What do you perceive OER to be?
5. Skills – Do you feel that staff skills, resources and time affect the development of Public Health OER?
6. Strategic direction – Is there an opportunity for universities to identify a new strategic direction through release of OER? What do you see as the advantages and disadvantages of this?
7. Quality – What does good quality material mean to you? Is it about who produced it? How easy is it to access and use? Or is it important that it has been externally reviewed or 'kitemarked' in some way? Are academic credits of relevance?
8. What Public Health resource websites do you use online at present? How did you first locate these sites? What do you find useful about these websites?

3rd Iteration; key points from discussion forum

Saturation of data has now been achieved and from initial findings the important elements in Public Health OER development are regarded as:

- Reward and recognition for institutions
- Review process for resources
- Community of practice (peer review)
- Time and resources to develop material
- IPR and copyright
- Quality assurance (kitemarking)
- Sustainability and updating

The Delphi study identified a number of enablers and barriers for Public Health educators around the development and use of OER. These are illustrated in Figure 2, which identifies the findings at each stage of the Delphi study, and Figure 3, which provides a schematic model identifying the relationship between OER, Higher Education and Public Health.

Discussion

This research demonstrated that Public Health teachers and practitioners are interested in a number of factors relating to OER development and use. The third iteration of the Delphi study identified six key areas of interest or concern.

Quality

Quality appeared to be a central issue for participants in the research, relating to both OER development and use. Quality is perhaps of particular concern in health sciences, where up to date and accurate information is essential (Lee et al., 2008). Whilst there is little published evidence directly relating to quality issues in Public Health OER the PHORUS research demonstrated that this is a central concern. We would suggest that this may be due to the keen awareness of Public Health practitioners, and allied health professionals, of issues relating to safety and professional responsibility.

Quality is also dominant in the literature (Joyce, 2006). Those publishing OER may be concerned that their output is of a quality that reflects their professional capability (Lee et al., 2008), and may feel that their reputations may be damaged by publishing OER, particularly where their resources do not 'translate' well to a virtual environment. The quality of repurposing and adaptation of resources was also identified by the research participants and has also been noted by commentators (Boulos et al., 2006). Academics also appeared to be concerned to ensure that the OER they access online and use in teaching is of good quality. The literature notes that few repositories provide 'quality control' measures, although even where these do exist this may still be of concern (Littlejohn, 2003). One solution to this, employed by MERLOT, has been to subject material to professional review, but this has slowed down the release of resources so much that it has been described as 'a crisis in OER' (Hanley, 2005). Certainly slowing down the release of OER is contrary to the inherent nature of OER, and in itself means that resources may not be up to date. It has been suggested that peer reviews and used communities might be possible ways to resolve some concerns regarding quality of resources (Larsen & Vincent-Lancrin, 2005), and the Delphi study participants echoed this view. However, it could also be argued that the perceived quality of a resource depends on the context in which it is being used, and users should therefore make their own judgement regarding its value and appropriateness (Hysten, 2006).

An alternative interpretation of the quality issue is that OER will in fact raise the quality of teaching resource. Institutional investment and control (Hysten, 2006), the desire to maintain professional

reputations (Lee et al., 2008) and ongoing updating and repurposing by the OER community could be seen as effective in ensuring high quality resources (Hysten, 2006). Some of the Delphi study participants appeared to share this view point, particularly those previously involved in OER projects.

Communities of Practice

The research identified that some participants may be encouraged to participate in OER by the existence of communities of practice. In Public Health the diversity of the subject and range of professional groups involved perhaps offers the potential for useful inter-professional links and the development of a wealth of OER content across the breadth of Public Health. Communities of practice are noted in the literature (Downes, 2007) as important in enabling the development of useful and effective OER, and helping to ensure that it is updated and sustained (Geser, 2007).

Time and costs

Time and costs involved in both development of resources and in staff training were a concern to participants in the research, with many already feeling very time pressured. In health sciences time and cost may be a particular issue due to the inherently complex and dense nature of the content (Lee et al., 2008). Downes (2007) identified that this may be particularly problematic where there is a culture of developing, but not also downloading and using OER, so that it can be difficult to recoup the time and money expended or ensure sustainability. Conversely, some participants in the Delphi research suggested that OER might result in time and cost savings, and there was therefore anxiety about job security and staffing levels as a result of this. This is a concern that does not appear to be widely reported in the literature.

IPR

Intellectual Property Right (IPR) was clearly an area of anxiety for participants. Indeed it appears that individuals are often concerned, and indeed confused (Yuan et al., 2008), about their right to release work that they have produced, because in many cases their employers own the rights to their work. It is possible that clearer university policies and more widespread use and understanding of 'Creative Commons' licences, which provide an alternative to 'all rights reserved' copyright (Downes, 2007), may solve this issue. Staff participating in the PHORUS research appeared to have considerable concerns relating to the issue. Existing research suggests that where institutions embrace and encourage the development of OER the organisational culture appears to reduce anxiety and confusion about this aspect of development (Atkins et al., 2007).

Reward and recognition

The perceived rewards of OER development and use were clearly important, but varied considerably between participants depending on individual perceptions of OER or specific contexts. It appears that professional recognition and enhanced profile through OER contributions is important for both individuals and institutions (Downes, 2007). On an individual level teaching staff need to feel that their efforts to develop OER will be recognised and rewarded by the institution and their peers, just as other academic outputs are valued (Lee et al., 2008). There was also concern amongst participants that they would not be recognised for their work because branding and author names would be lost during repurposing.

Sustainability

Concern about the sustainability of OER projects, including PHORUS, was a major issue for participants in the research. Indeed, the sustainability of OER has become an area of academic study in its own right (Downes, 2007). The need for institutions themselves to embrace OER, particularly on a university wide basis rather than by faculty, is seen as particularly important. It is also suggested that sustainability is improved if enrolled students are expected to actively use and learn using OER produced by their institution, rather than OER development being separate from traditional academic teaching (Atkins et al., 2007).

Other issues

Some issues, which appear to be important in the literature, did not appear to have a high profile amongst the PHORUS research participants. Whilst it would appear that there is congruence between OER and Public Health in terms of their underlying ethics and values (Heller et al., 2007), this did not appear to be a major consideration. Similarly, for participants the view that sharing of information in this way may be regarded as 'a good thing' and 'in line with academic tradition' (Joyce, 2006) did not appear to be significant.

Conclusion - Emerging Public Health OER

There is limited evidence specifically relating to the development and use of Public Health OER. In general, the health sciences community, which includes Public Health, has been slow to participate in OER production and use (Lee et al., 2008) and the PHORUS research identifies a number of areas that may contribute to this reticence. Further expansion and use of OER may provide a means of sharing best practice, enabling rapid dissemination of constantly changing health information (Lee et al., 2008). Public Health is a wide reaching and incorporates many varied and disparate disciplines both within and between a range of different organisations. As such we would suggest that establishing Public Health OER communities and achieving cohesive OER development may be more problematic than in some other subject areas, a view supported by the evidence gathered during the PHORUS project. In addition, it appears that Public Health practitioners and educators will need to be reassured about a number of key issues relating to OER in order to fully participate. A conceptual framework and flowchart to assist OER development and use have been developed to provide guidance for Public Health educators and practitioners. These will be published separately.

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Appendices

Figure 1: 2nd Iteration Questionnaire

Issues relating to the development and release of Public Health Open Educational Resources (OER)



Please read the following statements and indicate the extent to which you agree or disagree with each using:

1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree

1	Commercial organisations will gain financially by repurposing and reusing Open Educational Resources (OER) intended for use by educators and students	
2	Competitive edge may be gained through the use of OER as a marketing tool by universities	
3	Compliance with the Disability Discrimination Act makes the development of OER more difficult	
4	Disparity between universities in their release and/or use of OER may be seen as unfair	
5	Educators from a wide range of disciplines would be able to participate in producing OER because of the wide scope of Public Health	
6	Identifying changes made when repurposing OER is important to maintain their integrity and context	
7	Imbalances and inconsistencies in the breadth and depth of Public Health OER will be a problem when seeking appropriate teaching resources	
8	Intellectual Property Right (IPR) is of no concern in relation to OER	
9	Issues relating to liability and adverse incidents arising from the use of OER is a matter of concern	
10	Job security amongst Public Health educators may be affected by OER because sharing resources will require fewer staff	
11	Keeping OER, and OER indexing, up-to-date is an important issue	
12	Lack of clarity in defining OER and Public Health makes it difficult to identify which resources would be suitable for release	
13	Lack of clarity within universities regarding Intellectual Property Right (IPR) issues is a problem in relation to OER	
14	Loss of author identity and control during reuse of OER is a concern when releasing resources	
15	Mapping OER against the Public Health Knowledge and Skills Framework will identify learning outcomes	
16	OER release would assist educators in gaining recognition amongst professionals from other groups	
17	OER release would assist educators in gaining recognition amongst their own profession	

18	Participation in an OER community enables networking	
19	Peer review of OER resources would be a means of gaining professional recognition	
20	Publically-funded organisations have a duty to release materials to the general population	
21	Reflection on personal OER contributions and comparison with the work of others will raise the standard of teaching resources	
22	Registration on formal Public Health university courses will be adversely affected by OER	
23	Reward and recognition are important for universities when considering the release of OER	
24	Sharing resources will reduce costs of producing teaching materials for universities	
25	Staff will need additional skills to develop OER	
26	The concept of academic credits in relation to OER is problematic	
27	The ethics and values of Public Health supports philanthropic activities such as OER development	
28	The opportunity to participate in a high profile project through the development of OER is an important consideration for Public Health educators	
29	The presence of an OER community encourages participation in OER development	
30	The Public Health philanthropic ethic contrasts with the university business model	
31	The time and cost of developing OER is of concern	
32	The use of repurposed OER will result in a decline in the quality of teaching	
33	There may be disparity between the types of OER which are released and the types of OER that educators want to use	
34	Universities can identify a new strategic direction through the release of OER	

Please circle one or more of the following to indicate whether you are:

Academic Librarian Learning Technologist
 Public Health Practitioner Other (please specify).....

Figure 2 Delphi Study Findings

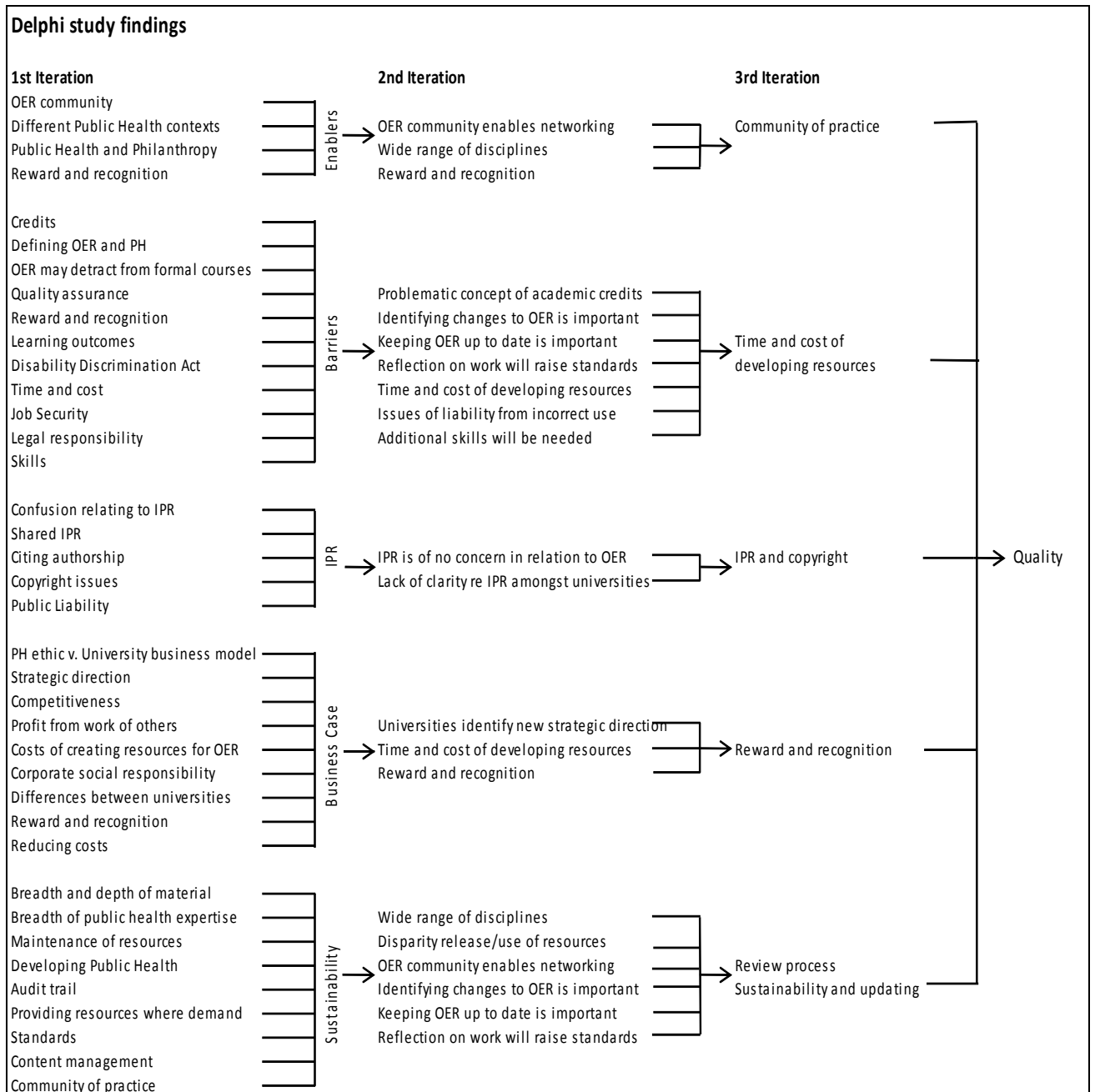
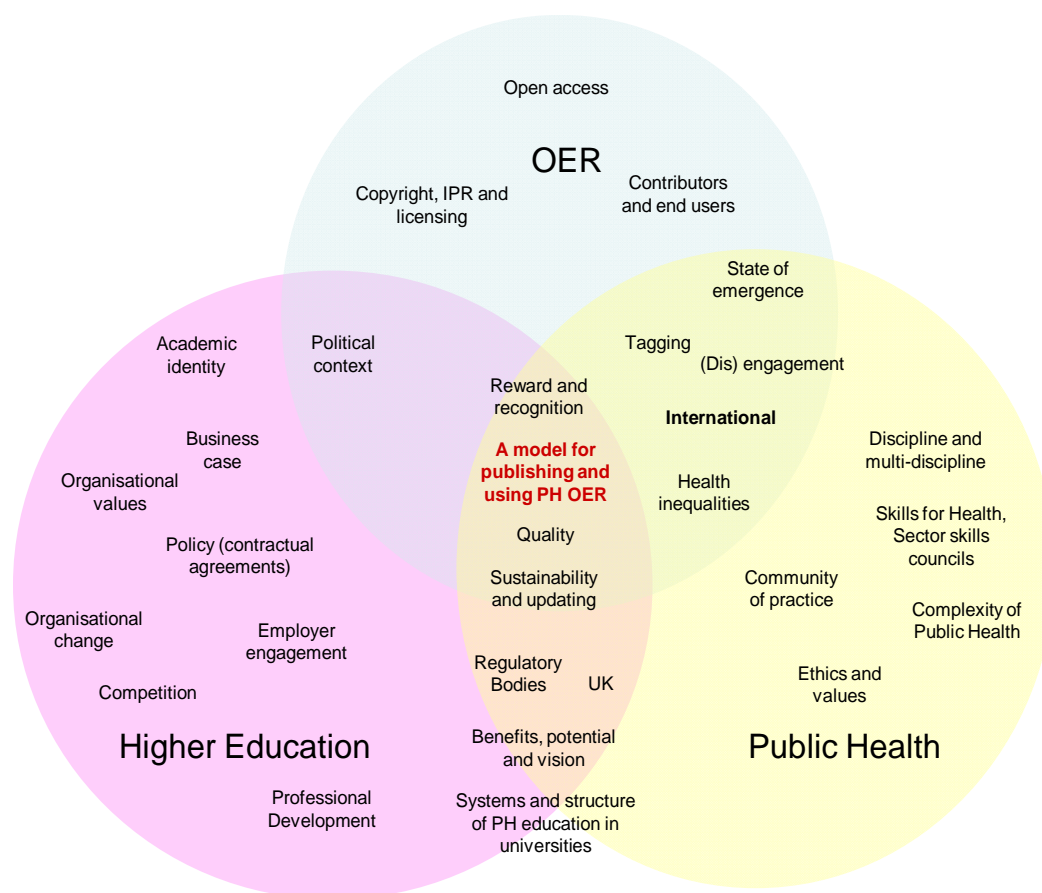


Figure 3 Schematic model identifying the relationship between OER, Higher Education and Public Health



End of Workpackage-3 Report

Project Acronym: PHORUS
Version: 2.4, Date: 27-July-2010

Contact: Margaret Sills, Margaret.sills@kcl.ac.uk

Appendix-C: PHORUS Project Evaluation Plan

Proposed Evaluation Plan For the PHORUS project.

Professor Lesley-Jane Eales-Reynolds
July 21st, 2009
Version 1

Contact: Margaret Sills, Margaret.sills@kcl.ac.uk

The PHORUS project aims to facilitate the collaborative working of a range of professionals who will produce material to the equivalent value of 360 HE credits which can be used to teach elements of public health to an interprofessional audience. The material should conform to a range of standards including Professional body and quality assurance standards as well as those relating to accessibility, disability and discrimination and intellectual property rights.

The evaluation plan is based upon Daniel Stufflebeam's CIPP model (1967) which was originally designed for evaluating educational programmes and has been used extensively for evaluating projects, programmes and activities both inside and beyond educational organisations. It is a comprehensive programme which can be used for formative as well as summative evaluation and can be adapted, as necessary, to the size of the project concerned. As an evaluation model, it is oriented towards improvement i.e. it will provide information not only about the approach taken in this project and its outcomes but also about the wider Open Educational Resource programme to guide its further development. Given that the first tranche of projects supported in this programme are pilots to guide future activity in this area, the CIPP model seems the most appropriate to provide relevant information for all stakeholders.

The model focuses on the Context, Input, Process and Product of the project. Although it is designed to be used from the inception of a project proposal, the Context and Input aspects of the model may be used to provide formative feedback during the project's lifetime.

The Context aspect of the model when used during development would help ensure appropriate goals are set. It assesses needs, problems, assets and opportunities and can be used formatively to help refine the goals (if necessary), establish priorities at a given point in time and helps relevant stakeholders judge these and the outcomes.

Input evaluation assesses alternative approaches and the feasibility and cost-effectiveness of plans to meet needs and achieve goals.

Process evaluation assesses the implementation of the project plans to help staff carry out activities and to help the stakeholders judge the implementation process and interpret the outcomes.

Product evaluations identify and assess the outcomes, both expected and unexpected.

When used formatively the model asks:

What needs to be done?

How should it be done?

Is it being done?

Is it succeeding?

In the summative assessment the model addresses the following questions:

Did the project address the objectives of the OER pilot study and the identified needs of the stakeholders?

Were the design of the project and the budget appropriate and defensible.

Was the project managed competently and modified as needed?

Did the project succeed and why (or why not)?

The Evaluation Framework

The evaluation process will provide both formative and summative reports and (on an on-going basis) advice to the project team and the project management group to enhance and improve the project plan (as required).

Evaluation Role	Context	Input	Process	Product
Formative evaluation: contemporaneous application of CIPP information to assist decision making and quality assurance	Guidance/identification of interventions required to ensure realisation of aims	Guidance on prioritisation of work packages	Monitoring and judging of work packages to provide guidance about the operationalisation of the project plan	Assessment of outcomes and effects to provide guidance about continuation or cessation of effort in specific areas.
Summative evaluation: Retrospective use of CIPP information to evidence the impact, effectiveness and quality of the project.	Comparison of goals and objectives to assessed needs, problems, assets and opportunities	Evaluation of the project's design and management in relation to stakeholder's needs and expectations.	Description of the process and costs. A comparison of the planned processes and the actual processes	Comparison of outcomes (both expected and unexpected) to the original aims and objectives of the project and the wider OER scheme. Interpretation/judgement of results in relation to the experienced context input and process.

The success of the evaluation will be critically dependent upon the sharing of information and outputs by the project team and its stakeholders.

Sources of Information to be used for the evaluation:

Web Content Accessibility Guidelines
Data Protection Act 1998
Intute Cataloguing Guidelines
Creative commons licence
JISC Open Education Resources project guidelines
JISC OER Licence
Public Health Careers Framework
QAA
PHORUS project documents
Steering group meeting minutes
Management meeting minutes
Documentation and resources from PHORUS advisory group
Consortia agreements
Formative and summative project reports
Budget reports
Handouts and presentations from workshops.
Interviews with major stakeholders and participants in the workshops
Interim Delphi report
Analysis of released OERs in relation to the PH careers framework and QA guidelines
Questionnaire to be completed by users of released OER products

**Appendix-D: PHORUS Project Evaluation – Interim Report
January 2010**

**Interim Evaluation of the Open
Educational Resource project:**

**PHORUS- Public Health Open
Resources for the University Sector**

Prepared by project external evaluator

Professor Lesley-Jane Eales-Reynolds

January, 2010

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Context

This section briefly describes the original concept of the **Public Health Open Resources for the University Sector (PHORUS)** project. It also identifies the expectations of the funding bodies (Higher Education Academy (HEA) and the Joint Information Systems Committee (JISC)). In addition, it provides the stated aims, objectives, expected outputs and outcomes identified in the original PHORUS bid in order to set the context for this evaluation.

The PHORUS project comprises a consortium led by the Higher Education Academy Subject Centre for Health Sciences and Practice. Other members include the Royal Society for Public Health and a number of Higher Education institutions represented by faculties and departments that teach Public Health as a discipline or that have modules in a range of disciplines relevant to Public Health. In addition, Skills for Health have engaged with the project where the purpose of learning is defined by the nature of the job role as well as the qualification.

Public Health is a complex and widely multidisciplinary profession providing enormous opportunities for interprofessional education. Provision of education for public health varies greatly with distinct learning outcomes and student experiences. In order to address issues such as accessibility and flexibility of learning, other disciplines are moving rapidly towards electronically delivered curricula. This is a skilled and time consuming process and there are good reasons for sharing resources and not 're-inventing the wheel'. However, with public health requiring knowledge and skills pertinent to such a diverse range of other disciplines, it presents a particular challenge with respect to re-purposing online learning resources. The Public Health Skills and Careers Framework (Skills for Health) provides a clear idea of which competences are required at which level for practitioners, employers and educators and thus which resources might be appropriate to underpin relevant learning. Accessibility to these resources and mapping them against the framework are key elements of the PHORUS project.

The expectation of the funders was that projects would make 'a significant amount of existing learning resources freely available online, licensed in such a way to enable them to be used and repurposed worldwide.' In addition, there was an expectation of sustainability in that 'funded projects will demonstrate a long term commitment to the release of OER resources via the adoption of appropriate business models to support this. Supporting actions may include modifications to institutional policies and processes, with the aim of making open resources release an expected part of the educational resources creation cycle.' <http://www.jisc.ac.uk/oer>

The original stated aims of the PHORUS project were:

- 1) Critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- 2) Identify and work towards openly releasing existing Public Health learning resources.'

The following objectives were identified as key to allowing attainment of the overall project aims.

- i) explore and develop business approaches & determine IPR challenges applicable to enabling the release of resources
- ii) strengthen the Community of Practice to encourage contributions from the Universities Public Health Network

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- iii) identify and critically assess enablers and barriers
- iv) promote the culture of sharing across various health related disciplines
- v) use the concept of OER to encourage reflection on developing educational processes through sharing experiences
- vi) include a range of stakeholders: students, learning technology roles, ISS, 3rd sector (NGO – Public Health Forum)
- vii) identify and release Public Health Learning Resources for open access
- viii) synthesise, review, and capture emerging themes and open resources through a single access point on the Health Sciences and Practice Subject Centre website
- xi) disseminate findings and share good practices with the HE community
evaluate the underpinning processes and outcomes of the project

These objectives were to be achieved through the completion of clearly defined workpackages, which were:

7. Management and Co-ordination
8. Online mapping and scoping review
9. Enablers and Barriers to releasing Open Public Health learning resources and the development of the conceptual framework
10. Releasing and enabling access to open resources
11. Dissemination and exploitation of project results
12. Evaluation

On successful completion of the project, the team expected to deliver a number of outputs some of which would be resources to be used by others and some which would result from enhancing the knowledge and understanding of certain aspects of the project

Outputs
WP1: Interim and final reports; 6 project briefing documents; Advisory group meeting notes; Management meeting notes; Job descriptions; Consortia agreements and letters of agreement; Financial Statements Effective business models built; Using theoretical approach and conceptual framework in implementation of bespoke action plans; building and sharing knowledge and experience of sustainability
WP2 & 3: Research findings; Conceptual framework for open access to Public Health Resources Examination of enablers and barriers for open resources in Public Health; Delphi research methods / data collection tools; Understanding of the Public Health Careers framework and how resources contribute to learning and teaching in academic and practice contexts
WP4: Selected resources catalogued through INTUTE to the equivalent of approximately 360 credits; Resources mapped to the Public Health Careers Framework Building and sharing knowledge on IPR
WP5: PHORUS website; PHORUS brand; Press releases; 2 articles submitted for publications / published;
WP6: Set of recommendations for future projects; evaluation framework;

The team also identified a number of outcomes from the project which whilst less tangible and difficult to measure might be inferred from attaining their original aims. These were:

1. Strengthening the Universities Public Health Network
2. Providing benefit to the Teaching Public Health Networks funded by the Department of Health
3. Enhanced learning and teaching in Public Health across the spectrum of courses owing to the availability of reusable learning objects.
4. Enhance consistency in educational provision in public health through debate
5. Greater understanding of each others contribution amongst professionals within the Community of Public Health Educators
6. Enhanced interprofessional education in Public Health
7. Increased opportunity for learners to engage with a wider range of resources
8. Increased support for tutors in curriculum and session design
9. Stimulation of debate about teaching methods in Public Health

Evaluation

The evaluation of the PHORUS project was performed both internally and externally with the project manager writing the required interim and final report from the project team. These reports were designed to report and review progress against plan. In addition an external evaluator was appointed to both evaluate the project and to act as critical friend by providing on-going formative feedback in order to help the team to keep the project on track.

The evaluation plan is based upon Daniel Stufflebeam's CIPP model (1967) which was originally designed for evaluating educational programmes and has been used extensively for evaluating projects, programmes and activities both inside and beyond educational organisations. It is a comprehensive programme which can be used for formative as well as summative evaluation and can be adapted, as necessary, to the size of the project concerned. As an evaluation model, it is oriented towards improvement i.e. it will provide information not only about the approach taken in this project and its outcomes but also about the wider Open Educational Resource programme, to guide its further development. Given that the first tranche of projects supported in this programme are pilots to guide future activity in this area, the CIPP model seems the most appropriate to provide relevant information for all stakeholders.

The model focuses on the Context, Input, Process and Product of the project. Although it is designed to be used from the inception of a project proposal, the Context and Input aspects of the model may be used to provide formative feedback during the project's lifetime.

The Context aspect of the model when used during development helps to ensure appropriate goals are set. It assesses needs, problems, assets and opportunities and can be used formatively to help refine the goals (if necessary), establish priorities at a given point in time and help relevant stakeholders judge these and the outcomes.

Input evaluation assesses alternative approaches and the feasibility and cost-effectiveness of plans to meet needs and achieve goals.

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Process evaluation assesses the implementation of the project plans to help staff carry out activities and to help the stakeholders judge the implementation process and interpret the outcomes. This is a formal part of both the interim and final evaluation reports.

Product evaluations identify and assess the outcomes, both expected and unexpected. Again part of the interim and final evaluation reports.

When used formatively the model asks:

What needs to be done?

How should it be done?

Is it being done?

Is it succeeding?

In the summative assessment the model addresses the following questions:

Did the project address the objectives of the OER pilot study and the identified needs of the stakeholders?

Were the design of the project and the budget appropriate and defensible.

Was the project managed competent and modified as needed?

Did the project succeed and why (or why not)?

The Evaluation Framework

The evaluation process will provide both formative and summative reports and (on an on-going basis) advice to the project team and the project management group to enhance and improve the project plan (as required).

Evaluation Role	Context	Input	Process	Product
Formative evaluation: contemporaneous application of CIPP information to assist decision making and quality assurance	Guidance/identification of interventions required to ensure realisation of aims	Guidance on prioritisation of work packages	Monitoring and judging of work packages to provide guidance about the operationalisation of the project plan	Assessment of outcomes and effects to provide guidance about continuation or cessation of effort in specific areas.
Summative evaluation: Retrospective use of CIPP information to evidence the impact, effectiveness and quality of the project.	Comparison of goals and objectives to assessed needs, problems, assets and opportunities	Evaluation of the project's design and management in relation to stakeholder's needs and expectations.	Description of the process and costs. A comparison of the planned processes and the actual processes	Comparison of outcomes (both expected and unexpected) to the original aims and objectives of the project and the wider OER scheme. Interpretation/judgement of results in relation to the experienced context input and process.

This interim report is designed to give an evaluation of progress against plan to date and to provide formative evaluation that can be implemented in the remaining period of the project to ensure successful completion. Thus a number of questions will be addressed in relation to the workpackages:

1. Is the PHORUS project operating in an effective and efficient way?
2. Are the systems and processes appropriate for achieving the stated goals of the project?
3. What has worked well and why?
4. What has proven to be challenging and how has it been managed?
5. What should be changed to ensure the successful attainment of the project aims and objectives?
6. How have changes to the original plan been made and were the approaches taken appropriate?
7. How has the research informed the release of learning and teaching resources?
8. Are the learning and teaching resources released to date appropriate for the Public Health Community?
9. Are Public Health Educators taking an interest in PHORUS / using the resources?
10. What are the key learning outcomes of this project that would provide valuable insight for future work in this area?

Overview of Progress with Workpackages

Workpackage 1: Management and Co-ordination

WP1 Involved all the issues and risks associated with project management and co-ordination including:

- *Appointing project staff*
- *Agreeing membership of the steering group and the organisation, administration and management of its meetings*
- *Obtaining signed consortium agreements from partners*
- *Organising, administering and reporting on project management team meetings; contract development and management with organisations external to the consortium*
- *Preparation and circulation of project reports*
- *Financial control and monitoring.*

Generally, the project is on-plan in relation to its management and co-ordination although some delay was experienced due to the delay by the funders in finally agreeing the project budget. The schedule of meetings was thus delayed but was adjusted according to the time available and the agreed actions.

The project team has had 3 of its 6 face-to-face meetings to date and these have been well attended, people joining by Skype where their physical presence has not been possible. As evaluator, I was only appointed to the project in September and so have only attended two of these meetings personally, but have been provided with all relevant documentation. The operation of these meetings has been effective, providing an important forum for the project partners to discuss the progress of each workpackage and to share ideas. It has been particularly effective having those involved in the research at these meetings, since the emerging outcomes of their work have been able to inform

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operational issues and the actions required in the other workpackages. Generally communication between partners and across workpackages has been effective, although I am unclear if this was due to a written communication plan or merely through agreement. Responsibility for each of the different workpackages was distributed amongst partners and could therefore have led to a lack of co-ordination but the management team has ensured that the work and information from each workpackage has fed into all others. In addition, the project team meetings in particular have enabled strategic adjustments as necessary.

The steering group has met on two occasions of the programmed three and I have attended one of these meetings. The representation on the Steering group is very broad, reflecting the wider range of disciplines encompassed by Public Health. My impression is that, as with many Steering Groups, some members are unsure of their role and as a whole it does not necessarily help the project in the way that it might be hoped.

This biggest challenge that has arisen in this workpackage is the difficulties in getting signed contracts with members of the consortium and with those outside the consortium. This project has demonstrated the lack of preparedness within institutions to deal rapidly with issues relating to intellectual property rights and copyright. In addition, there is a widespread lack of understanding about creative commons licences. On reflection I would propose that the issues have become more acute given the vastly changed economic circumstances in Higher Education since these bids were developed. Institutions are not convinced of the potential value of releasing learning resources for free exchange and use, particularly where this is not a widespread activity within the organisation or where it involves a highly successful activity. There needs to be much more substantiated evidence provided to support this approach particularly in an environment where universities will be looking to diversify their income no doubt through increased online learning. Perhaps the team might have avoided some of these issues by ensuring consortium partners were more engaged in advance of the project being awarded. For example, partners could have been required to contribute to writing the bid. Having said this, there was very little lead time with these projects. Given their complexity and the legalities that need to be addressed, the funders should consider in future giving more detailed advice and a greater time to ensure that such issues do not delay a project in achieving its tangible outcomes. The templates provided by JISC were rather overlong and complicated, other OER projects have used simpler contracts. However, PHORUS was more complicated in that the Memorandum of Understanding referred both to the research and resource release. In hindsight, the research should have been excluded, allowing wider involvement in this aspect of the project and therefore a different approach to WP3. Perhaps commitment to the project could have been achieved by partners having to read and sign the original application documents thereby committing them to the project through sign-up to the bid. Although support was available through HEA/JISC in respect of contracts, that assumes that the project team and indeed the project has time to allow engagement in this way.

This workpackage has produced several tangible outputs including:

- i. Job descriptions and person specifications for the team which may be useful in future when defining the skills and individual needs to manage and support such a programme
- ii. Memoranda of Understanding with the consortium partners which may be of use in future collaborations or for informing a standard template/approach for such activities.
- iii. Minutes from team meetings and steering group meetings demonstrating how a project with a large number of partners can be effectively managed and the information distributed.

Workpackage 2: Online mapping and scoping review

WP2 involved the following actions:

- *Undertaking an online search to identify current public health learning resources that are openly available to UK HE institutions*
- *Mapping of resources against the UK public health core and defined public health competencies*
- *Recording the extent and type of existing relevant research and openly available resources*
- *Produce an interim report on findings to inform WP3.*

This workpackage is relatively unique to the PHORUS pilot project which was designed to ensure that its outcomes were research informed and rigorous. The team set out to identify public health resources which were already available through open access and to map these resources against the UK public health core and defined public health competencies. This proved to be extremely challenging owing to the nature of Public Health. The team quickly realised the need of developing a working definition of Public Health and of Open Educational Resources. Whilst a number of definitions are available they had to decide on one which would work for them given the nature and scope of what they were trying to achieve in the given timeframe. Their approach to this has been reported in their interim report on Workpackage 2 (an expected output). Whilst this document discusses the variety of definitions available, it needs to be made explicit which definition was used eventually for the work in WP2. The report clearly describes the search terms used for identifying existing online resources however, I think there is a need to also explain which search engines were used and why. Obviously this information is available but it is not included in the report (or literature search) and I believe this to be vital, providing key information for users of the outputs from this workpackage.

From the definitions, the team were able to identify a range of search terms which might be expected to identify OERs relevant to public health. I think the report would be enriched by information concerning the number of hits achieved with each set of search terms and how the refinement was performed. The report does include the inclusion/exclusion criteria used for each resource that seem appropriate to the task.

Problems were also identified once potential resources had been identified and this was the need to map them against the Public Health Skills and Career Framework core and non-core areas of work. This had to be done retrospectively with a Public Health specialist and was a time consuming and difficult job. This presents an issue that needs to be considered by all subjects where professional bodies define the professional requirements of undergraduate, postgraduate and CPD programmes. Ensuring the quality of OER and enabling professionals in practice and students to use resources with confidence is a challenging issue. Discussion suggested that repositories needed to allow provenance detail to be included and a health warning that if this was missing, 'caveat emptor'!

During the search, 42 hits which met the inclusion criteria were explored and categorised according to the type of OERs available from the site. This process was also challenging because whilst some links led to individual resources, others led to whole programmes and repositories of a wide range of resources that could not be sorted or mapped against the PHCF easily. The resulting list of online resources comprises many more individual resources. They were chosen in order of priority in the search activity. Many of the resources identified were not from the UK and so their suitability for re-use or re-purposing for UK students is unknown and the likelihood that teachers of public health (both in HEIs and elsewhere) will use such resources is also unknown. I think this aspect of the project would have been helped by asking members of the steering group and the consortium to give some

feedback on the perceived relevance of the links provided. This was a difficult task since thousands of hits were found and it was impossible to determine if they would be relevant or not without visiting each site and sometimes actually searching the sites. It might have been better to have a more limited set of criteria and therefore search terms.

Using a classic critical review approach, it may have been easier for the team to identify resources that are most likely to be of relevance to the community. When these links were presented at the York workshops, the public health practitioners present stated that the sites they were most likely to use were not listed. This led to a discussion which further highlighted the considerable barriers this project has had to face. When using the key search terms used by the research team, none of the sites used by practitioners were identified. However, this was because practitioners were using completely different terms. This did pose the question of why the professional partners in the project had not contributed to the development of the search criteria? However, that may have skewed the outcomes since practitioners and educators may have very different approaches. I believe this highlights the difficulty here in the complexity of the subject (public health encompasses a wide range of disciplines and subjects, practitioners of which would not necessarily consider themselves as having a role in public health) and in the technological expertise of the individuals concerned with teaching public health. There are few degree programmes in public health but aspects of it are taught at many levels and to many different disciplines. When asked, the group felt that the list may be useful but that they were more likely, through time constraints to continue using their known web sites.

The WP2 team are also in the process of producing a literature review which looks at research relevant to the release and use of open learning resources in the public health field.

Workpackage 3: Enablers and Barriers to releasing Open Public Health learning resources and the development of the conceptual framework

WP3 involved the following:

- *Undertaking a Delphi study with academics, librarians and learning technologists across the UK Universities PH Network (15HEIs) to examine enablers & barriers, sustainability, IPR and effective business models/conceptual frameworks*
- *Organising and delivering two consensus building workshops across the UPHN to explore the key themes emerging from the Delphi study*
- *Sharing the findings and interim report from WP2 with all participants of the Delphi study and workshops*
- *Identifying key themes from the Delphi study and feeding this back to all participants to further develop and ensure the rigour of findings*
- *Developing a conceptual framework for OER implementation*

This was an ambitious and very important aspect of this project. The public health community is diverse and truly multidisciplinary and so lacks the cohesion found in other professions (such as medicine, nursing and the biomedical sciences). As such, there is no specific community ethos and educators in public health are relatively sparse on the ground. In order to get the community to commit to this project and to champion it (which is needed if change is to be instituted), the project team took the approach of engaging the community in a research project in an attempt to identify those issues which enable or prevent the release of resources by organisations for open educational purposes. The Delphi study was designed to include academics, librarians, learning technologists from across the UK universities PH network. It is unclear to if there was a concrete research plan/proposal in advance of undertaking the study. Discussions with the researchers involved did not identify one as such.

Delphi studies are legion in form, both in relation to their underlying philosophy and their approach. I have made the assumption that this Delphi study was Lockean in nature and was intended to draw upon a wide range of professional experts in the light of the fact that very little literature (knowledge) is available about the release and use of OERs in public health. This would seem to be the best fit for the approach that was taken in relation to the study. However, the experts were in the field of Public Health Education and not in the use or release of OER in relation to Public Health, thus there may be key barriers and enablers that might be missed owing to the fact that the experts were not necessarily familiar with the process. Whilst I believe the research team did the best they could in the limited time available to them to instigate the project, I think they need to demonstrate in their final report for the project the challenges they faced and give a justification for the ultimate approach taken. For example, owing to representation at the launch not reflecting their original proposed target audience, they might have considered other Delphi formats. There is a wealth of literature in relation to OER release, use and re-purposing. Using this literature they might have been able to reform their questions for the first Delphi round. Having said this, the data which emerged from the launch event and subsequent rounds of inquiry (despite very low participation numbers) resonated with the established knowledge in other fields, which increases the confidence in the outcome of the study.

It was planned that the subsequent iterations of the Delphi study would be undertaken at planned workshops, one of which had to be cancelled. This was no fault of the team, in the health professions, late November through to February is a crisis period and professionals in practice would find it hard to get the time to attend such events. More problematically, low levels of attendance at the meeting held in York in December (15 participants which included 10 project team members or project partners) may have been due to lack of interest or perceived importance of the meeting. It was not for a lack of communication and advertising, which was appropriately done. The main constraint was the need for those engaged in the research to have been listed as a partner institution in the original bid. The research was therefore unnecessarily constrained and delayed while legal officers queried issues arising about IPR etc. In addition, this meant that some key HE institutions in the field of Public Health Education were completely excluded. Thus the second iteration of the Delphi was undertaken at York and a third iteration was planned through the discussion forum on the website. A report of this work is due at the end of January.

Workpackage 4: Releasing and enabling access to open resources

It was expected that this workpackage would:

- *Identify type of contributors, type of sharing, and type of access - mapping against resource types and current services*
- *Promote services to increase value and encourage originators to consider the benefits of enabling access to open resources*
- *Use existing theories, business models and findings from WP2& 3 with conceptual framework to create bespoke action plans to release resources.*
- *Organise 2 regional meetings and establish online communities to support the release of their resources.*
- *Encourage contributors to build confidence and trust with each other, and understand ownership.*
- *Community of Practice (CoP) Model will be exploited*

At the time of writing this report, this is the workpackage where least progress has been made but this was to be expected as the work had been planned to follow on from the work of WP2/3, so that it was appropriately informed by research. Most of the outcomes and outputs from this workpackage were dependent upon those of the other workpackages and were planned for the second half of the project.

It was concerning to hear that pressure to release resources was being placed on the team by the Academy. This is a pilot study which is supposed to provide guidance for future work about how this type of thing can be spread and more easily achieved. It was launched in a worsening economic climate where universities are trying to look at ways of diversifying their income streams and some are going to be even more protective and concerned about competition and loss of ownership. The project has taken a research-led approach to discovering the best approach of obtaining, quality assuring and releasing resources. This is particularly important for disciplines or subjects where professional body accreditation is required for an individual to qualify as a practitioner. Often the lecturers on such programmes are on part-time contracts and are given little or no staff development or support. Thus, releasing poor quality resources that do not meet the requirements of the academic programme or the professional body could have a major impact. The public health standards framework has only recently been released and is a challenge in relation to tagging resources for learning. The stringent standards set by the course team mean that each resource cannot merely be released because someone has used it to teach a subject that public health students have to study.

Originally the project team were going to explore using Intute but clearly that became impossible and so they have now started using JorumOpen. They have gone through the actions required to up-load resources and have developed a process by which this can be done. However, going through the process with colleagues they have found that it is not straightforward and believe that it may be a barrier to individual practitioners uploading material to JorumOpen. They have developed a template for contributors to use but are finding that it takes an inordinate amount of time to complete. They are currently in the process of up-loading more than 100 resources relevant to public health which have been identified and released by consortium partners. However, some of these resources have embedded pictures, graphs and diagrams which have come from copyrighted sources but have been used in teaching. This means that they are having to strip the potential OER of any materials that might be the focus of copyright or IPR issues. There are many more resources to come but as previously stated, this process is much more complex for this project than for most of the other pilot projects owing to the quality assured approach the team have taken, trying to map resources to not only HE standards but also the professional competencies framework. It will provide interesting and valuable insights, guides and templates for the release of OERs which relate to professionally accredited programmes.

Workpackage 5: Dissemination and exploitation of project results

This workpackage was expected to:

- *Create project website pages outlining aims and objectives of project and timetables.*
- *Circulate details to the Health Sciences and Practice networks and RSPH university partner networks to cascade for further circulation*
- *Website hosting - Develop and track navigation links with other relevant websites including university partners, NGOs etc to encourage interest and input into the project. Manage and monitor website traffic and create email address lists from interested potential participants (NB data protection)*
- *Write and circulate regular briefings throughout the life of the project – this baseline information will be contained on the project website and support drafting of articles*
- *Develop marketing plan to support wide dissemination of project and to encourage interest and participation.*
- *Circulate press releases and write articles for agreed media (mainly academic and professional journals) in order to promulgate the project information and findings as widely as possible to inform future open educational resource development*

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- *Co-ordinate release and circulation of final report and recommendations to agreed target audiences. Provide executive summary for project website*
- *Organise launch event to engage range of stakeholders in the principles and practice of OER and garner support for PHORUS*
- *Organise / take part in an open event at which the outcomes can be presented.*

An attractive and accessible project website has been developed and launched, showing increasing activity since its launch. It also involves a discussion forum which has been supporting the Delphi study. However, engagement with this outside of recognised project partners has been limited to date. It was suggested to the project team that they needed to undertake a series of reminder emails to participants and ensure that there is a new reason for attracting them to the discussion forum.

Marketing and publicity for the project has been well handled given the resource allocation, promotional materials and presentations being contributed to meetings in the UK and abroad. All relevant networks have been identified to facilitate encouraging increased engagement not only with the website but with the project itself (i.e. the uploading of resources). It has been suggested that the project team might like to look at some wider, generic networks owing to the range of disciplines and subjects encompassed by Public Health. Press releases concerning developments in the project have been issued but again suggestions for wider distribution have been made through the project team meetings.

The circulation of regular briefings concerning the project do not appear to have occurred but the regular project team meetings (which have been very well attended) mean that all aspects of the project have been discussed and everyone updated on progress. The additional briefings would just create administration and would not particularly serve any useful purpose.

A launch event was organised at the Royal Society for Public Health in London. It was attended by practitioners in Public Health and representatives from institutions who are partners in the bid. It was a relatively small group (26 which included project team members and partners) and as such I have some concerns that this was used as the first iteration for the Delphi study (see WP3 above). However, as a launch event it was informative and helped to explain to potential partners the issues related to IPR and creative commons licencing. However, given the subsequent challenges met by colleagues in establishing Memoranda, it would seem that much more work needs to be done by the larger, overall OER initiative, to address this.

Workpackage 6: Evaluation

The principal expectations for this workpackage were:

- *Appoint evaluator*
- *Agree formative and summative evaluation framework with evaluator*
- *Prepare tools for collection of monitoring data*
- *Analyse data*
- *Prepare and submit appropriate evaluation report(s) to inform the preparation of the project report(s)*
- *Identify learning to be applied to future projects*

I was asked to contribute to the project in August and started to do so in the role of critical friend and evaluator. An evaluation framework was agreed with the project team in September which reflected this formative/summative role. However, there were difficulties in getting an agreed contract from my home institution and in January, after several approaches, it was agreed that I should continue the

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work in a private capacity as an educational consultant. Signed contracts were exchanged in January and the work has continued without interruption. I have received papers for all activities (team and steering group meetings) and have contributed advice and ideas to these meetings. In addition I have had face to face meetings with the project manager and the researcher in order to discuss progress and propose developments. I have received minutes and notes of meetings in a timely fashion and have been included in all materials that have been circulated to the project team for comment and consideration. A list of these which have informed this evaluation is given in appendix 1.

General overall evaluation

This section will address the questions identified above in relation to the project as a whole.

Is the PHORUS project operating in an effective and efficient way?

This project was devised and developed in a completely different economic climate to that in which it was expected to commence its operation and this has an enormous impact both on the overall aim of releasing resources for free use and on the way in which the project operates. It is interesting that a relatively short time period was allowed for project teams to be built and to develop their plans. Given that this type of project has considerable legal aspects affecting its operation which challenge some of the traditional ways of using learning resources, it would appear that the period for development was rather limited and that these aspects of this project have presented the greatest challenge.

Are the systems and processes appropriate for achieving the stated goals of the project?

Generally, the underpinning systems and processes are working well and are likely to enable the team to achieve the goals of the project. However, the challenges involved in getting release of resources and in uploading them to JorumOpen may have slowed progress and the team may need to look at ways in which released resources can be made available in the interim (perhaps through their website) whilst the process of uploading to JorumOpen is refined/improved.

What has worked well and why?

One thing that has worked particularly well is the project management and the wider team working in partnership. I believe this is because of the effective project manager and the common vision that the team share. However, I believe that this type of project (and PHORUS in particular because of its interdisciplinary nature), which requires engagement with a wide range of professional bodies, institutions and other OER projects, needs a full-time project manager (not 0.6FTE as in this case) to drive the project forward. In addition, the development of the PHORUS website has been on time and effective. It is being used to encourage growth of the community. The use of technology has been very well done. Also, the project has been designed to inform and develop the project team which I think has been an added benefit. What I mean by this is that although different groups/ individuals/ organisations have had responsibility for distinct aspects of the project, the learning has been shared throughout the project team.

What has proven to be challenging and how has it been managed?

Two of the key challenging elements have been:

- 1) obtaining the signed agreements from project partners

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- This was complicated by a) the starting time for the projects, visits could not be set up during the summer period; b) the complexity of the project budget; c) unexpected changes beyond the control of the project team such as the failure of the establishment of the Universities Public Health network; d) concerns of legal departments and Heads of Departments concerning IPR, quality assurance and the business case)
- 2) the delay in confirming the project budget (this is discussed further below under insight for future projects).

In addition, the challenge of having the need to meet academic standards and those of a professional body which represents a diverse population has been, I believe, unique to this project. There is no common definition of public health and those who have an impact on or input to public health include doctors, nurses, allied health professionals, scientists, environmentalists, engineers, the list is endless. Thus, targeting the request for resources was difficult. Concentration on institutions that provide HE programmes in Public Health (which are few in number) meant that if the organisations did not sign up to the project, the release of resources would be limited. In addition the differences between Scottish and English IPR and copyright laws mean that one partner was unable to provide resources which could be released through JorumOpen.

What should be changed to ensure the successful attainment of the project aims and objectives?

I think the approach to getting resources released needs to be reconsidered. The team need to widen their approach and contact those who may have resources which will be relevant to public health but which would not themselves consider that they are public health educationalist. Also, the need to map the resources against the public health competencies framework, whilst an excellent element of the project, should be relaxed such that resources can be identified as relevant but not mapped. This would speed up the release and subsequently the resources could be mapped as those with the expertise begin to engage more with the project.

How has the research informed the release of learning and teaching resources?

The unique element of this particular OER project, i.e. the research concerning the barriers and enablers to OER release means that the overall OER 'movement' should gain useful insights about these and guidance on how to successfully navigate them. The research has shown that the project team could include a much wider constituency in relation to the release of resources. The wide, interdisciplinarity of the public health discipline means that others, who would not consider themselves to be public health specialists, may have resources that can be released for use in Public Health education. Interestingly the team identified that another OER project team were releasing a resource with direct relevance to Public Health and were able to advise colleagues on the appropriate tags to use to ensure that public health professionals would find them. This was a direct result of the research undertaken to identify those terms which would be used to identify public health resources.

How have changes to the original plan been made and were the approaches taken appropriate?

All changes to the plan have been discussed with the project partners and agreed (usually at the project team meetings). Actions have been identified and individuals assigned to ensure their completion. Where changes had to occur (for example partner engagement and the research project, these were usually caused by lack of engagement by those outside the immediate project team.

Remediation was undertaken by key project team members to ensure that the project was kept on track.

Are the learning and teaching resources released to date appropriate for the Public Health Community?

The very careful (and time consuming) quality assurance process that is a hallmark of this project means that the resources released to date (or about to be released) meet all of the requirements of the public health competencies framework as well as the legal aspects in relation to IPR, copyright and contractual agreements.

Are Public Health Educators taking an interest in PHORUS / using the resources?

Public health educators are certainly participating in the project. However, the impact to date on the wider public health community is hard to judge. There is evidence of growing numbers visiting the website but as yet, engagement on the discussion forum has been limited and the challenges faced by the research team in getting participation in the Delphi study suggests that there is still work to be done in this area. There may be issues around the fact that this project focuses on technology and its use in learning and teaching and there may be a considerable amount of work needed to encourage use amongst professionals. Generally, the view of those that have been involved is that the public health community is broad and not necessarily comprised of 'early adopters' in relation to technology in education.

What are the key learning outcomes of this project that would provide valuable insight for future work in this area?

There was a delay between the team being told that their bid had been successful and their final budget agreement. In such a short-term project and with the financial climate in Institutions becoming extremely tight, this had considerable effects on the team being able to set their project in motion meaning considerable delay in all their actions. Funders must appreciate that such negotiations should not eat into the allowed, planned period for such projects if they are to get value for money.

The consortia contracts proved to be a challenge and that in future projects of this sort this needs to be addressed as early as possible, possibly in advance of knowing of the bids success. Contracts can always be amended if other issues develop but having partners contractually bound is a sensible approach particularly where there are issues of IPR involved, which can be complex and difficult to resolve.

This project has taken a research-informed, quality-assured approach in a discipline which is diverse and not known particularly for the use or reuse of educational resources. It is quite distinct to all the other projects and has lessons for future projects where professional standards are involved. Without the research, a number of resources might have been released which would never be found by public health professionals because of the tagging. In addition, the quality-assurance makes these resources useful to students too; an advantage of the project in helping to underpin the unique element of UK higher education – the independent learner.

Overall Conclusions

The project has been well managed and is on target as set out in their original bid. There have been considerable challenges, most of which have been addressed appropriately. The seeming pressure from the funders to see resources on JorumOpen has the potential to damage the project from the perspective of acting as a disincentive for people to contribute to the project since it will be perceived that there is no central belief in its success. This is unfair since the project is in fact working to its deadline and to its plan. It is taking a research and quality informed approach. It could, as other projects, just upload a range of resources but the quality and value of them in a professional discipline would be questionable. I believe the PHORUS project will actually give the funding bodies more information about the challenges and enablers to encouraging other institutions to engage in the OER initiative than many others, if the team is allowed to continue its work as planned.

Professor Lesley-Jane Eales-Reynolds
January, 2010.

APPENDIX 1: PROJECT TEAM DOCUMENTS USED FOR THE INTERIM EVALUATION

The documents below were used as evidence to inform discussions with relevant project team members in advance of writing the interim evaluation.

5 issues identified from feedback from PHORUS lauch.docx
50 word summary.doc
Appendix 3 PHORUS Evaluation Plan.docx
Approaches to quality.doc
Booklet_for PHORUS workshop 2003 version.doc
ChangeManagement_infokit.pdf
Evaluation plan.docx
IntuteHLS_Evaluation_Guidelines.doc
Literature Review for comments.doc
November press release.doc
OER_Briefing_Paper.pdf
Opening up education 150 words.doc
PHORUS-OUTLINE PROGRAMME FOR LAUNHC MEETING.docx
Phorus feedback after York event Dec 09.docx
PHORUS January 2010.doc
PHORUS MEETING DEC 7TH NOTES.docx
PHORUS Progress Report-Nov 09 FINAL.doc
PHORUS project discussion Sept 21st.docx
Phorus project evaluation plan v1.docx
PHORUS Project Team Meeting Action Points Summary.doc
PHORUS workshops programme.pdf
PHORUS_ProjectPlan_submitted_06July09.doc
PHORUS_Work_Package_2_to printers.doc
Programme_for PHORUS workshop 2003 version.doc
Project Team minutes meeting 5_oct09.doc
Project Team minutes meeting 7_jan10.doc
QUESTIONS FOR WORKSHOPS FINAL1LJR.docx
Sytheis framework subjects.doc

----- End of Evaluation Interim Report

**Appendix-E: PHORUS Evaluation – Final Report
June 2010**

**Final Evaluation of the Open
Educational Resource project:**

**PHORUS- Public Health Open
Resources for the University Sector**

Prepared by project external evaluator

Professor Lesley-Jane Eales-Reynolds

June, 2010

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Executive Summary

The **Public Health Open Resources for the University Sector** (PHORUS) project was designed principally to facilitate the open release of educational resources to support the teaching of academic public health.

Originally designed to include the Universities Public Health Network (led by the University of Bournemouth who were project partners) the team only managed to obtain memoranda of understanding from 5 of the 14 members (including Kings College London and Bournemouth) and one other institution, the Peoples University. This inability to overcome institutional legal hurdles in relation to the open release of educational resources within the short timeframe of the pilot project represented a considerable barrier to success. Despite using resources provided by JISC and engaging in relevant events, the team still struggled to get institutions to sign up. There is an important message here about preparatory work in advance of funding being agreed with appropriate level commitment from recognised partners being necessary.

The public health community at large is highly multidisciplinary and there is a lack of consensus amongst professionals as to the definition of public health. It is only now emerging as an undergraduate academic discipline (previously having been work-based, post-qualifying and/or post-graduate). The professional body has recently agreed a competency framework to be mapped on to the various qualifications. This has presented practitioners and academics with a considerable challenge in interpreting these guidelines. This complication of practice vs academic quality standards and the breadth of the subject itself presented the team with considerable challenges but it is not clear from their work if this is peculiar to public health or might be applied to any complex professional discipline.

The project took a research-informed, evidence-based approach to understanding the barriers and enablers to OER release in the public health sector. The outcomes of this research, which has not been carried out previously in this particular sector in any great depth, concurs with existing general literature in the field. The team should explore their data further to see whether or not it provides them with evidence of aspects peculiar to public health and also whether the importance of particular barriers to OER release is the same amongst practitioners and those teaching academic public health.

It would appear from the findings of this project that there is still much work to be done by JISC and the HEA in convincing institutions of the benefits of OER. Business and marketing models emerging from these OER project should be promoted and made freely available to encourage other institutions to sign up to the open release of educational resources.

1. BACKGROUND

1.1 This final evaluation follows an interim evaluation undertaken as a formative exercise to support the Project Team in attaining its objectives and overcoming barriers (both foreseen and subsequently emergent). As in the interim report, this section briefly introduces the original concept of the **Public Health Open Resources for the University Sector (PHORUS)** project. Also included is a summary of the expectations of the funding bodies (Higher Education Academy (HEA) and the Joint Information Systems Committee (JISC)) and reiterates the aims, objectives, expected outputs and outcomes identified in the original PHORUS bid in order to set the context for this final evaluation.

1.2 The PHORUS consortium is led by the Higher Education Academy Subject Centre for Health Sciences and Practice and includes the Royal Society for Public Health, the University of Bournemouth and a number of Higher Education institutions who were part of the Universities Public Health Network or subsequently agreed to join the consortium.

1.3 It is reasonable to say that Public Health is not a single discipline and would be variously defined by a range of professionals depending upon their focus and interest. It has only relatively recently become an 'academic discipline' in which undergraduate students can gain a qualification (2001). In the past it has been the subject of specialism at postgraduate level for those already qualified in various disciplines (including health science/bioscience, medicine, nursing, engineering and allied health professions) as well as work-based learning and post-registration continuing professional development at undergraduate level. It is a complex and widely multidisciplinary subject with an emerging professional agenda. Confusion continues to abound – for example the Environmental Health Agency sees public health as an element of environmental health, not as a separate discipline. Owing to this vast range of professions that have a requirement to engage with, or understand, public health, it is a subject that provides extensive opportunities for interprofessional education. However, the provision of public health education varies greatly with distinct learning outcomes and student experiences.

1.4 In order to address issues such as accessibility and flexibility of learning, other disciplines are moving rapidly towards electronically delivered curricula. This is a skilled and time consuming process and there are good reasons for sharing resources and not 're-inventing the wheel'. However, with public health requiring knowledge and skills pertinent to such a diverse range of other disciplines, it presents a particular challenge with respect to reuse and re-purposing of online learning resources.

1.5 The Public Health Skills and Careers Framework (Skills for Health) provides detail of which competences are required at which level for practitioners, employers and educators and thus which resources might be appropriate to underpin relevant learning. However, understanding this Framework requires the skills of a Public Health practitioner and it would seem that even they struggle with some aspects of the framework. Key elements of the PHORUS project were to make online resources accessible and suitable for reuse or re-purposing, as well as mapping them against the Public Health Skills and Careers Framework.

1.6 In addition to the expectations of the project proposers, the funders also had requirements which included that:

- a significant amount of existing learning resources would be made freely available online, licensed in such a way to enable them to be used and repurposed worldwide.'
- 'funded projects will demonstrate a long term commitment to the release of OER resources via the adoption of appropriate business models to support this.
- Additional outcomes may include modifications to institutional policies and processes, with the aim of making open resources release an expected part of the educational resources creation cycle.' <http://www.jisc.ac.uk/oer>

1.7 The PHORUS project comprised 6 defined workpackages:

1. Management and Co-ordination
2. Online mapping and scoping review
3. Enablers and Barriers to releasing Open Public Health learning resources and the development of the conceptual framework
4. Releasing and enabling access to open resources
5. Dissemination and exploitation of project results
6. Evaluation

1.8 These were designed to enable the project team to meet their key aims and underlying objectives. The project aims were to:

- 1) Critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- 2) Identify and work towards openly releasing existing Public Health learning resources.'

1.9 The underlying objectives of the project, which were designed to enable the team to demonstrate attainment of their aims included:

- i) explore and develop business approaches & determine IPR challenges applicable to enabling the release of resources
- ii) strengthen the Community of Practice to encourage contributions from the Universities Public Health Network
- iii) identify and critically assess enablers and barriers
- iv) promote the culture of sharing across various health related disciplines
- v) use the concept of OER to encourage reflection on developing educational processes through sharing experiences
- vi) include a range of stakeholders: students, learning technology roles, ISS, 3rd sector (NGO – Public Health Forum)
- vii) identify and release Public Health Learning Resources for open access
- viii) synthesise, review, and capture emerging themes and open resources through a single access point on the Health Sciences and Practice Subject Centre website
- xii) disseminate findings and share good practices with the HE community
evaluate the underpinning processes and outcomes of the project

1.10 The team clearly identified a range of outputs which included resources to be used by others, materials that would contribute to enhancing the knowledge and understanding of certain aspects of the project and rather more intangible benefits to the wider public health community. All of these will be discussed in the relevant sections of this report.

2. Evaluation

2.1 The project plan required the project manager to produce an interim and final evaluative report of the project, which was designed to be a reflective self-evaluation from the project team's perspective. The role of the external evaluator was to provide support and critical, formative feedback at the interim stage and then to undertake a final evaluation which would examine whether or the aims and objectives had been achieved and give a detailed critique of the whole project according to the evaluation plan laid out at the beginning. .

2.2 The evaluation plan was based upon Daniel Stufflebeam's CIPP model (1967). Originally designed for educational programmes, it has been used extensively for evaluating projects and activities across a wide range of organisations. It is comprehensive and can be adapted, as necessary, to the size of the project concerned. As an evaluation model, it is oriented towards improvement i.e. it will provide information not only about the approach taken in this project and its outcomes but also about the wider Open Educational Resource programme, to guide its further development.

2.3 The model and its use for formative feedback was described in the interim evaluation report and it is not proposed to repeat that here.

2.4 The model focuses on the Context, Input, Process and Product of the project and when used for summative evaluation, the model addresses the following questions:

- Did the project achieve its aims and objectives and what is the evidence to support this?
- Did the project address the objectives of the OER pilot study and the identified needs of the stakeholders?
- Were the design of the project and the budget appropriate and defensible.
- Was the project managed competently and modified as needed?
- Did the project succeed and why (or why not)?

2.5 These questions map to the CIPP model as shown below.

Evaluation Role	Context	Input	Process	Product
Summative evaluation: Retrospective use of CIPP information to evidence the impact, effectiveness	Comparison of goals and objectives to assessed needs, problems, assets and opportunities	Evaluation of the project's design and management in relation to stakeholder's needs and expectations.	Description of the processes and comparison of the planned versus actual processes	Comparison of outcomes (both expected and unexpected) to the original aims and objectives of the project and the wider OER scheme.

and quality of the project.				Interpretation/judgement of results.
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2.6 This summative evaluation will critically look at the aims and objectives of the project, the proposed outputs and project management and make a decision concerning the success (or otherwise) of the project as a whole, highlight those elements where productive lessons were learned and try to identify the lasting benefits of the project as a whole.

3.0 Evaluation of Context

‘Comparison of goals and objectives to assessed needs, problems, assets and opportunities’

3.1 This was probably the most difficult aspect of the project because of the complexity of the public health profession. As already described in paragraph 1.3, public health comprises a range of subject areas and professionals place emphasis according to their own specialism. To this end therefore, assessing the needs of the public health community with respect to open educational resources, the types of assets that might be out there and the problems and opportunities facing the community is difficult. The project team appreciated this from the start and decided to take a research-based approach to provide them with relevant information.

3.2 The two aims set were:

- i. To critically assess the enablers and barriers to releasing learning resources in Public Health for open access in order to develop a conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- ii. To Identify and work towards openly releasing existing Public Health learning resources.’

AIM 1.

3.3 Whilst the first part of this aim is straightforward and was designed to be explored by the research activity, the second part was slightly ambiguous in that it is not clear what is meant by ‘inform OER implementation’. However, for the purpose of this report I have assumed it to mean the release, storage, management and access to OER for, and by, the public health community. The final element ‘thereby enhance the student learning experience’ was probably far beyond the remit of a short pilot project, since the timeframe was too short to achieve the work and be able to evaluate impact on student learning. Having said that, the goal is clearly appropriate and the fact that the team took an evidence-based approach to development, should be highly lauded. In general, education is moving to a ‘research/evidence-informed’ approach and providing such information in regard to OER release for the public health sector was perceived to be an outcome that would be an asset to the project and of value to the public health community.

AIM 2.

3.4 The second aim of the project was the key thrust of the HEA/JISC OER funding call:

“To Identify and work towards openly releasing existing Public Health learning resources”

3.5 Although there is a considerable literature base already established around the release of open educational resources, little if any relates to the discipline of public health. Although not a stated objective of the project, the second workpackage (WP2), which was designed to undertake an online mapping and scoping review of existing openly available resources on the web also involved a review of the literature – a necessary starting point if the team were to create a conceptual framework to inform the future release of OERs in public health. The latter again was perceived by the project team to be an asset to the project and needed by the community. This does not seem to be an unreasonable assumption and indeed, the outcome, if critically executed, might be expected to have the potential to inform the whole OER movement in general. It is not possible at the time of writing to determine if any such effect has occurred.

3.6 This aim was the most challenging of the two. Although it was possible to identify interested parties and potential stakeholders (see paragraph 4.2) through relevant existing public health networks, the wide scope of public health meant that there were many other potential sources of OER which were not identified by this approach. For example, elements of an undergraduate medical microbiology or immunology course might be highly relevant to students studying on a public health course at University. However, those delivering such biosciences programmes would not necessarily have been part of any of the identified networks and therefore unaware of the relevance to public health. Perhaps a concerted action with relevant subject centres such as Biosciences may have helped to elicit a wider response to the call for release of relevant OERs.

3.7 The project concerned the release of materials for ‘the university sector’. Since public health as an undergraduate subject is only just expanding, the demand for OERs in this area is unclear and I have seen no evidence that the project team undertook any scoping of who their potential ‘users’ might be or what their needs were in relation to materials supporting education. This is not a criticism of the team since the timeframe of the call would not allow such preparatory investigation but it does mean that within the context of public health teaching in Higher education, the team had no definitive overview of current practice or needs. Representation of the Universities public health network through Bournemouth was an asset but the strength of this network may not have been great enough at the start of the project to facilitate rapid progress as required by the short timeframe of the project. I have been unable to find any information about this specific network through the internet or indeed any evidence of its intensive involvement in PHORUS (with the exception of the University of Bournemouth) through the project documentation. At the time of writing this report only Bournemouth, Kings College London, Brunel and the Open University had completed memoranda of understanding from the originally identified 14 members of this network.

3.8 A search on the UCAS site using the term ‘public health’, identified 27 institutions offering undergraduate qualifications relating to public health. Of the 84 courses listed, only 5 were specifically called public health, although numerous others were combined programmes such as Business information systems/public health or environmental and public health. The search also identified courses such as ‘english language and health,

biology and nutrition or sport, exercise and health sciences, again demonstrating the huge potential scope for this project.

3.9 A search of the educaedu.co.uk/public-health site suggested that in the UK there are a total of 76 courses offered by universities in public health. Seventy three of these are at postgraduate level (68 masters and 5 other postgraduate qualifications) and only 3 at undergraduate level. Interestingly, only 2 of the 76 courses are identified as being online. In addition, a study of a number of these offerings illustrate the divergence of focus of these programmes.

3.10 It is unlikely that many of those involved in delivering these subjects (either at undergraduate or postgraduate level) were aware of the PHORUS project owing to the fact that there is no direct network to link them. However, it might have been useful for those in charge of WP5 to have sent relevant information to the leaders of these courses in an attempt to expand the potential group of contributors.

3.11 This clearly illustrates that the number of potential users of an OER public health resource is tremendous, representing a huge challenge to the team in identifying key stakeholders who might contribute resources. It also demonstrates the need, recognised by the project team to clearly define what they meant by public health and to delineate the scope of their activities. This is mentioned in the report of WP2 but is not evident in any other documentation to which I have had access. However, this is critical to making a fair evaluation of the project since limitations may be been imposed by the definitions used.

3.12 The objectives of this project were largely focussed on measurable outputs will be discussed in the relevant section of this report (paragraph 6.1 *et seq*). They were appropriate to the aims, largely measurable and fitted with the expectations of the funders.

3.12 Also part of the context, were the expectations of the funders for this project. They expected that a considerable amount of OER would be released. This is discussed in paragraph 6.19. The PHORUS team faced a number of challenges that delayed their release of resources, not least of which was encouraging those originally in support of the bid to sign memoranda of collaboration and to release resources. It would appear that the original enthusiasm may have been from individuals who lacked the positional power to authorise release of materials owned by the institution. This is perhaps a lesson for the funding bodies that where projects depend on institutional agreement, the bid should include letters of signed by those with the appropriate authority.

3.13 The funders also expected that engagement with the project may lead to changes in institutional policy. Again, this appears to be an unrealistic expectation of such short-term projects. An institution is unlikely to make radical changes to policy until it has undertaken a risk assessment and this would not be possible until the project had been successfully established.

3.14 The final expectation of the funders was the development of appropriate business models to ensure the sustainability of the outputs. Again, this is a major challenge, particularly given the changed economic circumstances which have occurred during this

project. Whilst the repository is managed by the Health Science and Practice Subject Centre, the amount of work that was undertaken to prepare resources for reuse and repurposing was enormous and could not be supported by the subject centre alone. I believe they will be able to maintain the current resource but have not seen business plans that will support the continued expansion of the same. Depositing resources in JORUM OPEN also presents problems in that who takes responsibility for updating them or ensuring their quality. This will be a challenge for all the projects.

4.0 Evaluation of Input

'Evaluation of the project's design and management in relation to stakeholder's needs and expectations'.

4.1 The initial project design and its management and co-ordination were laid out in the detailed project plan submitted to the Academy shortly after confirmation of the award. This was developed in consultation with the project team and a number of identified stakeholders. However, this had to be modified (as detailed in the PHORUS progress report in November 2009) as a number of issues impacted on the original plan. These included the work by the Teaching Public Health Networks, which was funded by the Department of Health until 2010 and involved the identification and release of educational resources, and that of the Faculty for Public Health which was funded by the Department of Health and involved developing educational resources. The former offered a potential barrier to PHORUS, since the project team had to release resources that were not already openly available, whilst the latter offered a potential benefit, by working through PHORUS to release the resources.

4.2 The project team originally identified a range of interested parties who they identified as having a stake in the project (S) or an interest (I) and the level being high (H), medium (M) or low (L). The parties identified were:

Designers of PH curricula (I) (H)
Teachers of PH (I) (H)
Professional bodies (S) (M)
Skills for Health (S) (H)
Regional Teaching PH Networks (I) (H)
The Department of Health (S) (L)
Faculty of PH (S) (M)
Royal society of PH (S) (H)
Higher Education Academy (S) (H)
Health and Medicine practitioners (I) (M)
Learning Technologists (I) (H)
Third sector organisations (e.g. the PH Forum) (I) (M)
Universities PH network (S) (H)
NGO forum (I) (M)

4.3 Interestingly, one of the challenges of the project was to encourage practitioners to submit or to reuse open educational resources and yet in their initial scoping of their stakeholders, teachers and those responsible for developing curricula were only identified as interested parties rather than stakeholders. Feedback from those who were approached to

join the consortium indicated that they would have like to have been consulted about the project – i.e. treated as stakeholders rather than interested parties. Perhaps this tendency to treat those most likely to provide resources as interest parties impeded progress in the release of OER relevant to public health.

4.4 Although the Universities Public Health network were identified as high level stakeholders their engagement with the project failed to reach the expected level at the inception largely owing to difficulties over the signing of consortium agreements. There was considerable confusion concerning the status of IPR in relation to the creative commons licence and the consortium agreements and as such, this severely delayed the development of the community of practice which was deemed essential to getting widespread buy-in, not only to the goals and objectives of the PHORUS project, but to the wider OER movement in general. Although the team used JISC resources to support them in this aspect of the project, it would appear that at this time, institutional processes and procedures could not be changed fast enough to allow the team to achieve their goals within their original time frame. However, the management and co-ordination procedures put in place did mean that the project team and steering group could be flexible in their approach and make up for lost time by taking alternative approaches.

5.0. Evaluation of Process

'Description of the processes and comparison of the planned versus actual processes'

5.1. In this section, each of the workpackages will be examined in turn and a description provided of the work undertaken compared with what had been planned– i.e. what was planned versus what actually occurred. Critical evaluation of the outputs will be provided under Section 6.0 Evaluation of Product.

Workpackage 1: Management and Co-ordination

5.2 WP1 Involved all the issues and risks associated with project management and co-ordination including:

- *Appointing project staff*
- *Agreeing membership of the steering group and the organisation, administration and management of its meetings*
- *Obtaining signed consortium agreements from partners*
- *Organising, administering and reporting on project management team meetings; contract development and management with organisations external to the consortium*
- *Preparation and circulation of project reports*
- *Financial control and monitoring.*

5.3 The project did experience some difficulty in relation to the management and co-ordination aspect of the plan. Particularly problematic was obtaining the signed consortium agreements. Although the majority of potential partners had been visited to plan, many of these visits did not result in the receipt of signed documents and more of the project managers time had to be spent on discussions and visits in an effort to obtain the agreements. Given the vital importance of this aspect of the project, good value for money might have been achieved by making this a full time post

5.4 Project and advisory group meetings went to plan. Generally the project team meetings were well attended and addressed critical issues, trying to ensure progress was to plan. The Advisory group meetings appeared to be less successful in that the expectation was that the members would be able to help move the project forward through their spheres of influence and in general (although not exclusively) this did not appear to occur.

5.5 Financial reporting was not always as transparent as it might have been owing to the loss of the finance manager at King's College London at the start of the project. The project manager has been required subsequently to spend some time in ensure accurate reporting of the project's expenditure. Expenditure did not go to plan, largely due to the delay in other aspects of the project but the project team kept this under review and adjusted activity appropriately to ensure timely expenditure and value for money.

5.6 Finally, the development of the website was also delayed. This was originally the work of the Royal Society of Public Health but the additional functionality required of the site as an online repository (as a result of the loss of INTUTE as an option) meant that the in-house expertise was not available and external developers had to be commissioned to complete the work. However, this delay to the full functionality did not interfere in a major way with the overall project aims since the plan required the research elements to be completed in advance of collecting released resources.

Workpackage 2: Online mapping and scoping review

5.7 WP2 involved the following actions:

- *Undertaking an online search to identify current public health learning resources that are openly available to UK HE institutions*
- *Mapping of resources against the UK public health core and defined public health competencies*
- *Recording the extent and type of existing relevant research and openly available resources*
- *Produce an interim report on findings to inform WP3.*

5.8 This element of the PHORUS project was designed to ensure that the project outcomes were research informed and rigorous. The team set out to identify public health resources which were already available through open access and to map these resources against the UK public health core and defined public health competencies. They started by establishing a definition to be used by the project team for 'public health' and 'open educational resources'. These definitions were agreed by the project team and informed subsequent work. Using these definitions they identified search and inclusion/exclusion criteria for the online search. In the original project plan, this work was to have been completed by August 2009 and result in 50 online resources being catalogued through INTUTE. However, delays to the start of the project including the appointment of staff, agreement of final budgets and the demise of INTUTE, meant that this work was put back by 5 months.

5.9 The online search was undertaken and the team had a revised deadline for a report on WP2 by early January 2010. There was a further delay owing to the difficulties encountered in trying to map the resources to the UK public health core and defined public health competencies. Although the team had members who would consider themselves to be public health professionals, as already indicated, the diversity of the subject made this aspect of the project extremely difficult. In discussions with others in the profession, it became obvious that even public health practitioners struggle with the competencies framework. It was considered that such mapping was an important quality aspect of the project, allowing others to reuse resources with confidence. However, the difficulties encountered illustrate an issue that needs to be considered by all subjects where professional bodies define the competencies required for undergraduate, postgraduate and CPD programmes. As a result of discussion, the team agreed that repositories needed to allow detail of a resource's provenance to be included as well as a 'health warning' that if this was missing, 'caveat emptor'!

5.10 A report on this work was produced in February 2010, just slightly behind schedule. Although the target of 50 resources was not reached, (42 were catalogued), many of the resources identified represented collections of public health OERs and so in fact the proposed target was in effect exceeded.

Workpackage 3: Enablers and Barriers to releasing Open Public Health learning resources and the development of the conceptual framework

5.11 WP3 involved the following:

- *Undertaking a Delphi study with academics, librarians and learning technologists across the UK Universities PH Network (15HEIs) to examine enablers & barriers, sustainability, IPR and effective business models/conceptual frameworks*
- *Organising and delivering two consensus building workshops across the UPHN to explore the key themes emerging from the Delphi study*
- *Sharing the findings and interim report from WP2 with all participants of the Delphi study and workshops*
- *Identifying key themes from the Delphi study and feeding this back to all participants to further develop and ensure the rigour of findings*
- *Developing a conceptual framework for OER implementation*

5.12 The Delphi study was designed to include academics, librarians, learning technologists and practitioners from across the UK universities PH network. A specific research proposal was not provided but the aim of the Delphi study was to identify and analyse the enablers and barriers to releasing open educational resources. The original timeframe for this activity was the end of October for identifying the key themes, the end of January for follow-up workshops and the end of February for feedback of themes for the final consensus building activity. These timeframes were all met by the research team who were the partners from the University of Bournemouth. The final element of WP3 was the development of the conceptual framework. This was delayed owing to differing ideas between the partners of exactly what a conceptual framework should entail and also some confusion over who was

leading this element of the work. As this report is being written, the team have completed their conceptual framework.

Workpackage 4: Releasing and enabling access to open resources

5.13 It was expected that this wokpackage would:

- *Identify type of contributors, type of sharing, and type of access - mapping against resource types and current services*
- *Promote services to increase value and encourage originators to consider the benefits of enabling access to open resources*
- *Use existing theories, business models and findings from WP2& 3 with conceptual framework to create bespoke action plans to release resources.*
- *Organise 2 regional meetings and establish online communities to support the release of their resources.*
- *Encourage contributors to build confidence and trust with each other, and understand ownership.*
- *Community of Practice (CoP) Model will be exploited*

5.14 As mentioned previously, this aspect of the project was dependent in some part on the outcomes of WP2 and 3 and so would be affected by any delay to them. It was intended that bespoke action plans would be developed to facilitate the release of resources as a result of the conceptual framework. However, the delay to the production of the latter meant that the team pressed ahead with the development of an appropriate process to support submission of OERs without reference to the conceptual framework. They were somewhat inhibited in their development of the work owing to the change in responsibility for the website, but once this was addressed, the process of submission was developed and the team started collecting resources. Originally the plan had been to deposit the resources within INTUTE, but the loss of this meant that the team had to switch to JORUM OPEN and were dependent upon its readiness. In addition, changes needed to be made to the project website to allow cataloguing of resources, effectively providing a one-stop shop for those who were familiar with the project and the PHORUS website.

5.15 Another aspect of this WP was the development of online communities designed to encourage release of resources. There does not appear to be any evidence to suggest that this has been achieved in any meaningful way or that a substantial, active, community of practice has been established around the project

Workpackage 5: Dissemination and exploitation of project results

5.16 This workpackage was expected to:

- *Create project website pages outlining aims and objectives of project and timetables.*
- *Circulate details to the Health Sciences and Practice networks and RSPH university partner networks to cascade for further circulation*
- *Website hosting - Develop and track navigation links with other relevant websites including university partners, NGOs etc to encourage interest and input into the project. Manage and monitor website traffic and create email address lists from interested potential participants (NB data protection)*

Contact: Margaret Sills, Margaret.sills@kcl.ac.uk

- *Write and circulate regular briefings throughout the life of the project – this baseline information will be contained on the project website and support drafting of articles*
- *Develop marketing plan to support wide dissemination of project and to encourage interest and participation.*
- *Circulate press releases and write articles for agreed media (mainly academic and professional journals) in order to promulgate the project information and findings as widely as possible to inform future open educational resource development*
- *Co-ordinate release and circulation of final report and recommendations to agreed target audiences. Provide executive summary for project website*
- *Organise launch event to engage range of stakeholders in the principles and practice of OER and garner support for PHORUS*
- *Organise / take part in an open event at which the outcomes can be presented.*

5.17 This particular WP also suffered delays in relation to the original plan through its dependence on other aspects of the project. However, in general, it has achieved most of its objectives within the revised timeframe. It was affected by the delay to the website development but although that is now up and running, not all of the project documents are available on the site, making tracking of progress difficult and missing an opportunity to facilitate engagement in project activities.

5.18 Marketing and publicity for the project was generally well handled given the resource allocation and the timeframe. However, it has not been possible to track down a marketing plan (which was due early in the project). The team's original intention was that all project documents would be available from the website. If a marketing plan was produced, it is not available through this medium. In addition, there is no evidence that the articles referred to in this WP have been produced or published.

5.19 The launch event was planned for September and was completed within this timeframe. It was organised at the Royal Society for Public Health in London and attended by 26 people who were practitioners in Public Health, representatives from institutions who were partners in the bid as well as project team members and representatives of the funding bodies. This event also doubled as a means to collect data for stage 1 of the Delphi study.

Workpackage 6: Evaluation

5.20 The principal expectations for this workpackage were:

- *Appoint evaluator*
- *Agree formative and summative evaluation framework with evaluator*
- *Prepare tools for collection of monitoring data*
- *Analyse data*
- *Prepare and submit appropriate evaluation report(s) to inform the preparation of the project report(s)*
- *Identify learning to be applied to future projects*

5.21 There was a delay in appointing the evaluator to the project and subsequent delays over contractual issues. However, the evaluator engaged with the project from first approach in August and so there was reasonable continuity. The evaluation framework was agreed in

September. In the original plan, there was the requirement for the development of data collection tools, which was agreed to be unnecessary since the evaluator was to be part of the project team as a critical friend and would automatically receive all project documentation. However, this did not always happen as seamlessly as it might have done. In addition, the project manager had taken on aspects of the evaluation (as part of the requirement from the HEA/JISC for project reporting) and so requested that the external evaluators' reports should be formative (interim) and summative (final) and be informed by the self-evaluation carried out by the project team as part of the reporting mechanism. For this reason, both the interim and final reports were delayed owing to the delays in the reporting of the project team. With the end of contract for the project manager, the project leader requested that this final report be completed and inform the team's ultimate report to the academy.

6.0 Evaluation of Product

'Comparison of outcomes (both expected and unexpected) to the original aims and objectives of the project and the wider OER scheme. Interpretation/judgement of results'

6.1 This section of the evaluation will look at the outputs from the project, how they related to the original expected outputs, how they support the aims and objectives of the PHORUS project and those of the wider OER scheme.

Workpackage 1 - Management and Coordination

6.2 The outputs from this WP largely met expectations and as might be expected impacted on the progress of the project. They were clearly identified in the document 'PHORUS ProjectPlan_submitted 06 July09.doc'. Most of these were routine administrative outputs (such as job descriptions and the minutes of team and advisory group meetings), others were more challenging.

6.3 Aspects of the project were unfamiliar to many of the partners and presented particular challenges particularly in relation to ownership and rights in respect of educational materials. The lead academics gained the support of a large group of partners which were the Royal Society for Public Health and the Universities Public Health Network (coordinated by Bournemouth University and including: Anglia Ruskin, Bedfordshire, Brunel, Canterbury Christ Church, Cardiff [Wales], Central Lancashire, London South Bank, Manchester Metropolitan, Open University, Robert Gordon [Scotland], Staffordshire, St Andrew's [Scotland] and Ulster Northern Ireland}. There was an assumption that those who belonged to the Universities Public Health Network would be willing to join the consortium and sign up to the release of open educational resources. However, at the bidding stage, only Bournemouth and the Royal Society of Public Health were actually signed up as partners. In the interim project progress report in November 09, in addition to RSPH and Bournemouth the team had received signed memoranda of understanding from the University of Wales Institute, Cardiff, Open University, and the Peoples University. The majority of the others were being held up in institutional legal departments. At the time of writing, Kings college London and Brunel University have also signed MoUs.

6.4 The document PHORUS Progress Report-Nov 09 FINAL.doc reports the challenges that the project team faced in relation to signing up partners to the consortium and organising contracts. They identified a series of issues related to the signing of such agreements including concerns about perceived potential loss of income and competitive advantage for the institution and individuals; the expectation that Universities would freely provide resources; the lack of consultation with, and financial recognition for, those being asked to sign; the diversity of public health pedagogy; the newness of the public health skills and careers framework. However, the team did get a number of institutions to sign up to the consortium and the agreement they used would appear to be a highly valuable and informative document for future OER activity. Interestingly these are not available from the project website and yet perhaps represent one of the most important outputs from this workpackage.

Workpackage 2: Online mapping and scoping review.

6.5 This workpackage again has resulted in a number of outputs that have been highly informative for a number of elements of the project. The WP 2 report produced by Angell,C, Hartwell, H and Hemingway,A (2010) provides a synopsis of literature and its findings relevant to the field of public health and the release of OER. The report illustrates the complexity of public health as a discipline and discusses the merits of the key definitions. The team agreed to adopt the description of the scope of Public Health practice proposed by the United Kingdom Public Health Association (UKPHA, 2009) which:

- *focuses on the health and well being of a society and the most effective means of protecting and improving it*
- *encompasses the science, art and politics of preventing illness and disease and promoting health and well being*
- *addresses the root causes of illness and disease, including the interacting social, environmental, biological and psychological dimensions, as well as the provision of effective health services*
- *addresses inequalities, injustices and denials of human rights, which frequently explain large variations in health locally, nationally and globally*
- *works effectively through partnerships that cut across professional and organisational boundaries, and seeks to eliminate avoidable distinctions*
- *relies upon evidence, judgement and skills and promotes the participation of the populations who are themselves the subject of policy and action*

6.6 It was this that was used by the researchers to identify their search terms for the online mapping exercise. (These terms and the inclusion/exclusion criteria are included in the final report for WP 2 which is available from <http://phorus.health.heacademy.ac.uk/project-research>).

6.7 The WP2 report provides a clear description of the challenges faced by the team. The major criticism of the report is that the methodology underlying the literature survey and the resource identification is incomplete. The original project plan identifies the output from this WP as 'a systematic recording' [of the extent and type of existing relevant research and openly available resources]. The team did not undertake a systematic review of the literature and it is hard to know what was meant by 'systematic recording'. It would have been

improved if information concerning the rationale behind the approach taken had been provided. Using a classic critical review approach, it may have been easier for the team to identify resources that were most likely to be of relevance to the community.

6.8 The resources that were identified were presented at the York workshops, where the public health practitioners who were present stated that the sites they were most likely to use were not listed. This led to a discussion which further highlighted the considerable barriers this project had to face. When using the key search terms used by the research team, none of the sites used by practitioners were identified, demonstrating a key finding of this WP, that of the importance of 'tagging' and using the correct terminology. This does pose the question "Why did the project partners who were practitioners not identify this as an issue when the search criteria were being developed?" I think this represents one of the problems in having a project with discrete workpackages. There is a tendency for those responsible to get on with the work and this may mean that communication and consultation with other project partners does not always occur. There was evidence of this in several aspects of the project, where key team members were not provided with documentation or the opportunity to comment on activities in a timely fashion.

6.9 When asked, the group in York felt that the resources identified by WP 2 might be useful but that they were more likely, through time constraints, to continue using familiar sites. Despite this, the report does include much useful information, builds an effective background to the identification of online resources and provides evidence to underpin WP3.

6.10 There are several interesting aspects to the WP2 report. One is the inclusion of the various models of OER release which relate to how they are funded. This, along with the description of the progress of OER release around the world provides a comprehensive view of the variety of approaches to this activity. Another interesting aspect is the observation that the literature in general demonstrates a greater concentration of effort in identifying the barriers to open release of educational resources rather than the enablers. Even the enablers are controversial. 'Willingness to participate in philanthropic activities' and 'the establishment of communities of practice' might be seen to be enablers but they are not necessarily easy to achieve. A philanthropic individual will need to convince their organisation that commitment to OER release is good business practice and again communities of practice tend to comprise like-minded individuals who may not have the positional power to make decisions that affect their institutional business model.

6.11 It has already been implied in the introduction to this report that this project was highly ambitious given the short time frame, the lack of a widely accepted definition of public health and the preponderance of learning in this field being post-qualifying in a range of disciplines. Thus, whilst university based-learning was at the core of this project, many students studying a public health programme would be in professional communities of practice which might have different approaches to, and sources of, information. The WP2 report might have benefitted on some reasoned judgement about the relative impact of barriers and enablers identified in the general literature to OER release in public health. This would have provided a strong introduction to their research in WP3.

Workpackage 3 – Enablers and barriers to releasing Open Public Health Learning resources and the development of a conceptual framework

6.12 Of all the workpackages in this project, 3 was probably the most unique (compared to other OER projects) and potentially the most important. Not only did it aim to identify those things which support or inhibit the release of open educational resources in public health but also to develop a conceptual framework to inform future release of other OERs.

6.13 The project team have to be congratulated on taking this approach, since the health community is wedded to evidence-informed practice and is therefore more likely to engage with something if the evidence is provided as to how it can be done successfully. Perhaps one output missing from this WP was a research plan and justification for the methodology chosen. The final report for this WP (available at <http://phorus.health.heacademy.ac.uk/project-research>) explains what was done but not why.

6.14 The team chose to use what should be correctly identified as a 'modified Delphi technique'. The original technique emerged in the USA in the 1950s and was developed over the years. In 1975, Linstone and Turoff (Linstone H. & Turoff M. (1975) *The Delphi Method: Techniques and Applications*. Addison-Wesley, Reading, MA.) introduced the Delphi technique to a wider audience. The divergence of interpretation and methodology meant that there is no one way to conduct a Delphi study. Goodman attempted to identify the context in which a Delphi study might be most appropriate:

1. *when the problem under study benefits from subjective statements made on a collective basis;*
2. *when more individuals are involved than can effectively interact in a face-to-face exchange;*
3. *when disagreements are so severe or so politically unpalatable that the communication needs to be mediated by a third party, or anonymity preserved;*
4. *when the researcher wishes to avoid a situation where strong or persuasive personalities dominate the group.'*

Goodman C. (1987) *The Delphi technique: a critique*. *Journal of Advanced Nursing* **12**, 729-734.

6.15 With these criteria it would seem that context number 1 justifies the use of the Delphi study in this case. Such studies were designed to elicit the perceptions and experiences of 'experts' in relation to the subject under study and originally were always undertaken anonymously using questionnaires designed to elicit qualitative data. This would be interpreted by the research team, refined and returned to the participants for further comment and eventually a rating for concordance. Usually a Delphi would involve three or four such iterations and maybe more. In the current project, the team used the launch event to start their data collection by engaging invited 'experts' in discussion about the enablers

and barriers to OER release. The themes which emerged from these discussions informed a structured questionnaire which asked participants to rate their agreement with the statements. Also, a further face-to-face meeting allowed particular themes or issues to be explored further. Finally, the team identified key themes emergent from the data they had collected and asked participants to engage in discussion on the PHORUS website. Whilst this was not a typical Delphi process and there were difficulties in getting engagement with colleagues at each stage of the study, the concordance between participants would suggest that the team can have reasonable confidence in their findings. The final report should have included the limitations of the study to demonstrate their understanding of how their findings might be biased as a result of the process. Despite this, the outcomes were pertinent and generally useful and the team were able to discuss evidence in the general literature about OER release to support their findings.

6.16 Much has been said throughout this report and the whole project about the particular difficulties facing the team because of the nature of public health as a discipline. However, this did not appear to be reflected in the findings of WP3. For the majority, the concerns and issues identified were those already identified in the general OER literature. It might have been particularly interesting if the team had looked at differences between the academic public health community and the practitioner-based community and determine which of the issues were of greatest concern. However, given the challenges of engaging individuals in the research, this was probably beyond the scope of a short-term project such as this.

6.17 WP3 provided important information to inform the conceptual framework (a major output for this project which has recently been completed) and have provided the data for three papers which have been submitted for peer-reviewed publication.

Workpackage 4: Releasing and enabling access to open resources

6.18 This element of the project has suffered the most from the various delays in the project but has still provided some high quality outputs and will continue to do so. Currently it is possible to obtain information about the project from its website, although perhaps not as much as was originally anticipated.

6.19 With the recent completion of the conceptual framework, there has not yet been time to produce the bespoke actions plans for releasing resources. However, much work has been carried out in trying to release resources and owing to the very high quality standards that the team has applied, this has been slower than expected. Many promised resources required converting to appropriate standards as well as obtaining information about specific elements of the resources to ensure IPR clearance. This has meant that the team has had to undertake considerable repurposing of resources before they could be submitted to JORUM OPEN. Currently the website lists 40 resources that are available through this repository as a result of the PHORUS project. This is not as many as originally anticipated but with the recent completion of more MoUs with other universities, it is likely to grow in the final stages of the project.

6.20 An element of this WP was to establish online communities to support the release of their resources. However, it is not clear that this has happened with any great effect or

indeed how the team approached this objective. Interaction on the project website discussion forum has been minimal. With the exception of responses to the Delphi stage 3 statements (each of which did not attract more than 4 external responses) there does not appear to have been any communication between practitioners. This is not unsurprising since practitioners tend to have their own support networks and unless they were highly motivated, would be unlikely to engage in such activity. This reflects more on the highly diverse nature of the public health community than it does on the efforts of the project team. The literature the creation of online communities is extensive and generally agrees that this takes considerable time and motivation. In general, I do not see that there has been strong support for this project within the wider public health community.

Workpackage 5 –Dissemination and exploitation of project results.

6.21 The dissemination approach taken by the team was one of raising awareness and interest from the start of the project. As a result there have been press releases and information booklets created and distributed to a wide range of organisations and individuals. They have clearly met their expected deliverables in relation to the project brand and the website, although up-dates to the latter are perhaps a little slow. The exploitation of results is also in its infancy. Interim reports have been published in hard copy and circulated but further action has not been possible at the time of writing this evaluation.

Workpackage 6 – Evaluation

6.22 To date, the evaluation reports required by the funding bodies have been completed by the project manager but again, it is not clear how these can be accessed since they are not included amongst the project documents on the website. The interim evaluation by the external evaluator was used as a formative document to support the refinement of the final reports on WPs2 and 3 and to guide the further work on releasing OER. This final evaluation will be used to inform the teams report to the funding bodies. A further additional report will be forthcoming relating to a workshop run with the project team to explore the key challenges of the pilot project in general.

7.0 Evaluation Summary

Did the project achieve its aims and objectives ?

7.1 Overall it is fair to say that the project did achieve its aims with the caveat that impacting on the student experience was too adventurous an expectation given the duration of the project. The team certainly mapped a number of online resources. However, the relative value of these to public health educators has yet to be established since the information gathered during the project tended to be from public health practitioners, who felt that they would have neither the time nor motivation to look at these resources rather than those they already use.

7.2 The project team have struggled to meet some of their objectives particularly:

- explore and develop business approaches & determine IPR challenges applicable to enabling the release of resources
- strengthen the Community of Practice to encourage contributions from the Universities Public Health Network

7.3 It is perhaps not surprising that these proved to be the most challenging objectives. Currently the outputs associated with some of them (such as examples of MoU that institutions were willing to sign) are readily accessible and therefore cannot be compared with those of other projects to determine if there are particular challenges represented by public health as a discipline as the project seems to suggest.

Did the project address the objectives of the OER pilot study and the identified needs of the stakeholders?

7.4 A number of stakeholders were identified at the start but their engagement in the project has been patchy. A needs analysis was not undertaken in any formal sense but there was the expectation that the stakeholders on the advisory group would inform the project's trajectory. This did not appear to be particularly successful and perhaps, as discussed earlier, the project needs to more closely identify its target audience and work with them in a more consultative manner.

7.5 As discussed in paragraph 3.1 *et seq.* the project did address the objectives of the OER pilot study but might have been expected to make greater progress particularly in relation to the volume of OER released. The other two objectives, namely

- demonstrate a long term commitment to the release of OER resources via the adoption of appropriate business models to support this.
- modifications to institutional policies and processes, with the aim of making open resources release an expected part of the educational resources creation cycle.'

<http://www.jisc.ac.uk/oer>

seem extremely ambitious for a pilot project given the timescale and the learning curve involved for all participants.

Were the design of the project and the budget appropriate and defensible?

7.6 The design of the project was generally fit for purpose. It allowed the team to meet its aims which were accepted as pertinent by the funding bodies. However, it was devised and developed in a completely different economic climate to that in which it was expected to commence its operation and this had an enormous impact both on the open release of resources by partners and on the way in which the project operated. A relatively short time period was allowed for building the team and signing-up partners to the project. Given the legal and contractual issues that needed to be sorted out before resource release could commence, it would appear that the period for development was rather limited and that these aspects of this project have presented the greatest challenge. The project structure of a core team with identified responsibilities (workpackages) and timeframes for completion was solid, but did mean that on occasions exchange of information between different partners in the team was not as effective as it might have been. Had the project operated to scale and been able to initially sign up as many partners as it had expected, the costings would seem reasonable and defensible, (given that institutions felt that they should receive remuneration for their contribution). However, the project developed an under spend owing to the lack of commitment from other partners but the project team have looked at ways to recommit this money to the benefit of the project.

Was the project managed competently and modified as needed?

7.7 The challenges faced by this project, particularly in relation to the commitment of other partners to providing resources and in engaging enough 'experts' to contribute to the research, has meant that the plan has had to be modified to overcome these obstacles. This was managed by the project team in consultation with the advisory board and did not in any way adversely affect the project progression. In general, the project was managed competently and the need for changes address as soon as issues arose. However, I do not think the team anticipated the lack of engagement, particularly of the other members of the University's Public Health Network, with the project and they might have foreseen the difficulties involved in legal and contractual issues within complex organisations and altered their planning appropriately. It would have been wise to have had a full-time project manager, particularly in the first 6 months of the project, to really drive the contractual obligations forward.

Did the project succeed and why (or why not)?

7.8 Overall I would say that the project did succeed, since it met its aims, produced a number of good quality outputs and has facilitated the release of open educational resources pertinent to the Higher Education public health community. However, the project has been less successful in helping the more longer terms aims of the overall OER 'movement'. I do not see any evidence that it has created a motivated, active community committed to the open release of resources to support learning and teaching in public health. I also do not see any indication that it has resulted in changes to institutional policies or business plans in relation to the open release of educational resource. However, as stated earlier in this report, I believe that these are long term targets that a short pilot study such as this could not engineer by itself. It may have started a dialogue but only further community wide engagement will make this possible.

8.0 Overall Conclusions

8.1 Generally the project has been well managed and the core project team is to be commended on its commitment and dedication. There have been considerable barriers to overcome, most of which have been addressed appropriately and effectively. The project took a research- and quality-informed approach which was perhaps unique amongst the OER pilot projects but was critical for its validity amongst the professionals who would be likely to engage with the resources released. Whilst the volume of resources released has not been as great as the team would have liked, the team have learned valuable lessons in how to prepare resources for open release which hopefully will emerge as a further resource to guide future OER projects.

Professor Lesley-Jane Eales-Reynolds
January, 2010.

APPENDIX 1: PROJECT TEAM DOCUMENTS USED FOR THE INTERIM EVALUATION

The documents below were used as evidence to inform discussions with relevant project team members in advance of writing the interim evaluation.

5 issues identified from feedback from PHORUS lauch.docx
50 word summary.doc
Appendix 3 PHORUS Evaluation Plan.docx
Approaches to quality.doc
Booklet_for PHORUS workshop 2003 version.doc
ChangeManagement_infokit.pdf
Concept framework phorus june 10 final.doc
Evaluation plan.docx
IntuteHLS_Evaluation_Guidelines.doc
Literature Review for comments.doc
November press release.doc
OER_Briefing_Paper.pdf
Opening up education 150 words.doc
PHORUS Activities Outline June-July 2010.doc
PHORUS-OUTLINE PROGRAMME FOR LAUNHC MEETING.docx
Phorus feedback after York event Dec 09.docx
PHORUS January 2010.doc
PHORUS MEETING DEC 7TH NOTES.docx
Phorus project meeting jan 2010.docx
PHORUS Progress Report-Nov 09 FINAL.doc
PHORUS project discussion Sept 21st.docx
Phorus project evaluation plan v1.docx
PHORUS Project Team Meeting Action Points Summary.doc
PHORUS workshops programme.pdf
PHORUS_ProjectPlan_submitted_06July09.doc
PHORUS_Work_Package_2_to_print.doc
PHORUS_WP2 Final.doc
PHORUS_WP3 INTERIM FINAL.DOC
PHORUS_WP3 Final.doc
Programme for PHORUS workshop 2003 version.doc
Project Team minutes meeting 5_oct09.doc
Project Team minutes meeting 7_jan10.doc
QUESTIONS FOR WORKSHOPS FINAL1LJR.docx
Research report for 17 Feb meeting.doc
Surfing the net for public health resources AH HH.doc
Synthesis framework subjects.doc
The emergence of PH OER.doc

----- End of PHORUS Evaluation Final Report

Appendix-F: List of resources deposited to JorumOpen

<http://phorus.health.heacademy.ac.uk/accessing-resources-0>

1. **Global Perspectives in Public health and Health Promotion:**
By **Sebastian Garman (Brunel University)** (Deposited Date: 2010-04-13)
9 Powerpoint slide sequences based on MSc lectures from a global prespectives module that, adoting a social science perspective, explores the trends, issues and context of global public Health and Health Promotion.
2. **Hungry in hospital, healthy in Prison:**
By **Heather J. Hartwell; John S. A. Edwards** (Deposited Date: 2010-01-21)
This Power Point presentation gives a comparative study of the foodservice that is offered in hospitals and the foodservice offered in the prison system.
3. **Patient Voices Programme:**
By **Tony Sumner (Pilgrim Projects Limited); Pip Hardy (Pilgrim Projects Limited)** (2010-01-21)
Collection of digital stories about health and social care
4. **Patient Experience and Satisfaction with Hospital Food Service:**
By **Heather Hartwell; John S. A. Edwards; Cathy Symonds** (2010-01-31)
Outlining patient experience and satisfaction with hospital foodservice.
5. **Smoking in pregnancy:**
By **Catherine Angell (Bournemouth University)** (2010-04-07)
A power point presentation file that looks into smoking in pregnancy
6. **Post-natal contraception:**
By **Catherine Angell (Bournemouth University)** (2010-04-07)
A power point presentation lecture and activities looking into the midwives role in contraception.
7. **Ethics and Midwifery Research:**
Catherine Angell (Bournemouth University) (2010-04-07)
A power point presentation lecture and activities looking into research ethics for midwives in the UK.
8. **Inequities In Health: A Global Perspective:**
Dr Ann Hemingway (Bournemouth University) (2010-04-13)
A power point presentation lecture looking at Inequities in health from a global perspective.
9. **Inequities In Health and Well Being; The Evidence Base for Children Centres:**
Dr Ann Hemingway (Bournemouth University) (2010-04-13)
A power point presentation lecture looking at Inequities: The Evidence Base for Children Centres.
10. **The Historical Origins of Public Health:**
Dr Ann Hemingway (Bournemouth University) (2010-04-13)
A presentation giving the Historical origins of Public Health from the definition of public health through to the different perspectives that various civilisations have had over the years.
11. **Health promotion, health education and HIV/AIDS:**
Dr Margaret Sills (2010-02-09)
This article will focus on the role that health promotion can play in preventing the transmission of HIV.
12. **Sports soft tissue injury:**
Mark Harmsworth (2010-02-26)

A presentation given to highlight types of injuries that can happen to soft tissue and the underlying factors that can lead into other related incidents.

13. [Lost in Translation: Reflecting on a Model to Reduce Translation and Interpretation Bias:](#)
Professor Edwin van Teijlingen; Kirkpatrick, P. (2010-01-25)
This paper reflects on the language and translation challenges faced and interventions used whilst undertaking cross-cultural public health research in Nepal using translators.
14. [Homely Remedy Protocols: A solution to the supply and administration of non-prescription medicinal products and dietary supplements:](#)
Jane Hunt, Bournemouth University; Kerrie Gemmill, Bournemouth University (2010-01-25)
This paper thus describes a suitable alternative to Patient Group Directions, for use in research participants requiring non-prescription medicinal products in their own homes, the Homely Remedy Protocol.
15. [Guidance to Attachment Agencies:](#)
Angela Scriven (Brunel University) (2010-02-09)
Handbook for agencies offering attachments to Masters students.
16. [Marginal Analysis and Programme Budgeting](#)
Peter Brambleby; Andrew Jackson; Kathryn Knight (2010-04-25)
This module explores the definitions, tools and practical application of Programme budgeting and marginal analysis (PBMA).
17. [Sustainable Healthcare](#)
Muir Gray (2010-04-25)
This module challenges you to come up with ways to think more about climate change and the action your organisation can take to reduce its carbon footprint, whilst improving healthcare.
18. [A virtual practice community for student learning and staff development in health and social work inter-professional education; changing practice through collaboration:](#)
Janet Scammell; Maggie Hutchings (2010-05-05)
This resource is the final report for the a Health Sciences and Practice mini project: A virtual practice community for student learning and staff development in health and social work inter-professional education; changing practice through collaboration.
19. [Health and lifestyle of Nepalese migrants in the UK:](#)
Pratik Adhikary; Amalraj E Raja; Padam P Simkhada; Edwin R van Teijlingen (2010-05-05)
The health status and lifestyle of migrants is often poorer than that of the general population of their host countries. The Nepalese represent a relatively small, but growing, immigrant community in the UK, about whom very little is known in term of public health. Therefore, our study examined the health and lifestyle of Nepalese migrants in the UK.
20. [HealthKnowledge Public Health Textbook - Disease causation and the diagnostic process:](#)
Hannah Pheasant; Maria Kirwan; Murad Ruf; Oliver Morgan; Sally Cartwright; Rebecca Nunn; Paul Wilkinson; Sarah Anderson; Gayatri Manikkavasagan; Viv Speller (2010-05-18)
'Disease causation and the diagnostic process in relation to public health; prevention and health promotion' is part of the 'Public Health Textbook' which can be accessed as an online resource.
21. [HealthKnowledge Public Health Textbook - Medical Sociology, Social Policy, and Health Economics:](#)
Iain Crinson; Rebecca Steinbach; David Parkin (2010-05-18)
'Medical Sociology, Social Policy, and Health Economics' is part of the 'Public Health Textbook' which can be accessed as an online resource. It covers part of the public health skills and competencies and has been organised in relation to the Faculty of Public Health

Part A membership examination syllabus.

22. **HealthKnowledge Public Health Textbook - Health Information:**
Meic Goodyear; Neeraj Malhotra (2010-05-18)
'Health Information' is part of the 'Public Health Textbook' which can be accessed as an online resource. It covers part of the public health skills and competencies and has been organised in relation to the Faculty of Public Health Part A membership examination syllabus.
23. **HealthKnowledge Public Health Textbook - Research Methods:**
Helen Barratt; Maria Kirwan; Michael Campbell; Rosalind Blackwood; Renu Bindra; Iain Crinson; Miranda Leontowitsch (2010-05-18)
'Research methods appropriate to public health practice, including epidemiology, statistical methods and other methods of enquiry including qualitative research methods', and is part of the 'Public Health Textbook' which can be accessed as an online resource. It covers some of the public health skills and competencies and has been organised in relation to the Faculty of Public Health Part A membership examination syllabus.
24. **HealthKnowledge Public Health Textbook - Organisation and Management:**
Katie Enock; Sally Markwell; Mike Deacon; Martin Hensher (2010-05-18)
'Organisation and Management of Health Care and Health Care Programmes from a Public Health Perspective' is part of the 'Public Health Textbook' which can be accessed as an online resource. It covers part of the public health skills and competencies and has been organised in relation to the Faculty of Public Health Part A membership examination syllabus.
25. **Screening:**
Angela Raffle (2010-04-25)
This comprehensive yet succinct module on screening will help the experienced practitioner to expand their teaching methods, and it will get the novice up to speed on the evaluation and delivery of screening.
26. **Finding and Appraising the Evidence:**
Amanda Burls; Anne Brice (2010-04-25)
The ability to find and appraise published research is fundamental in our ability to provide effective and efficient healthcare. These modules take you through the process of how to find the evidence and then understand how to assess the validity and reliability of the research found.
27. **"That's how we do it...we treat them all the same": an exploration of the experiences of patients, lay carers and health and social care staff of the care received by older people with dementia in acute hospital settings:**
Fiona Cowdell (Bournemouth University) (2010-05-26)
This study aimed to explore the experiences of patients, lay carers and health and social care staff of care received by older people with dementia in the acute hospital setting.
28. **Change Management:**
Martyn Laycock (2010-06-10)
This module introduces you to managing change by providing tools that will support putting the change into context, planning changes using change models, implementing changes and effective communication with an understanding of the environment and then monitoring and managing the process.
29. **Leadership and Management:**
Jeremy Francis and Martyn Laycock (2010-06-10)
Through this module participants will have a better understanding of themselves and their impacts on others. They will understand the similarities and differences between management and leadership, as well as different models/styles and principles of leadership, the strengths and weaknesses of each, when they should be used and their potential use in improving population health and wellbeing.

30. **Collaborative Working:**
Sally Markwell and Viv Speller (2010-06-10)
Participants will learn to understand the principles and methods of partnership working and the benefits which collaboration can bring.
31. **Antiretroviral treatment programmes in Nepal: Problems and barriers:**
Padam Simkhada; Wasti, S. P; Professor Edwin van Teijlingen (2010-01-25)
The main aim of this study is to identify barriers and obstacles to providing and expanding ARV programmes in Nepal.
32. **Review of Barriers to Engaging Black and Minority Ethnic Groups in Physical Activity in the United Kingdom:**
Sejlo A. Koshoedo (Corresponding Author); Padam Simkhada; Edwin R. van Teijlingen (2010-01-25)
The article looks at the lower physical activity levels in Black and Minority Ethnic (BME) groups as compared with general population in the United Kingdom (UK) could relate to barriers to engaging these groups in physical activity.
33. **Issues and Challenges of HIV/AIDS Prevention and Treatment Programme in Nepal:**
Prof Edwin van Teijlingen; Sharada Prasad Wasti (Corresponding Author); Padam Simkhada; Julian Randall (2010-05-05)
This paper explores some of the key issues and challenges of government HIV/AIDS prevention and treatment programme in Nepal.
34. **Dissertation Handbook 2008-9:**
Angela Scriven (Brunel University) (2010-02-09)
A detailed guide to producing a dissertation in health promotion/public health for the 2008/9.
35. **Improving Health: Public Health - Getting back to basics:**
Rhian Last (Education for Health) (2010-04-19)
This presentation explores some of the theories and tools which can be applied in order to set up an effective public health improvement initiative. Notes have been included to assist the facilitator with presentation.
36. **Handbook Principles Perspectives and Practice in Health Promotion:**
Angela Scriven (Brunel University) (2010-02-09)
Module Handbook for a core health promotion module.
37. **Guidelines for Writing at Masters Degree Level:**
Ursula Wingate (King's College London) (2010-04-21)
This document gives general guidelines for writing at a Masters Degree Level for students that are studying within the health sciences. It gives a breakdown of how to write various papers at masters level with the correct structure and styling.
38. **Toolkit: 'How to Make Your Case for Education & Training':**
Rhian Last (Education for Health) (2010-04-19)
This is a unique business case toolkit around Improving Health offering nurses a simple, effective way to produce business cases to successfully secure funds for their continuing professional development.
39. **A planning guide: health inequalities and the voluntary and community sector:**
Mr Blessing Chiwera (Author); Karen Bollan (Editor); Royal Society for Public Health (2010-04-13)
A guide to the issues and advice on how to address health inequalities.
40. **Public Health Masters Course Handbook 2010-2011:**
Susan Sapsed (University of Bedfordshire) (2010-03-02)
A course handbook for the Masters in Public health at the University of Bedfordshire.



Appendix-G: Details of Resources Submission

Details of fields required for the submission of Resources for the PHORUS project including detail for IPR and link for the Creative Commons Licensing

Things that need to be thought of before submitting a resource:

1. Resource details:

- I. **Resource Title ***
- II. **Resource URL:** Optional
- III. **Resource Description ***
- IV. **Resource Type:** * e.g. case studies, discussion triggers, podcasts and videos of lectures or interviews
- V. **Resource Disciplines:** * e.g. mental health nursing
- VI. **Resource Keywords:** * e.g. words that help classification of the resource
- VII. **Subject Areas:** * e.g. nursing

2. Public Health categorisation: Optional

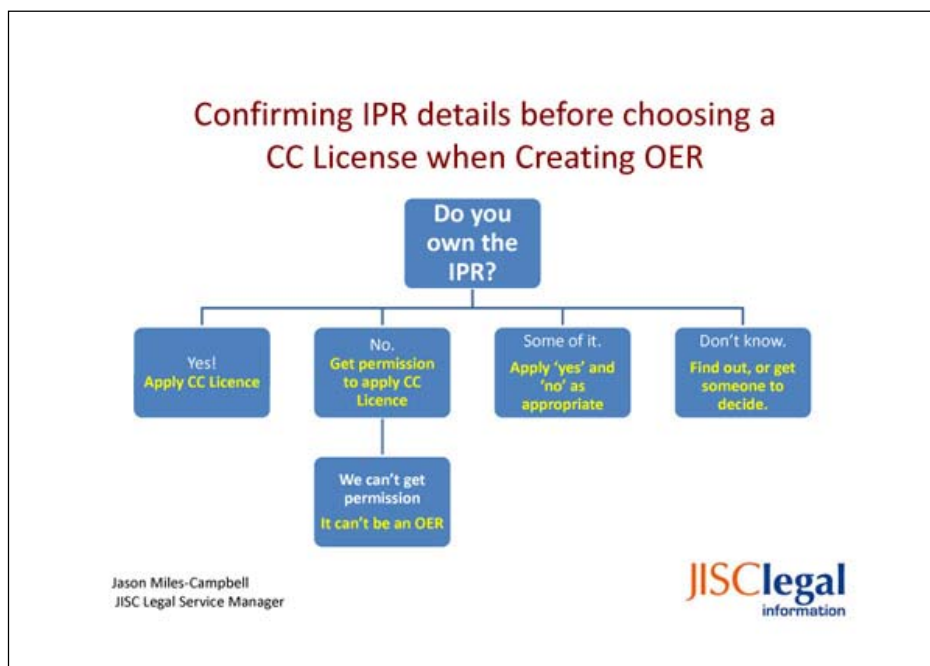
- VIII. **Public Health core areas of practice (Public Health Skills and Career framework)**
- IX. **Public Health non-core (defined) areas of work (Public Health Skills and Career framework)**
- X. **Level of Competence and Knowledge levels (4-9)**

3. Author/Organisation details

- XI. **Author Details**
- XII. **Organisation Detail:** * Please state the organisation that the Author made the resources available to students.
- XIII. **Organisation Resource used in:** state the organisation detail that the resource was used in if different from above.

4. IPR and Copyright Issues

- XIV. **IPR Details:** * Please also state all the details of IPR (intellectual property rights) that are associated with this resource.
When selecting an appropriate copyright for your resource, you can use this short and sure way provided by JISC Legal Information:



XV. **Copyright Detail:** * Please give us any details that you feel we need to know about the copyright of the suggested learning and teaching resource.

XVI. **Choose a Creative Commons Licence:** * To find out which Creative Commons License is best for your work: <http://creativecommons.org/choose/>

5. Published Year/ last updated

XVII. **Year Published:** * Please state the year the resource was first published/created.

XVIII. **First Year used:** Please also state the first time the resource was used for teaching.

XIX. **Last Updated:** Please state the date when the resource was last updated.

6. Additional Information

XX. **ISBN/ISSN if applicable**

XXI. **Resource Size:** Size of the resource in Kilobytes/Megabytes

XXII. **Additional Resource Information:** Application to make use of the resource e.g. PDF reader, web browser

7. Your detail

XXIII. **Your Name** Only the details of the Author will be made available alongside the details of the resource.

XXIV. **Your Email Address:** Only the details of the Author will be made available alongside the details of the resource.

Appendix-H: PHORUS Resource Checking Procedure

This resource checking will be processed prior to depositing it to the JorumOpen. This is to check if the resource has already been available online and can be found through search engines, repositories or web portals.

Please note that this procedure was developed as an iterative process and was put in place after cataloguing around 20 resources. All resources submitted to the JorumOpen after the first 20 have been catalogued through the procedure described below.

The following search engines, repositories and web portals will be used:

1. Search engines:
 - **Google** (www.google.com) An internet search technologies corporation that processes over one billion search requests every day.
 - **Bing** (www.bing.com) current web search engine from Microsoft. Since July 2009, Bing powers Yahoo! Search
 - **Yahoo** (<http://uk.yahoo.com/>)
2. OER/ Open Access Repositories:
 - **JorumOpen** (<http://open.jorum.ac.uk/xmlui>) search and share free learning and teaching resources available to all which have been deposited by UK HE and FE Institutions. All resources within JorumOpen are available under a Creative Commons License.
 - **OER Commons** (<http://www.oercommons.org>) organises materials by subject, type of resource, media type etc.
 - **DiscoverEd** (<http://discovered.creativecommons.org/search/>) an experimental project from Creative Commons which attempts to provide scalable search and discovery for educational resources on the web.
 - **Connexions** (<http://cnx.org/>) Rice University's online repository and collaboration portal for OER.
 - **Directory of Open Access Repositories** (<http://www.opendoar.org>)
3. Health/ Public Health Web Portals/Databases:
 - **Intute** (<http://www.intute.ac.uk/>) a free Web service aimed at those studying and working in higher education that provides access to online resources, via a large database of resources which have been reviewed by an academic specialist in the subject
 - **Health Information Resources** (<http://www.library.nhs.uk>)
 - **Evidence in Health and Social Care** (<http://www.evidence.nhs.uk>) NHS Evidence provides free access to clinical and non-clinical information - local, regional, national and international. Information includes evidence, guidance and Government policy

Please note that we emphasise on the first section and results from section 2-3 will be used as a supplementary evidence.

Search Terms

A combination of different search terms will be used as follow to form search criteria:

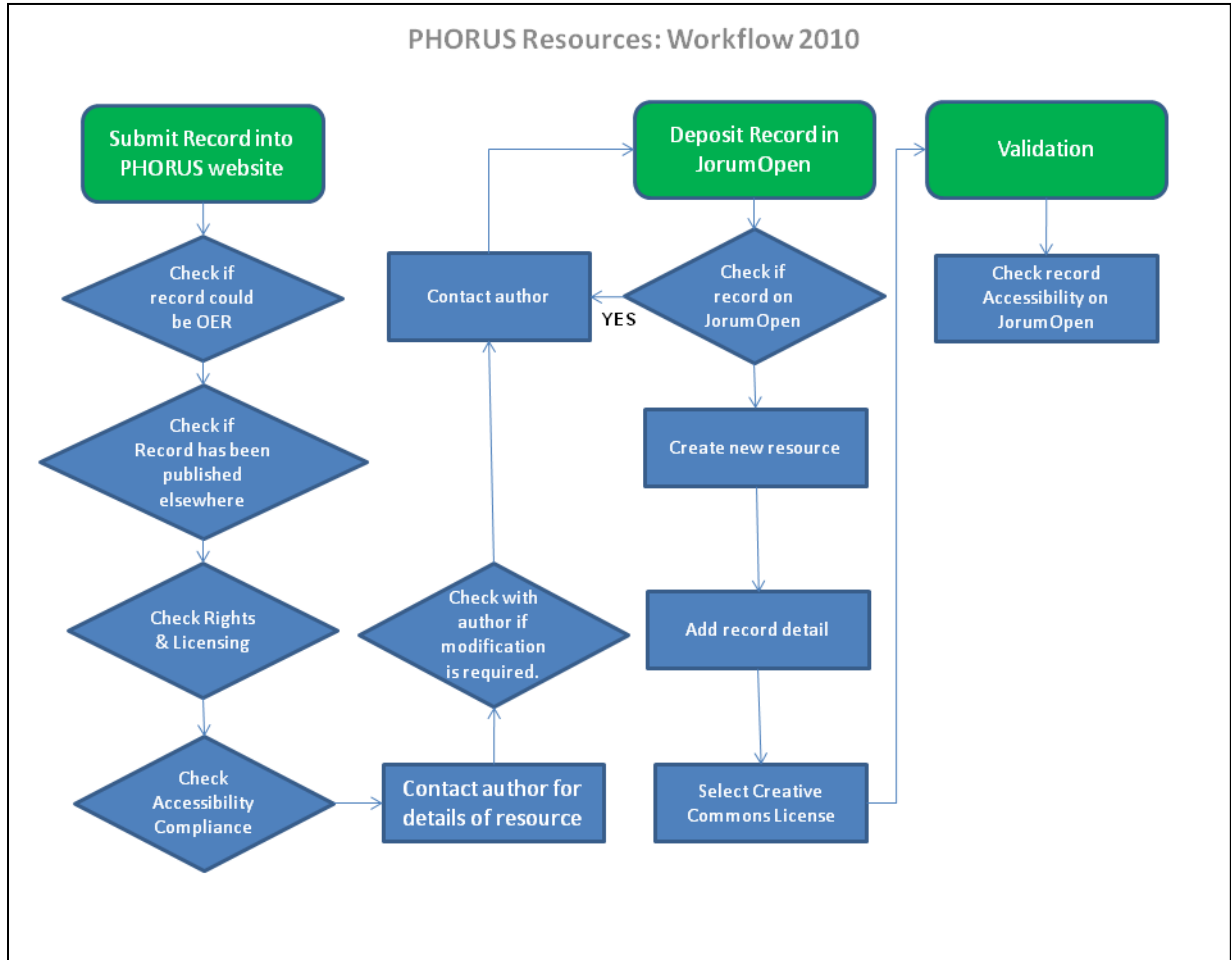
1. Title of the resource
2. Title of the resource and the Author name
3. Keywords that are associated with the resource

The results appeared on the first two pages will be considered. The conditions/search terms will be adjusted to suit the suggested resource, if required.

When performing search, each step will be logged by date-time and specific findings, if resource is made publicly available, will also be noted.

Appendix-I: PHORUS Resources Workflow

<http://phorus.health.heacademy.ac.uk/sites/phorus/files/documents/1151/PHORUSworkflow2010v050710.png>



Appendix-J: PRESS RELEASE - September 29, 2009

Developing open educational resources in public health

This month sees the launch of a new public health initiative designed to make the sharing of learning and teaching resources a reality.

Known as PHORUS, this is one of thirty projects across the UK in a programme designed to test the practical considerations and benefits of providing open educational resources (OER) in Higher Education.

Public health is a diverse discipline which has been taught at undergraduate level only since 2001. There is a wide variety of provision, with a range of different outcomes and student experiences. This project aims to release a selected set of open educational resources for use in Higher Education. It will evaluate both their quality and the practical requirements that will make it possible to bring these resources to a wider audience.

PHORUS Project Director Dr Margaret Sills comments: "Together with a group of participating institutions we are working to promote the release of open educational resources in public health, and undertake research into the enablers and barriers to this process. It is a very exciting area with enormous potential to make consistent and high quality public health resources available to a world-wide audience."

Intellectual property rights are one of the issues that will be explored, and a number of workshops are scheduled to discuss a range of related topics. Input is welcome through the project website from any relevant discipline (<http://phorus.health.heacademy.ac.uk>). If you would like to get involved in the project, contact Rosie Cannon at phorus-info@kcl.ac.uk.

Notes to editors

Project PHORUS is part of an initiative to release open educational resources focused on public health in the Higher Education sector. Funded by HEFCE and supported by JISC and the Higher Education Academy, PHORUS is led by the Health Sciences and Practice Subject Centre working with the Royal Society for Public Health, Bournemouth University and other institutions.

For more information contact Rosie Cannon on 020 3177 1621 or email phorus-info@kcl.ac.uk

Health Sciences and Practice Subject Centre, PHORUS Project
c/o Royal Society for Public Health 3rd Floor Market Towers 1 Nine Elms Lane London SW8 5NQ.



NEWS

Ban smoking in cars

A call from Professor Terence Stephenson, the new president of the Royal College of Paediatrics and Child Health, to make smoking in cars with children illegal, comes at the same time as the New South Wales (NSW) Government in Australia brings in the same law. If a child or passenger is under the age of 16, police have the power to give out a \$250 on-the-spot fine. "The NSW Government is absolutely committed to protecting children from the harmful effects of tobacco smoke and decreasing their exposure to tobacco products," says Jodi McKay, Minister Assisting the Minister for Health (Cancer).



"While other jurisdictions have some of these reforms in place, no other state or territory has the strong and responsible legislative package NSW has introduced." The legislation came into force in July; other states will no doubt be following the effectiveness of the ban while considering if this could also work in the UK and elsewhere.

For more information: www.health.nsw.gov.au

Fatalism rife among youth

One in seven US adolescents believe that they will die before the age of 35, say researchers from the University of Minnesota Medical School: and this is likely to lead to them engaging in risky behaviours, including drug use, suicide attempts or fighting. Notably, these teens were significantly more likely to be diagnosed with HIV/AIDS just six years later, regardless of sexual preference. "While conventional wisdom says that teens engage in risky behaviours because they feel invulnerable to harm, this study suggests that in some cases, teens may take risks because they overestimate their vulnerability, specifically their risk of dying," comments Iris Borowsky, a member of the research team. "These youths may take risks because they feel hopeless and figure that not much is at stake."

There was a significant difference in the views of youth based on race/ethnicity, with only 10% of Caucasian youths having a fatalistic view compared to 29% of American-Indian teens and 26% of African Americans. Those youths from families receiving public assistance were also more likely to believe that they would die before the age of 35. "This unusually common pessimistic view of the future is a powerful marker for high-risk status and deserves attention," she adds.

Source: *Pediatrics* (2009), 124:e81-88.

Open Resources for Public Health

Public Health is a diverse discipline which has been taught at undergraduate level only since 2001 and there is a wide variety of provision, with quite different outcomes and student experiences. With this in mind, a new project – Public Health Open Resources for the University Sector (PHORUS) –

has been launched with the aim of releasing a range of open educational resources for use in the Higher Education sector. The project will also evaluate the quality of resources and the practical requirements which will ensure successful roll-out.

PHORUS is funded by the JISC Open Educational Resources Programme and is led by the Health Sciences and Practice Subject Centre working with the Royal Society for Public Health, Bournemouth University and other partners.

It is one of thirty projects across the UK in an initiative designed to test practical considerations and benefits of providing open educational resources (OER) in Higher Education. Intellectual property rights are one of the issues that will be explored, and a number of workshops are scheduled to investigate this topic and others. The key requirement for the PHORUS project is to identify a range of resources which can be made available across various health related disciplines. These are currently being sought from a range of University partners, but approaches are welcome through the project website from any relevant discipline.

For more information: <http://phorus.health.heacademy.ac.uk>



PUBLIC HEALTH OPEN RESOURCES IN THE UNIVERSITY SECTOR

Jargon Buster

OER : Open Educational Resources

Open educational resources are defined as teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge. (Definition used by the William and Flora Hewlett Foundation)

There is a growing impetus in higher education to enable resources for and about learning and teaching to be openly and freely available for anyone to use and re-purpose anywhere in the world. If available, there are different levels of access to resources and some will have restrictions, however fewer rather than more restrictions are now widely considered appropriate.

By offering good quality resources freely others can be attracted to study or work at the institution where there is evidence of such excellent resources, thus recruitment and income will be protected.

PHORUS: Public Health Open Resources for the University Sector

JISC (The Joint Information Systems Committee) is funding substantial projects that aim to release eole resources for free availability over the coming year.

The Health Sciences and Practice Subject Centre is leading the PHORUS project in collaboration with the Royal Society of Public Health and their Universities Public Health Network that is coordinated by Bournemouth University.

The aims of this project are:

- To critically assess the enablers and barriers to releasing key resources in Public Health for open access in order to drive conceptual framework to inform OER implementation and thereby enhance the student learning experience.
- Identify and work towards openly releasing existing Public Health learning resources.

Should you have resources (however large or small) related to aspect of Public Health that you would like to consider offering openly then please contact kwennure.jamson@kcl.ac.uk or margaretsills@kcl.ac.uk for further information.

OOER: Organising Open Educational Resource

The Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine has also been successful in their bid for OER project funding from JISC.

The proposal seeks to unlock existing teaching and learning resources for the benefit of medical, dental and veterinary teaching establishments in Higher Education in the UK, and beyond, by working with higher education institutions (HEIs) to build capacity in sharing open educational resources. The long term goal is to enable HEIs to routinely upload OER to national repositories as the default, rather than the exception (if they choose to do so) based on a solid understanding of the limitations and the benefits of OER.

The strength of this project is in the partnership with HEIs from across the UK, plus Professional and Statutory Body and other stakeholder support, whose collective expertise has the potential to deliver this vision.

Objectives and Outputs

- Establish a sustainable collaboration around OERs involving UK HEIs, Professional and Statutory Bodies, subject associations and other stakeholders and building on existing collaborations and good practice.
- Adopt Intellectual Property Rights (IPR) policies/approaches developed elsewhere, and further develop policies necessary to support medical, dental and veterinary education (for uptake by HEIs) as a suite of Toolkit.
- Investigate the processes necessary for different HEIs to upload OER at different stages of readiness.
- Deliver a substantial number (c.360 credits) of OER in medicine, dental and veterinary medicine, and post graduate education, and staff development.
- Promote and evaluate 'resource discovery' by staff and students, with limits of project constraints.
- Evaluate impact on existing collaborations, inform funding bodies and existing services of any necessary changes to their policies and practice in response to medical, dental and veterinary OER.
- Document and disseminate project to position partner and other HEIs to pursue future OER strategies.

For further information please contact suzanne.hardy@kcl.ac.uk

18 - HEALTH SCIENCES AND PRACTICE NEWS

eLearning in Health Conference: Post-conference update



Images left to right: Professor David Dewhurst (University of Edinburgh) chats to a delegate; Sir Alan Langlands, Chief Executive of the Higher Education Funding Council for England; Delegates at the conference

About 120 delegates from Higher Education Institutions, the NHS, and health related organisations came to participate at this event in July.

eLearning in Health is a two-day conference organized by The Higher Education Academy Learning and Teaching in Health Network Group (HEALTH Network Group), the University of Warwick, and King's College London, on 16-17 July 2009 at the Scorman Training and Conference Centre, University of Warwick, Coventry. The conference focused on the development, implementation and use of eLearning in health across the UK and themes covered new approaches to content development, repositories and metadata, resource discovery, content sharing, assessment, innovative tools and technologies to support learning. Keynote speakers gave an overview of the current state of eLearning in the HE and NHS sectors, and a policy overview was given by Sir Alan Langlands, Chief Executive of the Higher Education Funding Council for England.

Most delegates rated the overall event as excellent and achieved what they expected, e.g. to explore new technologies and their use in education, generate ideas for development, increase awareness of eLearning issues, to network, share and exchange experiences. In their feedback, the top five words used by delegates to describe the conference were: 'Informative, enjoyable, interesting, stimulating, and worthwhile'.

Thanks to all for participating in this event. We are now planning for the next conference in early 2011. This time we will have the NHS joining us as part of the organizers. So, please visit the conference website regularly for further announcements <http://www.elearningpractice.org>

PHORUS Discussion at King's College London



PHORUS is one of 30 Open Educational Resource (OER) Projects funded 2009-2010 to release open educational resources in the Higher Education sector. The consortium of universities across the UK is led by Health Sciences and Practice Subject Centre (HSP). The project team is now in place, including the researcher who is based at Bournemouth University.

Educational resources in Public Health are now being identified to be released in early 2010. The official project launch will be on 21 September 2009, and updates on the project will appear regularly on the website <http://phorus.health.heacademy.ac.uk>



HEALTH SCIENCES AND PRACTICE NEWS - 5

Appendix-K: List of events to disseminate the PHORUS Project

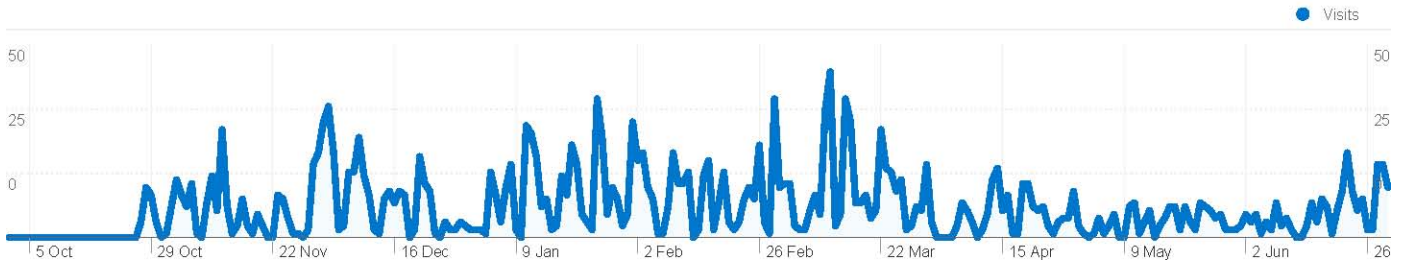
Conferences/ Workshops/ Meetings:	July '09	Sep '09	Oct '09	Nov '09	Mar '10	Jun '10	July '10	Sep '10	Oct '10	Venue	URL
1. UKPHA Annual Forum*					24-25					Bournemouth	http://www.ukpha.org.uk/annual-public-health-forum.aspx
2. H E Academy conference						22-23				Hertfordshire	http://www.heacademy.ac.uk/events/conference
3. OER Seminar/ Debate at KCL							7			London	
4. OER Seminar/ Debate at University of Wales Institute Cardiff								TBC		Cardiff	
5. Joint OER Dissemination									26		
6. PHORUS Lunch Meeting at KCL		3								London	
7. European Universities Association Quality Forum				19-21						Denmark	http://www.eua.be/events/eqaf-copenhagen/home/
8. e-Learning in Health Conference	16-17									Warwick	http://www.elearningpractice.org/conference/
9. HSAP Public Health Special Interest Group Meeting						25				Manchester	http://www.health.heacademy.ac.uk/news-events/eventsbox/events2010/phsig25062010
10. European Universities Association Conference			8-10							Germany	http://www.eua.be/events/autumn-conference-2009/home/
11. Net 2009		8-10								Cambridge	
12. The Future of Learning										Ashridge	
13. iPED		14								Coventry	
14. Health Promoting Universities			7-9							Spain	http://www.health.heacademy.ac.uk/news-events/eventsbox/2009/healthprom081009
15. e-learning Special Interest Group					5						http://www.health.heacademy.ac.uk/sig/e-learning
16. Festival of Learning					30-31					Edinburgh	http://www.health.heacademy.ac.uk/scevents/fof
17. American Public Health Association*				7-11						Philadelphia	http://www.apha.org/meetings/
18. Open Learning Conference (Project Berlin)				25						Nottingham	http://unow.nottingham.ac.uk/olc.aspx
19. Open Learning Conference		22-25								Cambridge	http://www2.open.ac.uk/r06/conference/

* RSPH taking stand at conference

Appendix-L: PHORUS Web Analysis (Oct 2009 – Jun 2010)

Dashboard 1 Oct 2009 - 30 Jun 2010

Comparing to: Site



Site Usage



2,154 Visits

41.50% Bounce Rate



10,518 Pageviews

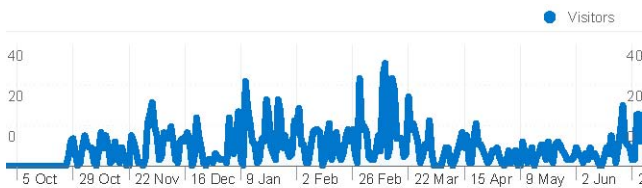
00:04:58 Avg. Time on Site



4.88 Pages/Visit

49.54% % New Visits

Visitors Overview



Visitors
1,077

Map Overlay



Traffic Sources Overview



Direct Traffic
1,058.00 (49.12%)
Search Engines
684.00 (31.75%)
Referring Sites
335.00 (19.13%)

Content Overview

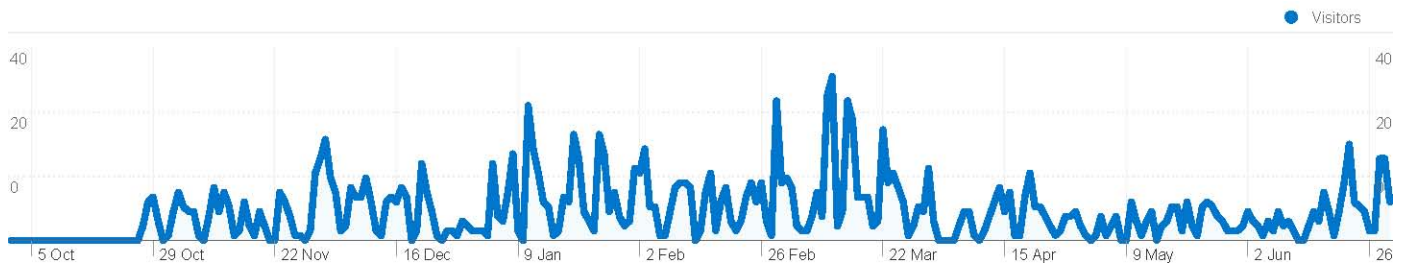
Pages	Pageviews	% Pageviews
/	3,035	28.86%
/ 3,035	28.86%	/documents 616 5.86%
/documents	616	5.86%
551 5.24%	/project-research 501 4.76%	/contributing-resources
/accessing-resources	551	5.24%
427 4.06%	/project-research	501 4.76%
/contributing-resources	427	4.06%

Appendix-L: PHORUS Web Analysis October 2009 – June 2010

Project Acronym:
Version:
Contact:
Date:

1 Oct 2009 - 30 Jun 2010

Visitors Overview Comparing to: Site



1,077 people visited this site



2,154 Visits 1,077 Absolute



Unique Visitors 10,518



Pageviews
4.88 Average Pageviews



00:04:58 Time on Site



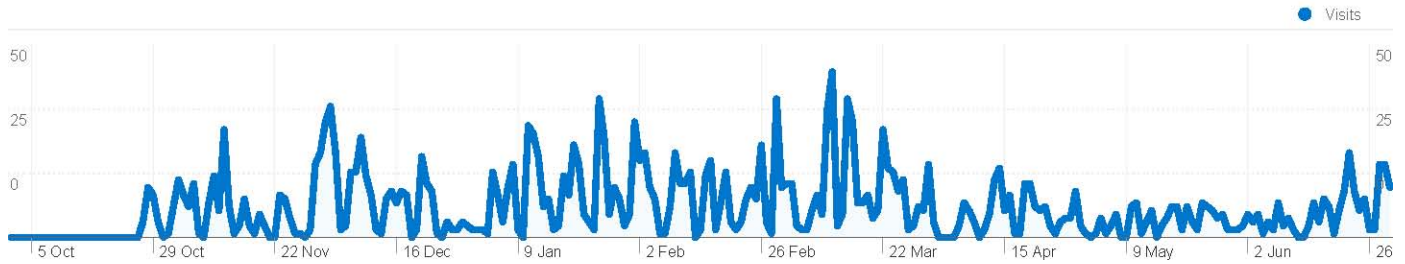
41.50% Bounce Rate



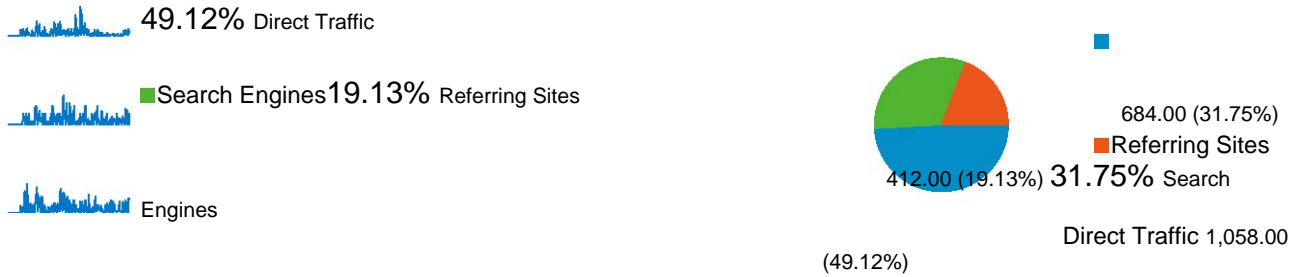
49.54% New Visits

Technical Profile

Browser	Visits	% visits	Connection Speed	Visits	% visits
Internet Explorer	986	45.78%	T1	1,020	47.35%
Firefox	907	42.11%	Unknown	618	28.69%
Safari	126	5.85%	DSL	376	17.46%
Chrome	71	3.30%	Cable	107	4.97%
Opera	42	1.95%	Dialup	31	1.44%



All traffic sources sent a total of 2,154 visits



Top Traffic Sources

Sources	Visits	% visits	Keywords	Visits	% visits
(direct) ((none))	1,058	49.12%	phorus	461	67.40%
google (organic)	635	29.48%	delphi research	87	12.72%
heacademy.ac.uk (referral)	103	4.78%	healthy in prison & phorus	15	2.19%
rsph.org.uk (referral)	74	3.44%	phorus project	10	1.46%
health.heacademy.ac.uk	68	3.16%	phorus public health	6	0.88%

Map Overlay Comparing to: Site



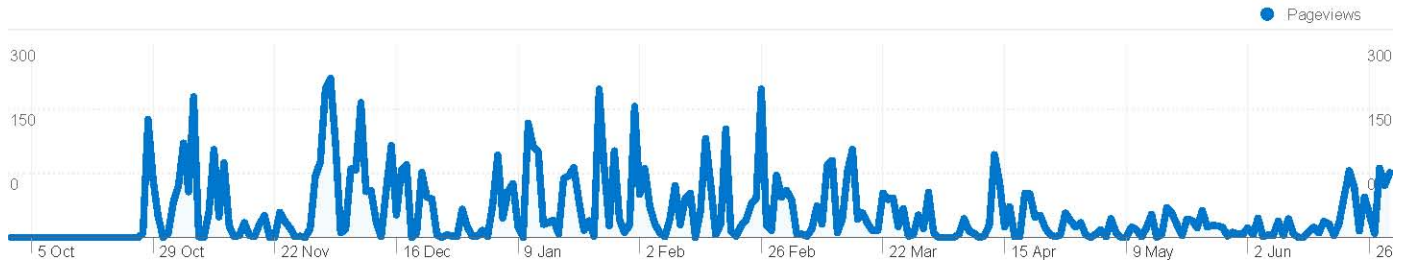
2,154 visits came from 53 countries/territories

Site Usage

Country/Territory	Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
	2,154	4.88	00:04:58	49.54%	41.50%
	<small>% of Site Total:</small>	<small>Site Avg:</small>	<small>Site Avg:</small>	<small>Site Avg:</small>	<small>Site Avg:</small>
	<small>Country/Territory</small>	<small>4.88 (0.00%)</small>	<small>00:04:58 (Pages/Visit)</small>	<small>49.54% (Avg. Time on Site)</small>	<small>41.50% (Bounce Rate)</small>
United Kingdom	1,896	5.19	00:05:22	43.99%	39.29%
United States	53	2.00	00:00:59	90.57%	62.26%
India	20	2.45	00:02:09	100.00%	45.00%
France	15	1.47	00:00:05	93.33%	93.33%
Canada	12	4.00	00:03:44	91.67%	58.33%
Belgium	10	2.60	00:01:12	80.00%	80.00%
Netherlands	10	3.30	00:01:03	90.00%	50.00%
Romania	8	1.38	00:00:19	87.50%	75.00%
Australia	8	1.50	00:00:57	100.00%	62.50%
Ireland	8	1.75	00:00:46	87.50%	62.50%

Project Acronym:
Version:
Contact:
Date:

Content Overview Comparing to: Site 1 Oct 2009 - 30 Jun 2010



Pages on this site were viewed a total of 10,518 times



10,518 Pageviews



6,534 Unique Views



41.52% Bounce Rate

Top Content

Pages	Pageviews	% Pageviews
/	3,035	28.86%
/documents	616	5.86%
/accessing-resources	551	5.24%
/project-research	501	4.76%
/contributing-resources	427	4.06%



PUBLIC HEALTH OPEN RESOURCES IN THE UNIVERSITY SECTOR

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