JISC

OVAL – Opening Veterinary Access to Literature
JISC Final Report

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Lead Institution	The Royal Veterinary College, University of London
Project Manager	Nick Short
Project Officer	Bara Stanikova
Contact email	nshort@rvc.ac.uk
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1   Acknowledgements

2   Executive Summary

Veterinary students and graduates have become increasingly confident in using web based resources to supplement or replace traditional approaches to learning. Whilst the convenience of e-learning has obvious attractions, there are also concerns with the academic quality of online information and how to locate reliable sources. The OVAL project has helped to address these quality assurance issues by adapting expert reviewed articles and datasheets provided by commercial partners and integrating these in to the widely used WikiVet veterinary educational portal.

The OVAL project was particularly innovative in the way it built new and mutually beneficial partnerships with commercial publishers. Currently, the cost of many veterinary publications limit their use especially by students. However, with the significant market changes associated with e-publishing, there is now a good business case for making some of these resources available as Open Educational Resources (OER). The rationale behind this approach was that users are more likely to click through and purchase a text if they have had the opportunity to sample section(s) of it online first.

The project trialled a number of different approaches to promote repurposed OER content to ensure the widest possible exposure. All content was hosted on the WikiVet site with multiple cross links and subject tagging. Once the content had been expert reviewed, some of the main data sheets were translated into French and Spanish and uploaded into the relevant language versions of WikiVet. The factsheets were then recorded as podcasts which were streamed through iTunes. Regular Twitter and Facebook feeds were provided as well as links from associated sections of Wikipedia.

In summary, the project has succeeded in repurposing commercial veterinary texts to create one of the largest veterinary OER sites on the web. It has developed new means of publicising or promoting OERs to ensure the widest possible audience. Finally, it has succeeded in identifying significant new business models for academia to collaborate with commercial publishers on OER development.

3   Project Outputs and Outcomes

Output / Outcome Type	Brief Description and URLs (where applicable)
Advisory group meeting minutes	Summary of points discussed at bimonthly project meetings (minutes shared via WikiVet OVAL Page/the project website)
Project blog	Regular updates of the OVAL project were publicised on the project blog at http://ovalproject.blogspot.com/
Digitisation and repurposing protocols	Documented methodology for repurposing and digitising existing resources and shared on web site.
Refine OOER toolkit by the MEDEV subject centre	The toolkit developed in the OOER (Organising Open Educational Resources) JISC project has been adapted for veterinary use.
Document review flowchart	The expert review process and standard protocols were documented and shared on web site.
Adaption of commercial texts to OER flashcards	Over 300 flashcards adapted from Manson Publishing texts and published as OERs on WikiVet. Full inventory at : http://en.wikivet.net/OVAL
Adaption of commercial compendium content to OER factsheets.	Selection of over 100 comprehensive disease data sheets from the CABI Compendium adapted for use as content pages on WikiVet. Full inventory at : http://en.wikivet.net/OVAL
Final event	Final event in December 2011 to present project findings, outcomes and map out next stages of project. Adobe Connect recording at http://goo.gl/hXoc2

Dissemination materials	Regular updates through promotion on the WikiVet front page and through the monthly newsletter. Postings in Spanish and French through partner sites: http://es.wikivet.net/ and http://fr.wikivet.net/
	
	Promotion through weekly Facebook and Twitter postings:
	
	   http://www.facebook.com/WikiVet
	   https://twitter.com/wikivet
	
	   Also available through iTunes as trilingual podcasts

Document business models	Identifying key lessons learnt and models of good practice for collaboration between universities and publishers.

4   Project Aims and Objectives

The project set out to repurpose at least 100 disease fact sheets (1,000 words each) provided by CABI. Ultimately 102 disease datasheets were published as open resources on this site. Each datasheet was supplemented with a set of flashcards. The datasheets were expert reviewed and some of them were also translated into French (52) and Spanish (13). A set of recorded podcasts were produced from the reviewed pages in English (55), French (10) and Spanish (2) and published through RSS feeds on iTunes. Finally, an edited sub-set of the datasheets was added to Wikipedia for 89 key disease topics which previously were cursorily or inaccurately described.

Manson Publishing[1] provided a total of 17 textbooks containing self-assessment questions which were repurposed to create between 20-25 flashcard questions for each book. Each question had a link to a factsheet or information page on WikiVet which provided more detailed feedback on the subject matter.

As well as making available a range of veterinary OERs, the project also explored different ways of using Web 2.0 technologies to promote these to a wide audience. This included using Twitter, Facebook, iTunes, Wikipedia, Jorum, translations and e-newsletters. This provided valuable research on the most effective means to raise awareness of OER content.

Finally the project set out to explore innovative new business models for commercial publishers to work with OERs. This challenge proved surprisingly rewarding with clear benefits being identified by both the publishers as well as the project. As a result, these models have served to inform a successful OER 3 bid entitled PublishOER which also involved Elsevier.

5   Project Methodology

5.1   Management

The OVAM project established a Steering Group at the outset which included representatives from the two veterinary schools, two publishers, the HEA subject centre and the JISC. Whilst the veterinary schools were already quite familiar with collaborating, this was an innovative step for commercial publishers. Steering Group meetings proved to be rewarding events with a sharing of ideas and innovative solutions. In particular it demonstrated how much academia had to learn from the publishing world and *vice versa*. Project management involved a regular weekly meeting of the project team. This took place using a Skype link to authors based in France or Spain as well as off campus in the UK. All project meetings were documented through a shared Google Doc.

As well as employing a Project Officer, the project recruited five recent graduates on a temporary basis to assist with adapting content. These graduates were already familiar with using WikiVet and had expressed an interest in helping with the project after graduating. One graduate spoke fluent French and another Spanish which was invaluable in translating the resources.

5.2   CABI Datasheets

Project planning involved an initial appraisal of existing content on the WikiVet site[2] and this was compared with resources that could be provided by the publishers. For animal disease datasheets, the process also needed to take into account whether the topics were of sufficient importance to justify work involved in converting them. It was decided that CABI[3] would select the datasheets from their Animal Health and Production Compendium according to the World Organisation for Animal Health OIE list of key diseases[4].

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[1] http://www.mansonpublishing.com/
[2] www.wikivet.net
[3] www.cabi.org
[4] http://www.oie.int/

Traing was provided for graduate team members on how to edit a WikiVet page, the general layout of the pages and how to write a concise wiki article. Once they completed repurposing a page, the team member flagged it for follow up using a WikiVet category system for the Project Officer to review. In addition they then added links to other relevant pages, provided full references to the source article and linked it in to the search on WikiVet.

Each disease fact sheet was supplemented with a set of flashcard type questions drawn from the text. These questions were provided on a separate WikiVet page so that they could be linked to via a separate flashcard category system. They contained links to the source article and the relevant section within where appropriate.

In order to quality assure the repurposed datasheets, subject expert reviewers were recruited to check existing content and, more importantly, to provide updates on any recent developments. The reviewers were recruited from the RVC and from elsewhere in the UK as well as Brazil, Egypt, Denmark, Germany and the USA. Once articles had been expert reviewed, they were tagged for attention of the Project Officer who carried out a final check before making the page public. The content was promoted through the WikiVet homepage, WikiVet Facebook and Twitter accounts, as well as on the project blog.

5.2.1   Translations

In order to address an international audience, some CABI content was translated into both French and Spanish. WikiVet already contained a Spanish site[5] and an additional French site[6] was established for this OVAL project. Whilst it was accepted that traffic to these translated OER's would be limited, it was felt that these new format would provide a valuable contribution to understanding how to internationalise content for the widest possible audience.

Only articles that had been reviewed by an expert were selected to be translated into French and Spanish. A number of different methods were employed for the translation process. Google Translate was used for simpler pages with less professional terminology for an initial translation followed by a professional review and edit of the output. With more complex texts the best approach was to translate the content directly. The articles were then uploaded as Adobe Acrobat® files directly to the relevant section of the Spanish or French WikiVet site.

5.2.2   Podcasts

An additional approach to promoting repurposed content was the creation of multilingual podcast recordings of key pages. Research at the RVC had already indicated that students liked to learn using podcasts[7] and it was felt that this might provide a convenient media for disease fact sheets too.

The podcasts were recorded using an Apple Macbook® and GarageBand® with a unidirectional microphone. English, French and Spanish presenters were selected and given some basic guidance on technique. The completed podcasts were uploaded in m4a format onto the Bloomsbury Media Cloud portal based on open source Media Core platform[8]. This enabled RSS feeds to be created which could feed through to a dedicated WikiVet site on iTunes. This system worked well and proved an efficient way of publishing content.

5.2.3   Wikipedia links

When developing content for WikiVet it became clear that the related topics on Wikipedia were either absent or limited in scope. In many cases this was because Wikipedia placed most emphasis on

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[5] http://es.wikivet.net

[6] http://fr.wikivet.net

[7] Cox, B., Macharia, R., **Short, N.**, and Whittlestone, K. (2008) Podcasts and Resources - Podcasting for Learning in Universities. Open University Press

[8] http://mediacore.com/

human conditions and neglected veterinary topics. It was therefore agreed to update the content of Wikipedia to provide a basic and accurate coverage of key diseases. A link was inserted at the bottom of each Wikipedia page to the related content on WikiVet. External links within the actual article were avoided as this was sometimes removed by Wikipedia editors.

5.2.4   Expert review

Expert reviewers were appointed by the project in order to quality assure fact sheets. These individuals were either nominated by CABI as past authors or selected from known experts in the field. Clear guidelines were provided on review methodology. Reviewers were paid a small incentive for their time and they were acknowledged on the relevant WikiVet pages they had overseen.

5.3   Manson Publishing

Manson Publishing is a small publishing house that specialises in illustrated text books for medicine, veterinary medicine, earth science, plant science, agriculture, and microbiology. They were interested in adapting some of their flash card content into a web format which could then integrate with WikiVet content and also help raise awareness of their more comprehensive collection which was available to purchase.

It was agreed with Manson to use their self-assessment colour review books which comprised a series of flash cards. A total of 17 books were selected and the publisher agreed to make available 10 % of the content of each book. A list of books used is at http://en.wikivet.net/OVAL

In order to select the most appropriate questions for WikiVet, the project members used the following criteria:

- The question does not give away the answer
- The question is relevant to a global audience
- The image is of a high quality and is integral to the question
- The answer is sufficiently succinct and in a format that is easily readable
- There are only 1 or 2 images as part of the question
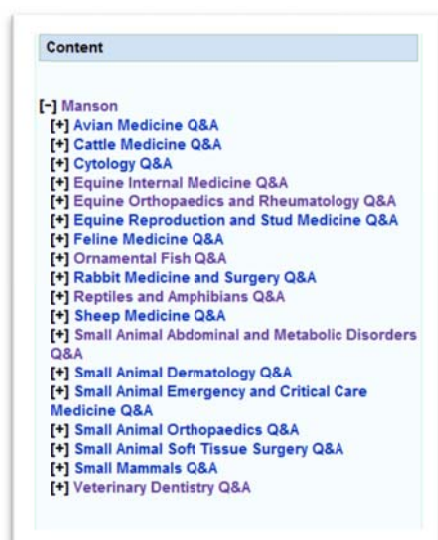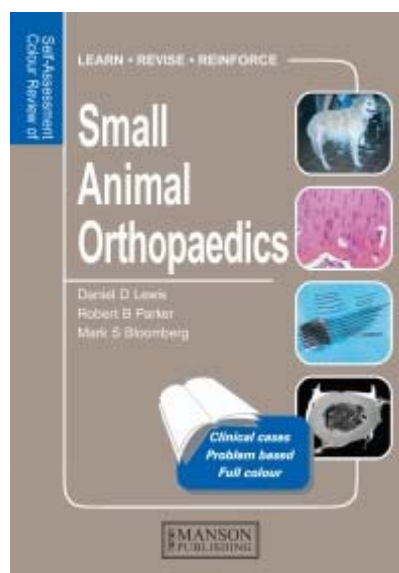
The workflow required to adapt digital versions of the text books into web based flashcards was quite complex. It was necessary to identify questions and related images from large compilations of content – often quite poorly indexed. A standard media wiki template was then populated with the questions and responses taken from the book and relevant images were inserted. Each card was tagged with categories so links could be dynamically created to card sets based on system, species or condition. Each card had a direct link to a full fact sheet on WikiVet with more information. Limited peer review was carried out as the original texts were expert authored.

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A number of versions of the flashcard format were tested. The final format proved popular as it was not dependent on Adobe Flash® and so worked on most devices, was quick to load and allowed for sound pedagogical approaches. User feedback consistently identified the value of being able to access additional information on topics that students are not familiar with. In addition, some users discovered the flash cards by browsing through WikiVet pages and finding links to assessment cards at the end of the wiki page.

As a reciprocal agreement with Manson Publishing, a small link was placed on each flashcard to the relevant page on their website where the user could purchase the book should they wish to do so (see image below). It was not possible to obtain detailed stats on the referral rate of users with this link. However, the publisher was pleased to receive additional publicity for their brand as much as to sell individual copies of a book.


Example of a flashcard showing publisher branding, image, question/answer and link to full article.

6   Lessons Learnt

The core aim of the project was to establish new collaborative models for Higher Education Institutions to collaborate with commercial publishers in developing OERs. This was an ambitious challenge given the fact that open resources would seem to threaten traditional business practices. The project therefore was fully prepared that some of the proposed work packages might experience problems and that the lessons learnt from these could be as valuable as those from more successful activities. The following sections attempt to document some of the results of this exploratory research and demonstrate how this might have relevance to other projects working with publishers.

6.1   Repurposing commercial content as OERs

The project team had prior experience of repurposing content from exiting academic OERs to a format suitable for publishing on WikiVet. This was always a complex and time consuming process involving the steps illustrated in the diagram below. However in less than 5 years the WikiVet project has generated over 4,000 pages of OER content (text and images) and hundreds of embedded OER learning objects. The reason this process has been so successful was partly due to the assistance of students and recent graduates to carry out Steps 2, 3 and 4.
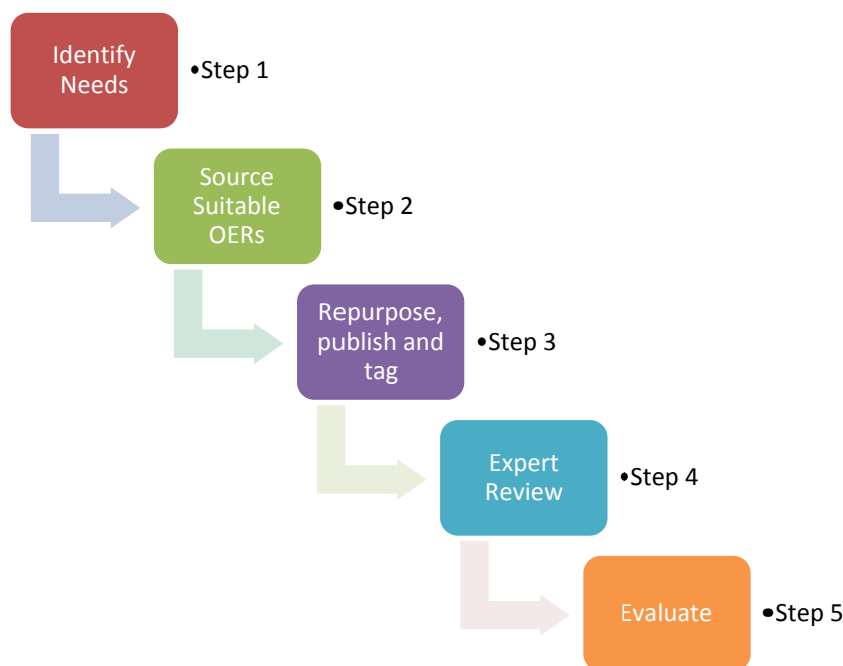
In the OVAL project, it was decided at the outset to adopt a similar workflow with the distinction that Step 2 would derive source material from publishers rather than academia. Whilst this process is generally common for the development of OERs, the distinction in this project was that all the content was derived from commercial content. This had many implications for the workflow which is described below.
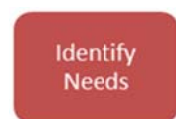
Generally OER requirements are based on an audit of existing resources and identification of areas that needs supplementation. With the WikiVet project to date this has been relatively straightforward as development has followed a discipline, system or species basis. Within the OVAL project, this

process was more complex as we were aware that the publishers were only able to offer content for certain topics. For example CABI's main focus is on international livestock diseases whilst Manson Publishing have more of a clinical focus though they also cover exotics and fish diseases.

A pragmatic approach was therefore adopted where content on offer from the publishers was compared on an item by item basis with existing material on WikiVet to avoid duplication. This proved to be a time consuming process where the publishers did not have good content management systems and so the work had to be done by comparing spread sheets.

Overall, the process worked well and the commercial content successfully integrated with existing WikiVet resources. In some cases the use of non-mainstream material (for example exotic diseases) had the unforeseen advantage of drawing new audiences to the site and raising the site's profile on Google in a specialist subject area.

Source Suitable OERs

Whilst the concept of open publishing was generally understood in the academic sector, we found that publishers had limited knowledge of OERs. This required discussion about what kind of resources were "suitable" to share as OERs,and considered such issues as ownership, copying and repurposing, attribution and commercialisation. This debate actually proved rewarding for both the publishers and academics, it became clear there was much common ground between the two sectors. This common interest proved invaluable in developing a working relationship around identifying suitable OERs. A clear understanding at the outset about what each party wanted to gain from sharing this material also proved invaluable.

A key component of this step was digital rights management including copyright clearance and consent. To some extent this process was facilitated by the fact that the publishers had already cleared the content for use in their own resources and they also owned the copyright on all the images and text. However, there was discussion as to whether this meant we could transfer these rights to use the same content in a new environment. Both publishers were happy for this to take place especially as the content was being updated. In some cases we had concerns about images that identified an animal and where no record of owner consent could be found.

Repurpose, publish and tag

Working with two different publishers required a versatile approach to content repurposing. In both cases the challenge was to adapt existing material as efficiently as possible and in a way that it effectively integrated and complemented existing content in WikiVet. This process involved some technical adaptions – for example where content was supplied in print format and had to be converted into a computer readable (RGB) format. Also in many cases content was poorly laid out and spaced requiring considerable work in editing before publishing. Once a system was in place, publishing onto WikiVet was relatively straightforward. The site already had a sophisticated set of categories or meta tags which worked equally well for these new OERs.

The content provided by CABI was largely drawn from their existing animal disease compendium. In some cases it had not been updated for some time and did not reflect the current disease situation. Publishing the content on an open source wiki might mean that in future it would be easier to review and update by the project or visitors to the site. Repurposing therefore involved scrutinising the content for any obvious inaccuracies, editing down text which appeared unnecessary (eg extensive details on disease distribution) and then adding the content to individual WikiVet pages. These were tagged to create a dynamic link to tables of content or category lists.

Manson flashcards required a different approach. Repurposing was complicated by the need to synchronise a large collection of images in different formats with text in a QuarkXPress® format suitable for paper publishing. Also the issues of consent and image copyright proved more of a concern for clinical images and we had to refer to work done under the OOER project. The adaption of the content to a format suitable to be published on the wiki was also quite time consuming and complex.

On reflection, it was important to consider the cost effectiveness of adapting these commercial resources for use as OERs as compared to the time/cost required to generate them from scratch. Was the approach adopted scalable and would this be the most cost effective use of funding? In fact the general consensus of project partners was that the quality of content that was released and its long term access to a large audience was fully justified and should be continued after JISC funding ceases.

Expert Review

Expert review is a problematic area for OERs. We hoped that working with publishers and having some financial incentive might encourage a more enthusiastic involvement of the relevant reviewers. As the project had a relatively short time span, the project staff actively looked for reviewers from the outset.

With the CABI datasheets, it was possible to go back to the original expert authors of the content and ask them to review what they had written previously. These individuals were based all over the world and we relied on emails to pass pre published scripts back and forwards. In general this worked well but there were a few academics, often the most enthusiastic, who never got around to completing the work. Delays in getting reviewed work returned often affected the work flow and disrupted staff commitments.

A different approach was taken when reviewing the Manson flashcards. In this case most of the content was recent and appeared up to date. We reviewed several older textbooks but there were no major errors. Therefore, a decision was taken to accept the rest of the questions without review as this would have been an even more complex task than for the data sheets. However, this raised the wider question on how we approached quality assuring OER content and in particular clinical content where inaccuracies could have serious consequences.

Evaluate

Evaluation of the OER content developed with the OVAL project has been one aspect that we feel needs more attention. The first part of the project was spent on the first 4 Steps of the workflow. Once the content was in place, reviewed and ready to be used by students, time was running out and our key users were on summer vacation. Nevertheless we succeeded in getting some valuable feedback from focus groups as well as a survey of over 15,000 WikiVet users.

Focus groups at Nottingham and the RVC highlighted how positive the students were about flash cards with a clinical focus. Students seemed to have different ways of using the cards with some working through them as a revision resource whilst others used them to help reinforce their learning about a particular topic. The CABI datasheets were appreciated by the students – they particularly liked the ability to search WikiVet and immediately find a reliable, well presented, referenced and intelligible article.

Further evaluation of the resources is planned when students have had longer to explore and use them in their own time. We are also able to analyse the site metrics on number of users of each resource. However, a lesson learnt here is that we need to explore more ways of deriving student (and academic) feedback and using this in an iterative manner to inform future OER development. The findings of this research will be presented in a short paper to ALT C 2012[9].

6.2   Use of social media to promote OERs

The OVAL project also identified the need to find new ways of promoting OERs to a wide audience. This was partly to justify the effort and expense in publishing these resources but also fitted well with the publishers' desire to market their brand through the distribution of OERs. The project therefore adopted a research based approach to a number of different promotional strategies with a view to identifying good practice.

6.2.1   ITunes

Creating podcast recordings which were syndicated through an RSS feed into Apple iTunes® required some technical support but worked well. The concept of repurposing OERs in multiple formats including podcasts is relatively novel. Our experience was that to record and publish a short podcast required no more than 1 hour of project staff time. The format was kept to about 5 minutes per recording to make it a brief but informative broadcast. However the problem with this format is that it is difficult to edit or update a podcast without making a completely new recording. An evaluation of visits to these podcasts suggests that their impact on the number of visitors was limited.
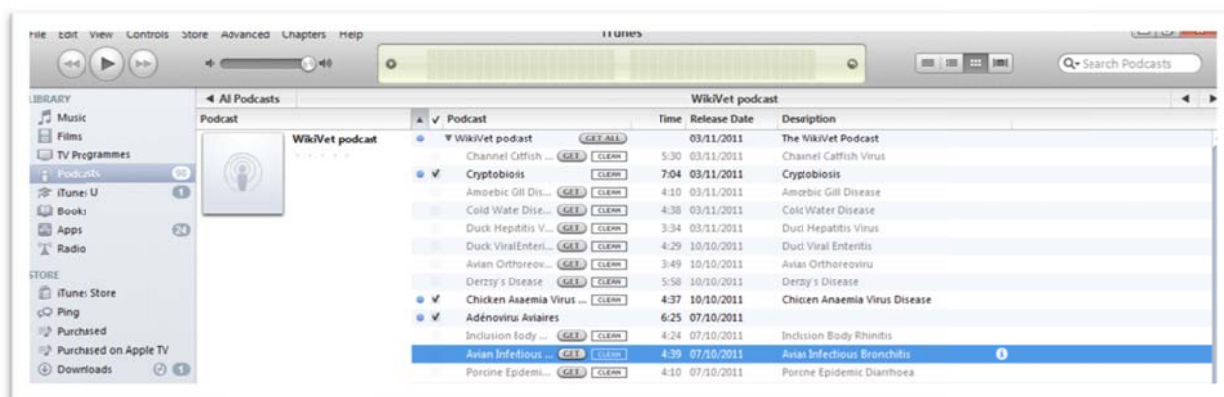
Screenshot of WikiVet podcasts in iTunes

6.2.2   Translations

The project steering group spent some time discussing the merits of translating some of the content into other languages. It was decided that it would be valuable to work with the data sheets which have an international relevance including in parts of the world (South and Central America, West Africa) where English is not the lingua franca of many vets. Some of the datasheets translated into French and Spanish were also recorded as podcasts.

Lessons learnt from this part of the project were that translation adds another level of complexity and resource requirement. In the OVAL project we succeeded in developing a system for effectively translating content but this was hard to scale up. As a result only a few podcasts were actually recorded although the wiki pages are being used. In hindsight, it would be more valuable to have worked on the foreign language versions as a separate project.

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[9] http://www.alt.ac.uk/altc2012

Screenshot of a Spanish version of a CABI datasheet with a link to a Spanish podcast

6.2.3 JORUM

Links to all the key resources developed by the OVAL project have been added to JORUM. To date we've had no feedback on how effective this has been at promoting additional visits to the content.

Screenshot of JORUM listing of OVAL podcast recordings

6.2.4 Wikipedia

The decision to add content to Wikipedia as well as WikiVet also involved some consideration. The intention was to encourage visitors to Wikipedia who wanted more information on a veterinary topic to follow the link to the relevant WikiVet page. However there was the risk that this might actually prove counterproductive with visitors opting to stick with the enhanced content on the bigger site. We also wanted to avoid any conflict with authors on Wikipedia who might feel we were using their site as a publicity platform for WikiVet. We did experience some concern initially from Wikipedia authors but this was resolved and almost every link and content we offered the site still remains. This was quite a success especially as we were able to add specialist information to support the "parent" site which has limited veterinary content.

Screenshot of a Wikipedia page with a link and reference to WikiVet in the References section

6.2.5 Facebook

The project decided to use Facebook to actively promote content to the user group. We had the advantage that many of the OVAL resources are media rich and interactive which lend themselves to publishing on a Facebook page. The great advantage of this approach is that it enables a more sophisticated analysis of users and also an opportunity to collect feedback as shown in the example below. In the last year the number of likes of the site has grown to over 2,000 partly as a result of the OVAL content and many of these visitors then continue to revisit the site.

Screenshot of a Facebook page with content from a OVAL flash card embedded in it

6.2.6 Twitter

The use of Twitter to promote individual OERs has proved an effective new tool. By providing a regular teaser question on our main Twitter feed, we have seen a significant impact in subsequent visits to the related OER (see Appendix for web use summary). This experience linked to a good Facebook site has been a real benefit for the project and could be of interest to the wider OER community too.
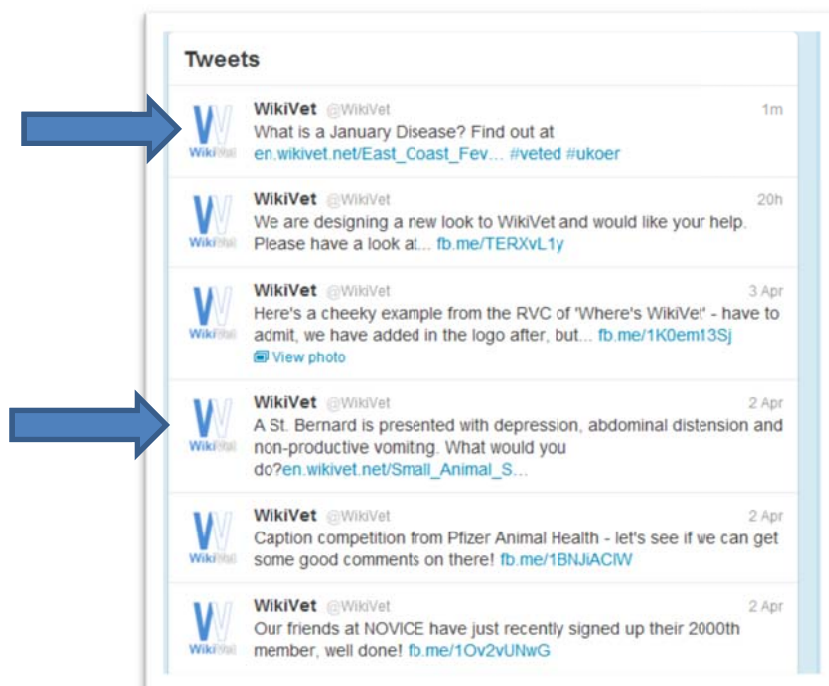
Screenshot of a Twitter feed showing WikiVet references to OVAL resources

6.3   Collaborative Business Models

The overarching objective of the OVAL project has been to identify new models of partnership and collaboration between higher education and the commercial sector in delivering veterinary online publishing. Specifically the project set out to develop ways that these partnerships could bring added value to all those involved. Identifying these commercial and other benefits of collaboration would provide valuable examples of good practice for the wider HE sector.

Currently, there is an extensive range of veterinary literature produced by private sector publishers which has a limited readership due to the prohibitive costs. However, with the significant market changes associated with e-publishing, there was a good business case for making some of these resources free to view. The OVAL project intends to use this opportunity to develop an innovative model for repurposing online journals and text books as OER.

The project team set out to establish an active dialogue with publishers to determine their concerns and to try to find areas where cooperation might be possible. One clear message was that the rapidly evolving market in textbooks and journals associated with online delivery and publishing created problems for publishers in building their market. In particular it was difficult to predict future needs and demand by students for supportive texts. The problem of projecting future marketing opportunities was exacerbated by the emergence of many new online publishing sites, both legal and illegal.

Academia meanwhile is confronted with the need to continue to provide students of the future with access to the literature. There was uncertainty as to how much of these resources would be delivered through a traditional library and what should now be made available online. These concerns were exacerbated by the introduction of higher student tuition fees which are likely to raise student expectations of the range of resources they expect the academic institution to provide.

Whilst academia and the publishing world have their own requirements, our discussions identified that OERs were one area where both parties could stand to benefit through collaboration. The following diagram demonstrates how these influences are linked.
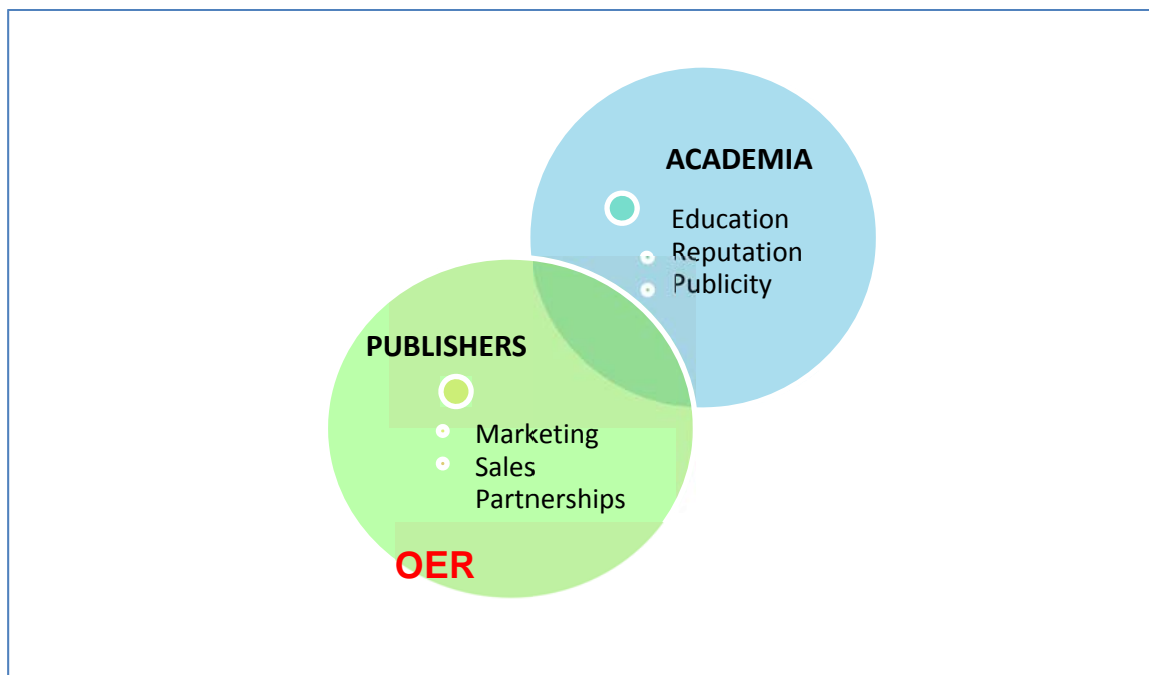
15

Diagram to represent interests of Publishers and Academia

The OVAL project provided valuable insight into possible business scenarios for publishing OERs. This experience served to inform a second phase project named PublishOER[10] which began in 2011 as part of the OER3 initiative. Whilst this work was not part of the OVAL project, it was significantly influenced by it and provides an example of how the lessons learnt from OVAL are being applied going forward. Therefore a summary of the initial PublishOER business scenarios has been included as Appendix 1.

6.4 Project Management

The project management was generally effective with a strong and committed team. Using Skype, the team were able to work remotely with weekly meeting and occasional face to face sessions. This worked well by providing enough support as well as flexibility for project staff whilst ensuring the project was progressing according to plan. Any issues that came up were resolved in a timely manner. Staff documented their tasks and shared experience with colleagues so this could be disseminated to the wider team. All meetings were documented using shared Google doc minutes.

The problem faced with short lead time for the project and the need to recruit staff was a concern. However, this was resolved by employing four recent veterinary graduates on a casual basis in addition to redeploying existing WikiVet staff. In fact it proved to be a real benefit to be able to work with young, enthusiastic, technically competent graduates with current knowledge of the subject area.

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7   Impact

The project has had a wide range of tangible and intangible impacts both for the project partners and also for the wider community. These are summarised below and longer term implications are also discussed.

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[10] http://www.medev.ac.uk/ourwork/oer/publishoer/

7.1   Access to OER content

There was a clear benefit in opening up content on a free to view basis to a wider audience. It should be noted that many of the topic areas are quite specialised so the interested audience is quite small – however as this information is often not available elsewhere on the internet, the project was able to perform an important public service. The details below show the number of visits in the first three months for three rare but still significant diseases. Subsequently the page views have risen significantly but the full user analysis is still being collected.

Page	Page completion	Page views (unique)	Time on Page	Bounce rate (Exit rate)
Bovine Parvovirus	28/07/2011**	16(15)	7:51	79(75)
Channel Catfish Virus	01/09/2011*	39(34)	3:49	74(62)
Porcine Intestinal Spirochaetosis	06/07/2011*	10(8)	1:20	0(10)

7.2   Changes to pedagogical practice

The development of flash cards with links to WikiVet content has provided a new pedagogical approach to learning for our students. Focus group work identified that some students were accessing the flash cards as a revision tool and then referring to the detailed related fact sheets. However, in reading up on a particular disease or condition, the reverse approach was adopted where the flash cards were used to test knowledge acquisition after reading through a topic. Whilst these were only preliminary findings, they would be pursued to explore how these methodologies could be used to support learning.

7.3   Institutional change

Whilst the main approach of the project was directed at collaboration with publishers, inevitably the institutions themselves were increasingly involved. This included senior managers attending meetings and librarians taking an added interest in OERs. In addition the impact of the project was extended to other institutions such as the Royal College of Veterinary Surgeons (Professional Body) and several veterinary schools who have subsequently become more involved in sharing OERs through the new Online Veterinary Anatomy Museum (OVAM)[11] also funded by JISC.

7.4   International outreach

The OVAL project has had an impact in unanticipated ways beyond the UK. Within Europe the findings and resources developed by the project have been shared with colleagues in Spain, Holland, Germany, Romania, Hungary and Switzerland through the NOVICE[12] and OVAM projects. Representatives from OVAL ran a workshop at the veterinary school in Nairobi (funded separately by the Food and Agriculture Organisation) at which the potential to share OERs with African colleagues were explored. Finally the project lead visited India in November 2011 and presented some of the resources developed under the project and discussed sharing these with our Indian colleagues. All these links are being developed within the OVAM project.

7.5   New publishing models

The OVAL project was significant in raising interest in partnerships with the publishing sector. The findings of this work have had a significant impact on shaping the PublishOER project as previously described. It also seems that developing partnerships with the smaller publishing houses has been instrumental in encouraging Elsevier to also get involved in this work. The scenarios developed by Rightscom and the PublishOER project are currently being piloted at the RVC and Nottingham veterinary school and are likely to have a significant impact on future development of e-learning resources in these schools and more widely in the UK HE sector.

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[11] http://en.wikivet.net/OVAM
[12] www.novice.eu

7.6   Future impact

As has been pointed out, the project in a short time frame has already made a significant start in developing new publishing models. It has also carried out some innovative research on promoting OERs using social media. Further analysis of these interventions will be completed and the results presented at the ALT C 2012 conference and published in peer reviewed literature. The on-going commitment of the partner institutions to the WikiVet project is likely to ensure that the impact of the OVAL project is maintained well into the future.

8   Conclusions

- The development of OERs provides an opportunity to engage a wide sector of partners
- Social media enables effective promotion of OERs and increased uptake
- Translation of OERs is a realistic and valuable option to increase international use
- Repurposing existing texts as OERs is feasible and enables rapid generation of content
- Flash cards are a useful way of using images and text for self-assessment
- Fact sheets are an effective medium to publish information on a wiki
- OERs have real potential for future collaborative initiatives

9   Recommendations

1. Future projects need to allocate more lead time for project staff recruitment
2. Continued financial and programme support for OER development is desirable
3. JISC should explore new ways of engaging the private sector in OER development

10 Implications

The OVAL project has been significant in developing new partnerships with the publishing sector. The potential implications of these links are significant to both parties. Academia will need to develop more commercial and business like approaches to providing access to content in future with increased expectations of the next generation of fee paying and technically competent students. Meanwhile, publishers are confronted with students often with limited financial resources who now look to the internet for cheap or free resource.

The way our students seek information online is changing rapidly as a result of their competence, the technologies they are using and the developing content they have access to. This provides real challenges in trying to quality assure the student's learning experience and tailor teaching to this new environment. It seems likely that teaching institutions that are slow to adapt to these new challenges will not be able to compete effectively in the increasingly online world of education.

Publishers also need to adapt quickly to the challenges of online technology – whether by making content available on mobile platforms, developing new pricing models or refashioning content. This project has demonstrated some of the future potential for publishers resulting from innovation. However, the implication of not responding to these challenges is also clear and could seriously affect their future business.

Appendix 1 PublishOER publishing scenarios

Scenario 1

Some third-party materials are licensed by their publisher for inclusion in a designated OER. Students can rate the materials using a simple scale of some kind. The presence of the materials raises awareness of the source texts and favourable ratings can add to the reputation of the source; books sales increase.

Scenario 2

A member of staff reproduces forty attributed images from a popular text by digitally copying them (under licence) into PowerPoint, annotating/animating them, and presenting them to students as a recorded lecture. Both the recording and the PowerPoint are made available as OER and opportunities to comment offered. The publisher links to the lecture from that part of the text in order to enhance the book (for subscribing individuals/organisations) and increase web traffic. A student uploads the PowerPoint to Facebook, from where other users download and reuse them.

Scenario 3

Federated access to texts and journals (passing the students' institution as an attribute) allows publishers to see which institutions have accessed what materials. The first (say) 1GB downloaded or 10,000 accesses are free; after which payment is recovered from the institution at which the student is studying. Automated invoicing allows the institution to pass the fee on (or not).

Scenario 4a

Sections or chapters of popular textbooks are made available in iTunesU or NewsStand, in appropriate formats (video, audio, PDF, App etc.) at a fraction of the physical book price. A teacher creates an OER that links to the specific chapter that students can access in the library or download, or the student could download the whole book from iTunesU. (This scenario mainly tests the use of mass-market distribution channels in an OER context).

Scenario 4b

Sections or chapters of popular textbooks are made available in iTunesU or NewsStand, in appropriate formats (video, audio, PDF, App etc.) free of charge under an open licence. These contain links to the rest of the textbook, which is available on standard terms. A teacher recommends a specific chapter that students can access in the library or download, or the student could download the whole book from iTunesU. The sections or chapters may be included in other OERs.

Scenario 5

OER of mixed origin (mashed up third party materials, perhaps licensed under Creative Commons Attribution Only) have embedded links indicating how to buy the original

sources; and/or agreement is reached whereby materials from publishers are mashed up in new ways to create new 'published works' that publishers can charge for.

Scenario 6

The web traffic for published texts that have been annotated by teachers and students generates enough 'eyeballs' through the comments to be attractive to advertisers. Commenters agree that their comments are subject to a form of licence that allows commercial use. Publishers can charge third party advertisers differentially for popular options.

Scenario 7

Proprietary ePub3 texts[1], playable on the iPad and (after conversion) Kindle, can be made highly interactive using OERs licensed under CC, including video, slide shows, enhanced typography and embedded access to the Internet, by which linking to OER materials and Dynamic Learning Maps-based rating and linking engines can be achieved. *The main points of this scenario are already included in other scenarios, Scenario 5 in particular.*

Scenario 8

Online book licensing is made more granular to allow for more flexible use, including inclusion in OER, providing attribution including a link to the source is available. Users of the OER would be directed to commercially published content to supplement the OER content.

Scenario 9

Embed codes are used to allow the use of embedded content within an OER, allowing it to play within the main page (as YouTube videos can be embedded in other content). Publishers would control the content sent to the embedding page. The embedded content could be made available a limited number of times to each institution (e.g. 250 views per term).

Scenarios generated by Hugh Look of Rightscom[13] for the PublishOER project and made openly available on the project blog[14].

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[13] http://www.rightscom.com/
[14] http://www.medev.ac.uk/blog/oer-phase-3-blog/2012/feb/6/publishoer-scenarios-to-inform-research-with-publishers/