



JISC Research Data MANTRA Final Report

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Those who gave explicit permission or openly licensed their content which we were able to re-use within the module.

Last but not least we would like to thank to all the students who volunteered to take part in user testing of the online module.

2 Project Summary

Effective research data management (RDM) is gaining increasing importance as funding bodies, publishers, and research institutions voice concerns about the loss of data associated with publicly-funded published research and its lack of availability and accessibility beyond the life of the research project. The pressure on academics to manage, document, share and preserve their data is not balanced by incentives, support or mechanisms for them to do so. It is recognised that for cultural change to occur, postgraduate and early career researchers must receive proper training to reinforce good practice learned within their disciplines. With a view to closing a major gap in this area, Research Data MANTRA has developed sharable online training materials which will contribute to long-term culture change, raise awareness, and increase skills in research data management.

Whilst many of the issues and skills relevant to effective research data management are shared across disciplines the application of these skills and knowledge takes place within a disciplinary context. The organisation and style of PhD training also varies amongst different schools/programmes. This project explicitly addressed these challenges by working with three different PhD programmes to develop resources tailored to their specific context and requirements. Furthermore we have used this approach to develop a structured programme of online resources that can be customised and repurposed for use in different disciplines as well as an on-demand resource open to all University postgraduate students and early career researchers. As a major output of this project, we have developed online training materials which reflect best practice in research data management grounded in three disciplinary contexts: social science, clinical

psychology, and geoscience, but will also be delivered across degree programmes as an important transferrable skill. In addition to an online module that students can work through at their own pace, the training materials include video interviews with leading academics about their experience in data management, and practical exercises in handling data in four software analysis environments: SPSS, NVivo, R and ArcGIS. These are to be licensed openly and exported as SCORM-compliant packages for deposit in JorumOpen and Xpert for re-use and modification by others.

3 Main Body of Report

3.1 Project Outputs and Outcomes

Output / Outcome Type (e.g. report, publication, software, knowledge built)	Brief Description and URLs (where applicable)
Project website with public deliverables	http://www.ed.ac.uk/is/data-library-projects/mantra
Project wiki for team collaboration and collection of external RDM resources	https://www.wiki.ed.ac.uk/display/mantra/Research+Data+Mantra+project+wiki
Online module	Six to eight topical online learning units developed with the use of Xerte Toolkits. Units are: 1. About the module 2. Research data explained 3. Data management plans 4. Organising data 5. File formats and transformation 6. Documentation and metadata 7. Storage and security 8. Data protection, rights and access [to be added, version 2] 9. Preservation, sharing and licensing access [to be added, version 2] 10. Recommended resources
Software modules	Four sets of data handling practical exercises (in R, SPSS, NVivo and ArcGIS) with printable (PDF) instructions and accompanying open datasets.
Video interviews	Experienced staff and PhD students were selected and invited to be interviewed about their data management experience. Short clips embedded in online units by topic. More material to be edited as blended videos to be added to University RDM guidance web pages.
Evaluation and user testing documents	Evaluation report at project end (appended) and two months later (after interviewing primary contacts). User testing documents: <ul style="list-style-type: none"> • Test script (facilitators/observers) • Observation log • Test schedule • Information for users • Consent form • Exit survey (questionnaire) • User testing observations (results summary)
Needs Assessment with	Early in the project (August-October 2010) meetings between project

partnering Graduate Programmes	staff and primary contacts in the doctoral programmes were set up to discuss the content of the units and the software modules. Summary notes are available on the project deliverables page.
Research data MANTRA	Presentation given by Robin Rice: JISC MRD programme meeting - 22 October, 2010, http://goo.gl/O7b4F
Research Data Management Initiatives at University of Edinburgh.	Peer-reviewed paper by Robin Rice and Jeff Haywood presented by RR at the 6th International Digital Curation Conference , Chicago, 6 December 2010. http://goo.gl/O7b4F
Research Data MANTRA	Presentation given by Cuna Ekmekcioglu - JISC MRD International programme workshop- 28-29 March, 2011. http://goo.gl/O7b4F
Awareness raising event for University support staff organised by project team	"Library roles in research data management": 22nd March Sam Searle, Data Management Coordinator at Monash University, Melbourne, Australia [visitor and invited speaker]. http://goo.gl/JiJaN
Research Data MANTRA	Peer-reviewed presentation given by Stuart Macdonald at, Open Educational Resources , Manchester, 11-13 May 2011. http://goo.gl/O7b4F
MANTRA for Change	Peer-reviewed presentation given by Robin Rice at IASSIST , Simon Fraser University, Vancouver, 3 June 2011. http://goo.gl/O7b4F
Research Data MANTRA project at Edinburgh	Invitation to present at DCC Roadshow , given by Robin Rice, University of Glasgow, 24 June 2011. http://goo.gl/O7b4F

3.2 How did you go about achieving your outputs / outcomes?

Aim

The aim of the project was to develop a structured programme of online resources that can be customised and repurposed for use in different disciplines as well as an on-demand resource open to all University postgraduate students and early career researchers.

Summary objectives:

1. Develop a set of engaging web-based chapters [units]
2. Create professionally produced short video narratives about data management as practiced by academics in the field
3. Develop a set of software-specific data handling exercises – in SPSS, NVivo, ArcGIS, and R
4. Port the produced materials to the WebCT courses and deposit open standard files into JorumOpen.

Develop a set of engaging web-based topical units

The team of writers included an expert in learning & teaching (Editor/writer) and two data librarians, which was a useful spread of our knowledge base. Early on, a decision was made to author the materials using Xerte Toolkits, an open source authoring tool from the University of Nottingham. This made it easy to add interactive materials outside of a specific (and proprietary) VLE, adding to the 'shareability' of the resource. It also provided a clean template to produce units authored by different people in a consistent way.

A needs assessment was conducted at the beginning of the project, which involved interviewing school contacts and reviewing how training was delivered in each context. The headline topics were chosen after analysing the needs assessment, but also drew on the team's existing knowledge of research data issues and a survey of material produced by other institutions.

The team was able to share topical, technical and learning resource examples on the wiki with each other and with the programme as they surveyed material during authoring work. Each unit was reviewed by other team members, revised and checked by the proofreader before being submitted to user testing. The school contacts assisted in finding volunteer students who were scheduled for an observed usability session, where they worked through two units each and answered questions afterwards. Each student was given a £15 national book token as a courtesy for their participation. A summary of the findings of the user testing is appended.

Once the online units were finalised, they were posted on the wiki for both University stakeholders and the JISC MRD programme to review and comment. Comments will be taken into consideration either immediately or in the next version.

Create professionally produced short video narratives about data management as practiced by academics in the field

It was estimated that each video interview would take a full day of the Media Producer's time, including set up and editing. However the project team also invested much of their own time, in terms of canvassing recommendations for interviewees from stakeholders, shortlisting and selecting finalists to ensure a spread of domain experience, scheduling the interviews, agreeing appropriate questions in advance with interviewees, conducting the interviews (two people per interview attended), identifying topics from the initial video rushes, selecting final clips for the units, inserting final video clips into the units, and identifying further material for a longer video to be made available in future.

Develop a set of software-specific data handling exercises – in SPSS, NVivo, ArcGIS, and R

Experts were identified and approached to write the software modules and were apprised of the needs of the schools either through access to the original needs assessment recordings or through a dedicated meeting, and email follow-up. A contract was customised for each author and signed by the University and the author. An outline including learning objectives and identified datasets was agreed by the project manager before the author proceeded to write their learning materials. Authors were instructed to create a printable document with screenshots and well-explained step-by-step instructions (in case of self-completion without a tutor) for useful data handling activities as agreed. Although the target time to complete the exercise was to be one to one and a half hours, each author overproduced material, and so the software modules were split up into separate units that could be completed on their own or sequentially. Each author submitted at least two drafts, following detailed comments from at least one team member and one stakeholder before the final version was accepted.

Port the produced materials to the WebCT courses and deposit open standard files into JorumOpen.

Xerte facilitates the export of SCORM learning object packages, so this will be straightforward. Not all schools utilise WebCT, so the IAD would like us to embed the module in a University web page. This will be done by September, after all the feedback from stakeholders is received and taken into account.

The team went out of their way to copyright clear any re-used materials such as images used in the online module. The aim is for the course as a whole to have a non-restrictive Creative Commons open license (attribution only) to make re-purposing by others straightforward. This turned out to be ambitious at times and meant that material using Share-alike or Non-commercial licenses were out of bounds, unless direct permission was received. The team also sought permission for certain materials (such as the data management plan satire) directly from creators, and positive responses were kept by the project manager. A complete acknowledgements page needs to be added before the material is deposited.

An article announcing the availability of the MANTRA module will appear in the IS newsletter for academic staff, BITS in September.

3.3 What did you learn?

The project team has found that authoring the online learning materials has been easier with Xerte, especially as the interactive elements have been easy to add. Having more than one author working

simultaneously has lent synergy to this activity. Concentration required to author materials is high and chunks of time must be set aside for this work; it cannot adequately be tackled while multi-tasking.

We have found that there is a tension between data management norms and data management best practice. For example, some people believe that using open source software and open standards are important best practice for data management. Yet, we have found the need to ground the 'lessons' in normative practice, for example in the use of proprietary software in some cases. What is relevant for one research student is not necessarily relevant for another; not only between disciplinary families but within them. The Needs Assessment notes show that sharing or preserving data is not yet expected of PhD students. Experience of colleagues in administering ingest of doctoral theses shows that data sharing is ad hoc as well. It is difficult to stress the importance of data sharing within the course when it is not reinforced in the students' educational experience. However the interviews show that it is more normative for career researchers, and so the sharing lessons may be better received as preparation for an academic career.

Original deadlines were overly optimistic and have needed to be more elastic. The course will be ready for delivery in September, but the concentric circles of reviewing and revision needed for adequate quality assurance have stretched the finalisation of content right up to the project end date. The project manager and editor have needed to roughly double their time on the project during the second half to ensure completion to the standards they set. An additional member of the project team was added to ensure the videos are completed with enough time for editing.

Although the project is straightforward and the approach has not changed, creating original and engaging learning materials was not easy. In this case there was not a lot of precedent for teaching in this area, making it a slightly daunting task, especially for a target population with various levels of computer literacy and data experience. The re-use of openly licensed materials added to the course, but was time consuming in terms of keeping track of permissions, licenses and acknowledgements, and in some cases replacing restrictive Creative Commons licensed material with non-restrictive replacements.

The user testing was both affirmatory and revealing and the presentation of the results is appended. Below is an excerpt from the summary, written by the Editor:

"In general, the units tested were received quite well. Below is the summary of observations from the user testing sessions and my suggestions (based on users' reactions and feedback) on how we can further improve the units.

- Length of the units seem to be fine (within a range of 15 – 30 minutes each).
- Learning objectives listed for the module have been met (i.e. raising awareness of the importance of data management, information given could help students to start implementing a data management approach for their own study/project, module will be useful for their research/study)
- Units are informative and interesting.
- No issues with navigation. Overall look could be made more interesting with colours and images."

The appended User Testing Observations document has quotes from the students and a complete record of observations/questionnaire results.

3.4 Immediate Impact

The Research Data MANTRA project is one of the first steps in a long term cultural change and awareness raising programme. Therefore it is too soon to speak about an immediate impact of this project in our institution and in the attitudes of our stakeholders.

However, the project has already been received well by the top level management in the Information Services. Delivery of the MANTRA training course within the University of Edinburgh has become part of the Information Services Plan, 2011-12 and will be delivered in collaboration with the Institute for Academic Development and its cross-disciplinary Transkills programme.

We have received excellent commitment from academic/research staff to the project, providing input relevant to their students' research data management training needs. We also received positive feedback from user testing with this year's students coupled with formative evaluation to improve the quality of the final course.

As for the benefits to the wider community, we shared much of what we discovered with the Managing Research Data programme by opening up the home page of our project wiki. Resources on research data management were well received by other projects in the training strand. The project manager set up a twitter account in part to engage with the Research Data Management community and has kept up active liaison with internal partners and stakeholders as well as the Research Data Management broader community.

3.5 Future Impact

There are a number of innovations this project brings to the University and, through deposit of tested and quality assured standards-based learning objects into JorumOpen with a Creative Commons license for unfettered re-use, to the broader HEI community.

The **Graduate School of Social and Political Science** sees this project as a very welcome contribution to their skills programme for postgraduate research students, but also as part of their ambitions to increase the skills training for postgraduate taught students and potentially also as something they can develop in the context of the Doctoral Training Centre and Scottish Graduate School, envisaged in a recent application to the Economic and Social Research Council, currently pending. The school has pioneered the online delivery of core quantitative and qualitative data analysis courses (using SPSS and NVivo) for postgraduates in social sciences as part of a major blended learning initiative. This has given lecturers substantial experience of the relative costs and benefits of face to face and online delivery of core discipline-specific and transferrable skills, as well as experience of granularity issues. Student feedback from the blended learning courses has been extremely positive.

Every year, the School of Health in Social Science has approximately 35 theses completed by taught professional doctorate students in **Clinical and Health Psychology**. As these are mainly clinical projects, the guidance they receive from ethics committees is that the raw data must be destroyed at the end of the project. Lecturers believe it would be interesting to explore if there are ways that the anonymised data could be stored/re-used and online training resources in this area would be very useful for this purpose. The lecturers aim to move to more programmatic research themes where trainees build on the previous work of their colleagues. This has practical implications for learning and developing best practice in data sharing and re-use, and for non-disclosure techniques. The online format of the training materials we created is well-suited to the programme, as the trainees have placements throughout Scotland.

Research Data Management is critical for all research conducted within the **School of GeoSciences**, which ranges from qualitative datasets, based on interviews, to large, spatial, huge global climate modelling datasets. The School's dedicated training programme for all 1st Year PhD students provides an ideal vehicle for developing and testing relevant learning materials. The development of specific training in R is particularly timely since there is considerable current demand from School postgraduate researchers and research staff.

Delivery of the MANTRA training course within the University of Edinburgh is part of the Information Services Plan, 2011-12. This will be undertaken in collaboration with the Institute for Academic Development.

In the short term, we will work closely with our stakeholders (three schools contributed to this project) to embed these resources in three participating postgraduate programmes and make them available through the Transkills programme for use by all postgraduate and early career researchers.

The Data Library will help ensure that future versions get deposited in JorumOpen for community use and that the DCC is notified. The evaluation plan includes examination of how the involved departments can work together, especially to inform future collaborations between the Institute for Academic Development and Information Services and the Institute for Academic Development and schools.

In the long term, we will aim at enriching and updating the content in order to keep it current and relevant to more disciplines.

4 Conclusions

A number of recent and current activities at the University informed this project. These include research and development projects funded by the UK Joint Information Systems Committee (JISC), led by the Data Library.

- DISC-UK DataShare, 2007-2009
- Data Audit Framework Edinburgh Implementation, 2008
- LAIRD (Linking Articles Into Research Data) 2009-10 (internally funded)
- RADAR (Researching a Data Asset Registry) 2010-11 (internally funded)

They also include University activities led by Information Services top management:

- Research Computing Survey and Strategy, 2007-8
- Research Publications Policy requiring academics to deposit their research outputs in a publications repository (as open access where appropriate), from January 2010
- Formation of the Institute of Academic Development from the Transkills initiative, 2010
- Research data storage working group draft recommendations, October 2010
- Research data management University policy, passed May, 2011

We draw upon expertise and experience in research data management, postgraduate training (discipline-specific and generic) and online resource production, building on existing effective models for PhD training developed in the University of Edinburgh. The Graduate Schools of Social and Political Science and GeoSciences along with the Clinical and Health Psychology Professional Doctorate, as well as the Transkills programme available to all University PhD students and early career researchers have been the targets for the project outputs and will provide input based on their requirements.

Critical success factors have been and will continue to be as the course is delivered:

1. The commitment of academic/research staff to the project, providing input relevant to their students' research data management training needs.
2. Positive feedback from user testing with this year's students coupled with formative evaluation to improve the quality of the final course.
3. Increased advocacy and awareness of research data management best practice across the University.
4. Evidence that the course is useful and used in other contexts outwith the University of Edinburgh.

[A first pass at analysing these success factors of our project has been done in the initial evaluation report appended. Once primary contacts have been interviewed a more thorough report will follow this autumn, and be added to the project web page.]

5 Recommendations

General recommendations:

- Create modular resources that can easily be integrated into other courses.
- Produce simple guidance on creating, storing and managing data, e.g. check lists and templates for users, fact sheets, flow diagrams, as well as elements that can be dropped into existing training.
- Avoid use of specialist records management/preservation terminology as far as possible.
- Ensure clear explanation of software specific jargon/technical terminology/process-specific language.
- Retain consistency across the resources in terms of look and feel, flow, content, audience.
- Work with academic staff and researchers to document their experiences, case studies etc.
- Do not underestimate the time needed to create materials from scratch.
- Use or reference existing materials where possible to avoid 'reinventing the wheel'.
- Deposit the materials produced in the open access repositories for other to use under Creative-Commons attribution-only licence. Restricted licensing creates problems with re-using the existing materials.
- Use our FRUIT checklist to create engaging learning materials for postgraduates: fun, feedback, relevant, real, useful, interesting, timely.

Recommendations for the wider community (these emerged from our evaluation process. See Evaluation document, appended.)

- Style Guide – an agreed guide covering details such as document layout, preferred terminology, section division and headings, length and structure of sections. All authors work to this guide.
- Accessibility options – Many of these can be covered in a style guide as above. In many cases simply making an alternative (plain text) version available on request will be sufficient to accommodate any adjustments not available through the technology. Get video transcripts transcribed to text.
- Common platform – the selection of the Xerte open source multimedia authoring tool meant that multiple authors worked to an agreed limited set of templates, ensuring a common look and feel to all the modules regardless of the author, topic or selection of media. This should also ensure a high level of reusability and portability of the modules, and ease of updating.

Recommendations for JISC

- Ensure funded creation of learning materials results in openly licensed material.
- Ensure subject experts are involved in authoring.
- Ensure stakeholder engagement within institutions.
- Continue to fund training, infrastructure and development projects together to encourage synergies between policy development, education and service provision in RDM.
- Embed RDM training within the context of PhD training in transferrable skills and Researcher Development frameworks, as well as information literacy programmes.

6 Implications for the future

The lessons learnt from this project in terms of structuring and tailoring material for different disciplinary contexts, together with the availability of materials designed to be easily adapted will help secure the future sustainability of these resources. Only modest amounts of work, in terms of recording new discipline-specific elements and repurposing existing content will be needed to adapt the resources to new disciplines and keep the materials up to date.

While it is hoped the training will contribute to long-term culture change and raise awareness in the three graduate programmes and beyond, the Data Library also plans to increase its outreach to academic staff over the next year to promote the module, raise awareness of RDM policy and services, and gain voluntary deposits in the Edinburgh DataShare repository. We will be working collaboratively with the RDM policy implementation group headed by the Director of Library and Collections in awareness raising activities with staff and service development.

7 References

See project wiki for a list of resources we have collected:

<https://www.wiki.ed.ac.uk/display/mantra/Research+Data+Mantra+project+wiki>.

8 Appendices

Evaluation Report by Wilma Alexander

User Testing Observations by Cuna Ekmekcioglu

The preview of our learning materials will be open to comments from JISC MRD community stakeholders throughout the summer:

<http://goo.gl/b3RMj>

See deliverables section on our project website for a list of other relevant documents:

<http://www.ed.ac.uk/is/data-library-projects/mantra>

MANTRA

Evaluation section for final report Wilma Alexander July 2011

Overview

This evaluation report draws on a number of meetings and comments gathered from the project team, and from formative evaluation activity over the lifetime of the project. However, information for some of the critical success factors outlined in the project plan is not yet available.

It has not been possible to complete the evaluation of the materials and their use within courses in the timescale of the funded project in which the materials were being developed. There are plans to gather information from staff about their intended and actual use of the training materials in late summer / early Autumn, and this information will be available to inform future development or review of the courses.

Information and evidence already gathered is summarised here.

Critical Success Factor 1

The commitment of academic/research staff to the project, providing input relevant to their students' research data management training needs.

Staff within the University of Edinburgh have been very supportive of the project and provided their time to create a needs analysis for each section and comment on outlines and drafts of the modules. The needs analysis informed the selection and segmentation of the modules and topics. This iterative consultation process is continuing, with the current release of beta versions of the modules for further comment.

The academic staff contribution to meetings and briefing notes for the authors of commissioned sections (practical tutorials) was invaluable in ensuring agreed learning objectives were fully understood and built into the tutorials by the authors.

Critical Success Factor 2

Positive feedback from user testing with this year's students coupled with formative evaluation to improve the quality of the final course.

Fitting the availability of students for user evaluation in with the preparation of suitable completed modules limited the number of user evaluation and usability tests which could be carried out. However 5 current students from the target programmes reviewed different combinations of 4 draft units in April 2011. In addition to noting specific aspects of presentation, layout, sequencing and multimedia use in the units, the sessions also gathered their views on the usefulness and attractiveness of this type of content presented in this way.

The data gathered from these tests was used to inform changes to the unit length, layout, pacing and content. Some technical issues have been addressed since then, others are inherent in the multimedia format used and have to be addressed by providing better user guidance.

General views on the units as reviewed was overwhelmingly positive. A number of helpful suggestions were made concerning the context in which students would like to have access to the courses. This information can be used to inform staff about how they might incorporate these materials most effectively in their existing teaching.

Given the positive views expressed – (there were no negative comments selected in that section of the review questionnaire) – especially concerning availability of information when and where research students need it, the availability of the completed modules through some central support training would be highly valued. The materials will be part of training offered across the institution under the auspices of the newly-formed Institute for Academic Development, and content will be maintained by the Data Library.

Critical Success Factor 3

Increased advocacy and awareness of research data management best practice across the University.

The process of gathering information for the project, developing close links with some key programmes across the University and with central support in Information Services and the Institute for Academic development has already raised the profile of this topic and those with expertise in the area. Availability of these modules as a core support option will, we hope, do more to raise the profile of this issue within the host institution.

In addition to significant dissemination activities (see elsewhere in this report) the project has been in close communication with other RDM projects in the UK. This has enabled a coordination of information and approaches to further raise the profile of this topic throughout the UK community.

The project leaders have simultaneously been involved in the development of a research data management policy for the University of Edinburgh and this development is also a welcome opportunity to raise the profile of the need for appropriate training in this subject.

Critical Success Factor 4

Evidence that the course is useful and used in other contexts outwith the University of Edinburgh.

Because the project does not yet have completed modules ready for release, it is not possible to evaluate this. However plans to ensure all of the materials are available to the wider community through open repository access should assist this wider availability. The collaborative work mentioned above will also assist in raising awareness of these materials. Selection of an open source and standards- compliant platform for authoring and packaging the materials will also make wider adoption as technically straightforward as possible.

Other evaluation and impact measures:

Within the project team there has been the opportunity to develop and enhance skills in a number of key areas which will contribute to the future adoption of RDM support, online course creation and management, and project management. Processes such as conducting the needs analysis and user testing, briefing and editing authored modules, creating and editing video interviews, using the open source platform Xerte, and the over-all course design and development have all been more time-consuming and demanding than originally envisaged, but have also contributed to a helpful checklist for future developments of this kind, as seen in the Recommendations section of this report.

Research Data MANTRA online training user testing observations (April, 2011)

Unit 1: Research data explained

	MS	RH
Time spent	15 minutes	15 minutes
Links		1
Videos	1	
Activities	4.5	4
Summary	✓	✓
Hesitations		

Notes:

MS: Flicked through the pages quickly. No questions or comments.

RH: User went through the unit seriously giving time to read and think about the content.

Comments:

p.6 – Research data formats

It would be good to have categories here and give specific examples (e.g. images (jpeg, tiff), sound (mp3), video (quick time) etc.)

p.9 – Classification of research data

It would be good to place this page closer to the Activity 1: Match the data.

Summary

“Hint: If the word you select is not the correct word you won't be able to drop it into the gap” is missing here. She is confused about feedback. Perhaps we need to use some sort of feedback e.g. Congratulations! You have now successfully completed the unit.

Too science oriented, it would be good either to explain science terms or give some other examples for social sciences (this feedback was particularly Match the data activity in unit 1).

Unit 2: Data management plans

	RH	ES	EC	GS
Time spent	32 minutes	25 minutes	23 minutes	24 minutes
Links		1	none	
Videos	1	2	Problem with connection	½
Activities	4	3	3.5	4 (2 –half)
Summary	✓	✓	✓	
Hesitations	Navigation p.15	None	None	IPR (activity)

Notes:

RH: User went through the unit seriously giving time to read and think about the content.

Comments:

JISC Lifecycle image: poor resolution, difficult to read text.

Videos: poor resolution, difficult to read text. Full screen display if possible.

Definitions: a reminder would be good (pop up window or on mouse over display).

IPR (in the activity): Needs opening up as Intellectual Property Rights.

Activities: could they retain their answers when they go back and check content to carry out the activity.

Versioning (in the activity): couldn't work out what this was. Perhaps change it to File versioning.

Responsibilities (in the activity): couldn't work out what this was.

Flash paper: Asked if this should be completed online. We may need a word or pdf document here.

Suggested including additional information on how long data should be kept (as a guide).

ES: User flicked through the pages, didn't engage too much with the content.

EC: User flicked through the pages, couldn't watch the videos as the connection was lost. User wasn't too interested in the links. Liked the activities – good way of learning and remembering.

GS: User flicked through the pages. Noticed the Xerte page control buttons, and suggested different layout for these buttons. Typo in Data Management (corrected). Problem with flash papers (15-16).

Unit 3: Organising data

	MS	GS
Time spent	18 minutes	20 minutes
Links		
Videos	1	1 (display problem)
Activities	4.5	4
Summary	✓	✓
Hesitations	Clarification on p.16	

Notes:

MS: User flicked through the pages of the unit.

GS: User flicked through the pages. Tried to read the text on the images and clicked on parts of the image expecting to be able to do something, also frequently changed the screen display to large and increased font size.

Unit 6: Storage and security

	ES	EC	GS
Time spent	24 minutes	20 minutes	26 minutes
Links	4	1 (p.16)	
Videos		Problem with connection	6 (glanced at)
Activities	4	3	2
Summary	√	√	1/2
Hesitations			

Notes:

ES: User flicked through the pages, didn't engage too much with the content.

EC: User flicked through the pages, couldn't watch the videos as the connection (wireless) was lost.
User wasn't interested in the links.

GS: User flicked through the pages, skim reading content. Suggested links to remote storage websites (e.g. Dropbox, Zumo).

Exit survey results

Q1. Title of the units tested

Unit 1: Research data explained (2)

Unit 2: Data management plans (4)

Unit 3: Organising data (2)

Unit 6: Storage and security (3)

Q.2 What do you think about learning online like this?

Online learning units like this are a useful supplement to a taught course. (2)

Online learning units like this will be a good reference point throughout my study. (3)

Other (2)

- I would say it's especially useful for a research degree.
- It depends on the subject - sometimes it's good to work online to go at one's own pace - e.g ECDL course that I did. Other times it makes things a bit dry and I would prefer more interaction. I think for this specific subject, online learning is fine but I would want to have access either to a person in the room to ask questions of (e.g., how long is it wise to keep research interview recordings/transcripts), or to be able to email - at the time - such questions to a named person who would respond quickly. To have to remember the question, go away and find someone to email would most likely result in me not doing it!

Q.3 Do you have any general comments on learning about data management through an online unit like this?

- Could be a bit more interactive, or could find a way to make it relevant to a student's OWN experience/data.
- I liked the fact that it had interactive elements, and it would be a useful reference point.
- I would use this kind of a resource to dip into when I had a particular question that I thought I might find the answer to.
- I think I would be unlikely to follow a weekly course online unless it was formally assessed. Well it's a little bit of a dry subject and the presentation was a little dry but I'm not sure how to make it much better. I enjoyed the interactive exercises most.

Q.4 What have you learned?

The unit made me aware of the importance of data management. (4)

The unit will be useful for my study/research work. (4)

The unit content was too easy and didn't teach me anything new. (1)

The unit was interesting and informative. (4)

I feel I could utilise the information given to start implementing a data management approach for my own study/project. (4)

Other (3)

- Although I was aware of most of the main concepts here, it was good to have them reinforced - it has made me rethink my current practices and I will be more careful about backing up my work.

- I was generally aware of the issues but it's prodded me to remember to do some things I haven't yet done!

- It was perhaps a bit more geared towards the physical sciences than the sort of work that I'd do.

Q.5 Do you have any general comments on the length and pace of the Unit?

Fine

Fine, didn't learn a great deal that was new but it was good to reinforce ideas.

I thought it seemed about the right length.

Length is good, pace a bit slow.

Q.6 What do you think about the design of this unit?

There was too much information on some of the screens. (1)

There was too much text in the unit. (1)

I found the screen layout easy on the eye. (2)

I realised I could change the appearance of the screen if I wanted. (1)

The images on some screens were a welcome break from the text. (2)

The scenarios were relevant and prompted me to think. (4)

The videos helped my understanding of the topic. (1)

The videos were a welcome break from reading text. (1)

The activities helped me to understand the content better. (3)

The activities were a welcome change from reading text. (4)

Other (3)

- I would go for slightly larger text on a white background as being easiest for the eye.
- If it is possible to use more images that would be helpful as they aid memory retention - I have a feeling I'll forget a lot of the info, especially about different types of data that are not all relevant to my work. A bit more feedback too would be good e.g. "well done! You got 11/15 answers right!" - it could be seen as patronising I guess but I like that.
- On some screens there may have been a little too much text. Also the video screens are a little small - if there was a way of enlarging these would be good.
- The videos were a bit long / there were too many videos.

Q7. Do you have any general comments on the mixture of text, images, videos and activities in this unit?

- Bulleted lists are too long and same-y, design wise I liked the fact it was multimedia.
- I find it easier to take things in when I have to actively think about it, and I think having videos to break things up makes it easier to concentrate than just reading.
- I would enjoy more activities as I find it a good way to think back over what I have learnt.
- The idea of including a video is a good one though the particular one used was not very thrilling!

Q8. What do you think of the learner interface (i.e. navigation, buttons, icons, etc)?

The interaction buttons did what I expected them to do. (5)

The screens followed on logically from each other. (4)

Other (1)

It wasn't always clear how to get back to the screen I'd been on e.g. after looking at the data in management form. [pop-up windows]

Q9. Do you have any comments on the general "look and feel" of this unit?

- I thought it was quite user-friendly, and the look was not too fussy or distracting, which made it easy to navigate.
- It is very easy to navigate and functional. It is perhaps a little dull to look at - it might help to make the pages a bit more colourful, or more images/animations to engage the user.
- It's fine but not thrilling.

Q10. Do you have any other comments that may help us to improve this online unit?

- It felt very science-y; there were terms I didn't understand because they come from more scientific disciplines than my own and that's stressful because one feels 'in the wrong'. Maybe this is a science module but if not then it would be good to either cut out some of the most scientific terms or explain them more. And a few more social science examples would be nice.

- None that I can think of.

Summary and comments

[by Cuna Ekmekcioglu]

In general, the units tested were received quite well. Below is the summary of observations from the user testing sessions and my suggestions (based on users' reactions and feedback) on how we can further improve the units.

- Length of the units seem to be fine (within a range of 15 – 30 minutes each).
- Learning objectives listed for the module have been met (i.e. raising awareness of the importance of data management, information given could help students to start implementing a data management approach for their own study/project, module will be useful for their research/study)
- Units are informative and interesting.
- No issues with navigation. Overall look could be made more interesting with colours and images.
- No negative comments (the ones below were not marked at all 😊)
 - The navigation was confusing.
 - Some of the screens had irrelevant links.
 - It was hard to find my way around the unit.
 - The unit content was complex and hard for me to absorb in the time given.
 - The activities were too simple, or boring.

Except one comment:

- The unit content was too easy and didn't teach me anything new.
- We need to seriously consider whether to use the existing YouTube videos: One doesn't work properly (Unit 3), others are badly recorded, resolution is not good and text is difficult to read. Not high rating for using videos either.
- More activities would be welcomed.
- Scenarios seem to be working fine. Perhaps we need to consider including more scenarios.
- Bulleted lists need to be short!
- We need to present flash papers in either word or pdf. Flash papers don't seem to be working well for the users.

- Would it be possible to make the units more relevant to a student's own experience/data?
- Issues with activities in Xerte– cannot store the answers if users want to move away from the page.
- Pop-up windows need to be mentioned!
- Xerte page display options need to be explained at the beginning (perhaps in the About module section). Only one user noticed the options at the bottom of the page.