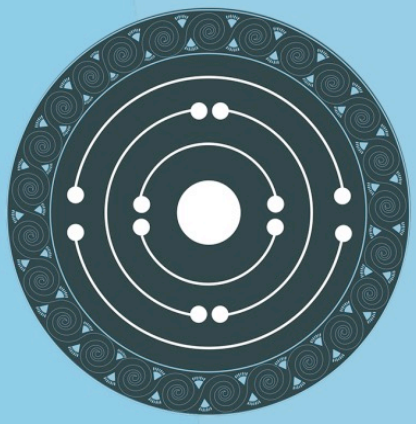

# PARTHENOS

Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies

# D7.5 Embedding PARTHENOS Training into Higher Education Curricula

## Report on activities of Task 7.4


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DATE 9th April 2019


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Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies

# Embedding PARTHENOS Training into Higher Education Curricula

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# 1. Executive Summary

Task 7.4 in the PARTHENOS description of work (DOW) proposes to investigate how Digital Humanities (DH), and, more specifically, how Research Infrastructures (RIs) and the issues related to them are represented in Higher Educational curricula. The Task description also incorporates the charge to offer an example approach of how training materials around these issues might be integrated into existing and emerging formal training programmes.

In order to do this, the team associated with this Task undertook desk research into the current state of play across Europe in terms of training in the digital humanities, and then conducted a series of workshops and roundtable sessions in order to ask more detailed questions of course providers.

The first of these steps undertaken was based upon a survey of courses around Europe, using the CLARIN/DARIAH Course Registry as a starting point, and moving on to courses in other European countries not already listed in this directory. The aim was to find what topics were covered in these courses, and how well RIs were represented (if at all).

To supplement this desk research, we also conducted an online survey among course providers and graduates of courses to find the reasons for students taking the course. The majority of responses came from course providers, and circa 20% of responses came from graduates of formal DH courses. The graduates indicated that their main reason for taking the course was to improve their career prospects, whereas course providers listed 'personal interest' as the primary reason (although 'improving career prospects' was also rated quite highly among course providers). In most cases, Research Infrastructures were referred to in some way in the courses on offer, although the level to which this was done varied from a single lecture in which they were introduced to a more integrated approach through project work or an internship. When asked how RIs might help to be better integrated into curricula, 56.1% of responses called for reusable training materials on infrastructures.

Following the results of the online survey, we wanted to delve a little more into the challenges faced by course providers in developing training around research infrastructures and the issues related to them. We held two 'Course Provider Workshops' which brought together course providers from across Europe to discuss their training practices in digital humanities, and ask them specifically how PARTHENOS could assist them in their training. The response was overwhelmingly positive towards some level of training support from PARTHENOS and RIs, both to introduce the notion of what RIs are and how they can help researchers, and also in the wider questions around issues related to RIs.

At the DHBenelux Conference in 2018, we co-coordinated a Roundtable Session alongside colleagues from the PARTHENOS Task 7.3 to discuss the successes and barriers to continuous professional development for higher education students, professionals and practitioners within the cultural heritage sector. This showcased some of the barriers to accessing higher education training among some members of the DH community, particularly among practitioners of digital curation. It also reiterated the need for training around concepts and issues within DH, rather than only for the provision of technical skills, such as coding.

The results and outcomes from these activities informed the development of the Research Data Management module at King's College London, which incorporated elements from the PARTHENOS Training Suite, particularly from the "Introduction to Research Infrastructures" and "Manage, Improve and Open Up Your Research Data" modules. The module itself was broken into two sections, with weeks 1-5 focussing on more theoretical aspects of research data

managements, and weeks 6-10 giving the students an opportunity to put their learning into practice, with on-site project work conducted at the Royal United Service Institute (RUSI) Library in London.

Upon evaluation of how these materials performed among the 40-strong cohort of international students, the online written content proved very popular, although the video content was less popular. Reasons for this are potentially down to language barriers as the written content allows for more time to take in the content and fully understand it. Video content, while more dynamic, does not allow as much time for comprehension, particularly if the topics under discussion are complex, or the user is not so familiar with spoken English.

The conclusions drawn from the activities within this task indicate that current third-level (higher education) pedagogy in digital humanities and research infrastructures is typically aimed at postgraduate level. The majority of those undertaking such courses indicated that they do so in order to improve their career prospects. However, while course content is highly varied across all the courses studied, the results we gathered gave three clear conclusions:

a) internships and practical work are highly valued where it is possible to include them;
b) Digital Humanities courses need not emphasise a mastery of coding, but should not exclude it either; and,
c) making reusable content that allows course providers to integrate the materials as they see fit is welcome among course providers.

# 2. Acknowledgements

The authors wish to acknowledge the support of Dr. Jennifer Edmond, the Work Package 7 lead, in her helpful direction towards approaches to activities undertaken as part of this study.

The authors also wish to acknowledge the contributions from Dr. Ulrike Wuttke towards a number of the activities in this report, which helped to shape the conclusions contained herein.

The authors also wish to thank Dr. Frank Uiterwaal (Task 7.3 lead) and Dr. Steven Krauwer (WP2 lead) for their contribution to the development of the Roundtable Session held at DHBenelux2018.

# 3. Introduction to the Task and Deliverable

## 3.1. Description of Task 7.4 within the PARTHENOS Description of Work

***T7.4 - Definition of Higher Education Curricula***
*The task analyses current experiences on higher education concerning digital humanities and digital cultural heritage and establishes a reference curriculum for such, at undergraduate, postgraduate and doctoral level. It produces a final report (D7.5) describing the current situation and the necessary improvements.*

## 3.2. Key Deliverables of Task 7.4

***D7.5 - Report on Academic Curricula (Due Month 48)***
*The deliverable reports about the current situation of higher education curricula in the sector and describes the curricula developed in Task 7.2. It is produced by TCD.*

# 4. Methodology of task

The task overall took a multi-faceted approach to answer questions about how RIs are represented in DH courses, and what is needed to further integrate them into formal training programmes. In order to identify what works and what doesn't in a formal higher education setting, it was determined quite early on in the project that we should embed PARTHENOS training materials in a module so as to provide an evidence-based and practice-led approach to the concept of a reference curricula, an approach that was facilitated by the strong curricular underpinnings of the Training Suite developed by PARTHENOS Task 7.2. The module selected was a new module under development at King's College London that focussed on Research Data Management.

In order to ascertain which elements of the suite of PARTHENOS training materials would make most sense for this trial, we undertook a series of studies to identify what kinds of training is already in existence across Europe in the fields of digital humanities, if and how research infrastructures were represented in these courses, and what means of training were favoured by both students and the course providers. Similarly, we also wanted to know what course providers and students would like to see in a course that might not currently be readily available.

The studies undertaken began with desk research into the range of courses on offer across Europe. This was quickly followed up with an online survey that was disseminated via mailing lists such as Humanist, through existing networks with PARTHENOS partners such as DARIAH and CLARIN, and through personal contacts of task members.

Following the results of the online survey, we wanted to delve a little more into the challenges faced by course providers in developing training around research infrastructures and the issues related to them. We held two 'Course Provider Workshops' which brought together course providers from across Europe to discuss their training practices in digital humanities, and ask them specifically how PARTHENOS could assist them in acquiring skills they might need, and materials they can use in their teaching practices. We also held a Roundtable Session at the DHBenelux2018 conference alongside colleagues from the PARTHENOS Task 7.3 to discuss the successes and barriers to continual professional development.

Finally, the module itself was rolled out at King's College London in Autumn 2018. The module was attended by around 40 students, mostly international. To assess how well the PARTHENOS materials were integrated in the module, two surveys were conducted among the students: one at the mid-way point (week 5) and one in the last week of the module (week 10).

The specific details of the methodologies and the results of each of these activities is discussed in the following sections.

# 5. Review of current DH Higher Education Training Practices

To identify the current offering of formal DH training across Europe, we took a dual approach. On the one hand, we reviewed the courses on offer throughout Europe, using the DARIAH-CLARIN DH Course Registry as a basis, and then enhancing with our own search and knowledge of DH courses within our own networks. The study is by no means comprehensive, but does provide a reasonably rounded view of themes within DH pedagogy.

To supplement this desk research, we also conducted a survey among course providers and graduates of courses to find the reasons for students taking the course, the extent to which research infrastructures are covered in the course, and the methods by which course providers integrate them within their programmes.

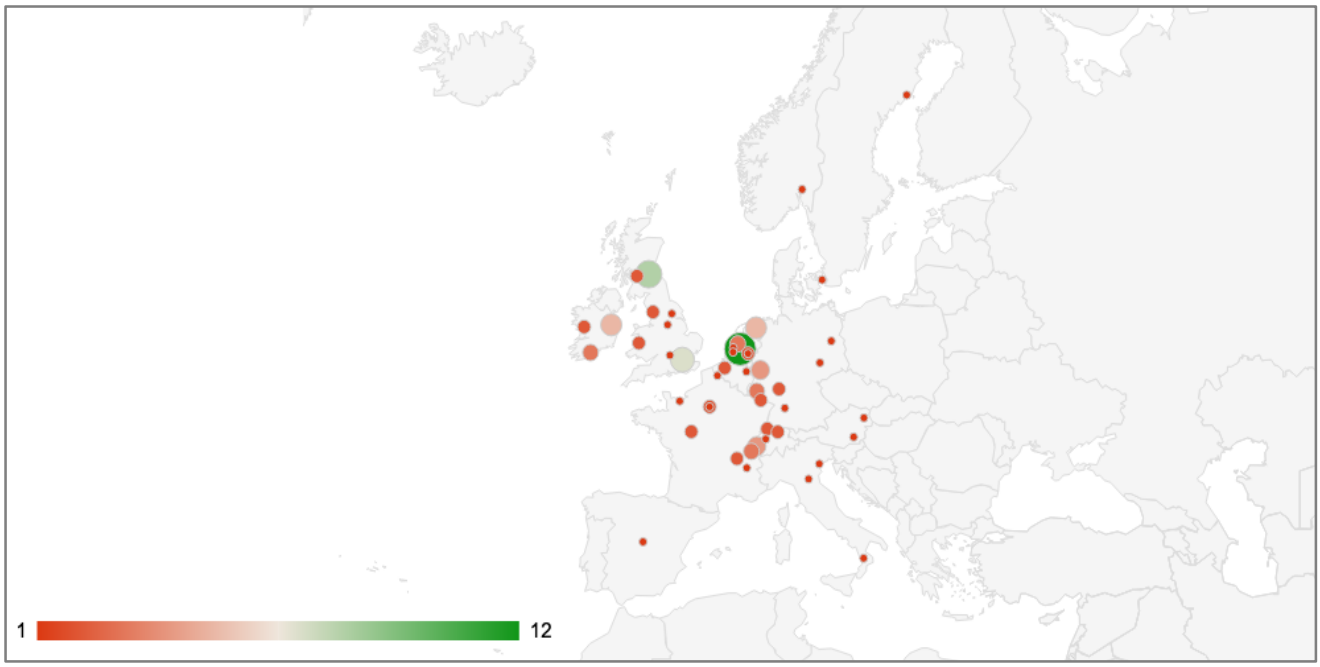


**Figure 1 - Geographic distribution of courses surveyed**

## 5.1. Desk Research - Reviewing Digital Humanities Education across Europe

The desk research identified 95 Digital Humanities courses across 13 Countries in Europe (see
Figure 1). While not a complete overview of courses offering DH training within European Higher Education Institutions, this study is based on the course listing in the DARIAH/CLARIN course registry, and through networks and known courses

elsewhere. This, therefore, offers a good sample for analysis of target audiences, organisation of courses structures and topics covered.

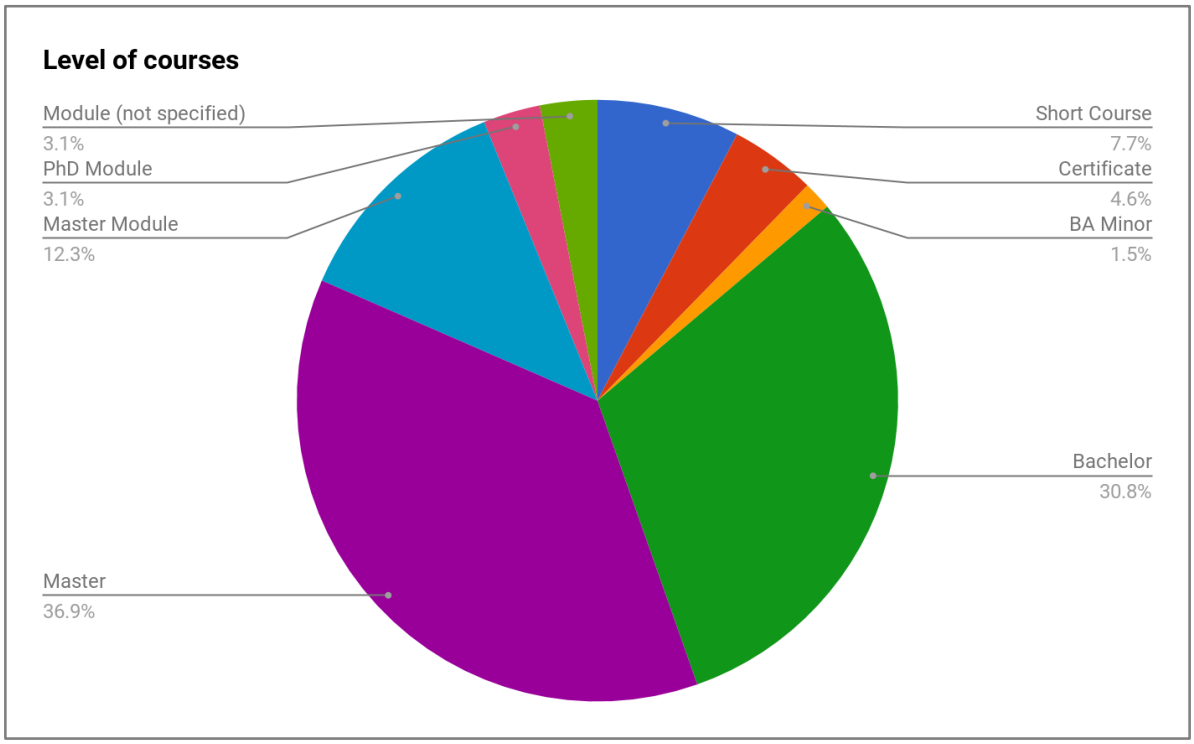


**Figure 2 - Level of formal courses offering Digital Humanities training**

Of those courses, 65 were able to be categorised by the level at which they were offered, e.g. Structured full PhD, PhD module, Summer School, Master's Degree, etc (see Figure 2).

The majority of courses were at Master's level (36.9%) with a full undergraduate degrees making up a significant portion (30.8%). The remaining 32.3% comprised shorter modules, or minor degrees either with a specific DH focus (such as "Digital Humanities and Social Analytics"), or as part of a more broad 'Humanities' degree.

This suggests that DH courses as full degrees are more prevalent in our data than shorter-term modules that supplement a larger degree programme, or as some form of Continuous Professional Development (CPD). Of course, this is perhaps skewed in some way as our results are based mainly on a pre-existing course registry, as well as through gaining information from the websites and online prospectuses of higher education institutions. Ad hoc training activities such as one-off skills development workshops may also been missed in this approach, as they are more likely to be displayed on 'news and events' sections than in a formal prospectus.

As well as looking at the level at which DH training is generally pitched across Europe, we also looked at the themes of the course. The term 'Digital Humanities' is a broad one, and sometimes nuances in the course content can be missed. Therefore, we categorised the

courses from their titles (e.g. MSc in Computational Humanities or MA Digital Humanities) based on whether they dealt with digital curation and information management, were more 'humanities' based with an addition of digital skills included, were computational in base with some 'humanistic' theory applied, or had another angle.

Over half of the courses were listed as 'Digital Humanities' (n=51, 54%), with Language Studies (n=11), Humanities (n=9) and Computer Science (n=9) as the next three biggest categories (see Table 1, and
Figure 3). The remaining categories become much more specific, and therefore smaller in number, covering such things as Text Analysis (TEI), Psychology and Digital Social Science.

**Table 1 - Number of disciplines or subjects covered under 'Digital Humanities' courses of those surveyed across Europe**

| Discipline / Subject of course | Number of courses |
|---|---|
| Digital Humanities | 51 |
| Humanities | 9 |
| Information Science | 5 |
| Languages Studies | 11 |
| Psychology | 3 |
| Computer science | 9 |
| Digital Heritage | 3 |
| Text Analysis | 3 |
| Digital Soc. Sci. | 1 |
| Digital Curation | 4 |
| **Total surveyed** | **95** |

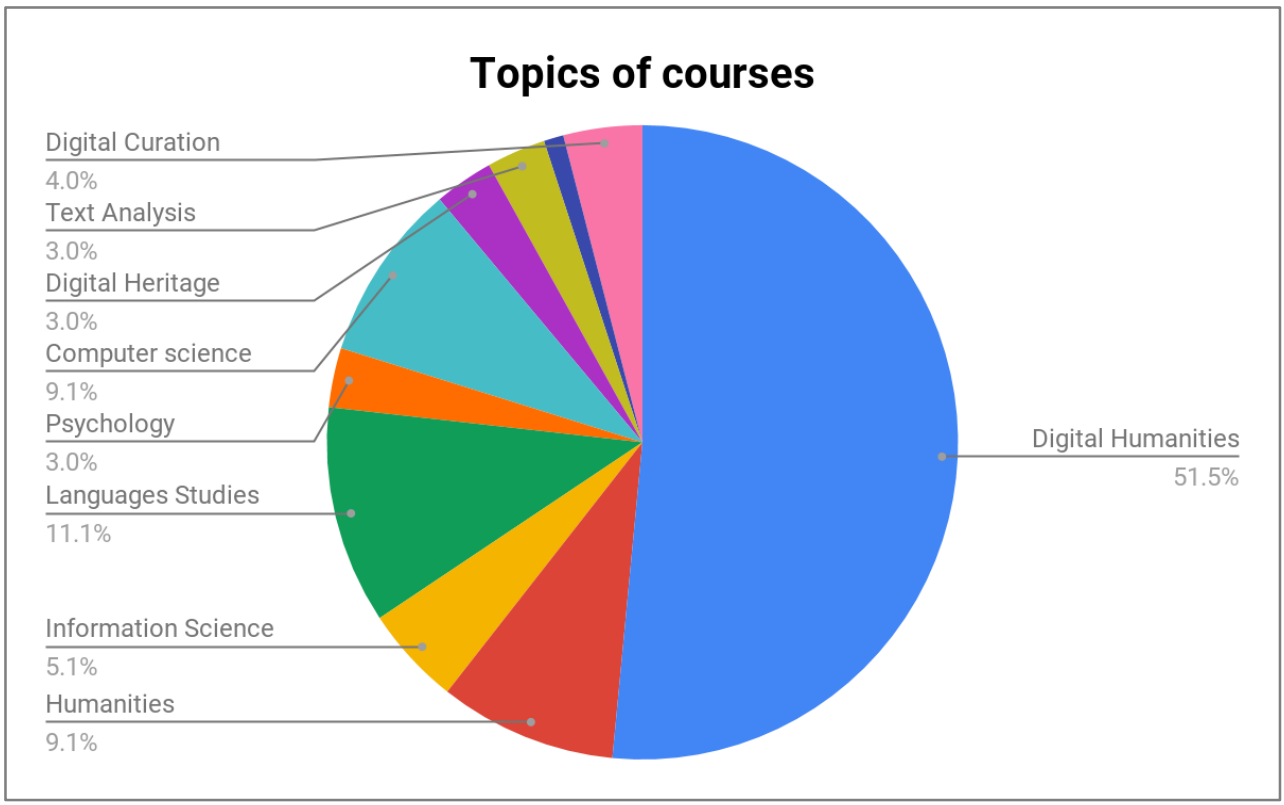


**Figure 3 - Visual representation of topics of courses surveyed**

That categories such as Information Science, Digital Curation and Digital Heritage are not so strongly represented within this group is perhaps a surprise, given the vast overlap between library science and digital curation and preservation techniques. However, that is again perhaps in the nature of the approach we have taken and the biases of our networks and the coverage of the DH Course Registry. Such courses do exist, and are widely known. But the DARIAH/CLARIN Course Registry on which the majority of this data is based was a DARIAH/CLARIN-led activity, and therefore relied on the networks within those research infrastructures. Course providers put their courses forward for inclusion. If a course provider didn't know about the registry, they naturally won't be included in this.

Digital curation and preservation (and associated 'heritage' professions and disciplines) does overlap with the Digital Humanities, but many working in preservation and heritage professions might not associate themselves with the term 'digital' at all. This gives a potentially interesting scope for how training in Research Infrastructures may choose to develop, and tells us about the minor but persistent schism between fields that could otherwise be extremely complementary.

## 5.2. Survey Questionnaire results

Of course, only so much information about the course content can be gleaned from the course title alone. For this reason, we drew up a survey questionnaire, and sent it out to all the course providers identified in our desk research, as well as to other academics

within those schools or departments (totalling approx. 270 people). In addition to this mail out, a press release was issued to mailing lists (Humanist, DARIAH-EU), disseminated through PARTHENOS and DARIAH blogposts, and promoted via Twitter (augmented through retweeting from personal accounts). We also made use of personal networks within the PARTHENOS project to reach colleagues that might otherwise not be aware of the survey.

The survey was available from March 2017 until the end of July 2017. In total, 41 people responded, the majority of whom were course providers. The coverage was once again from across Europe, with two responses from the USA. While the majority of respondents were from Greece and Ireland, a good number were also from the UK and Austria, with smaller numbers from Spain, France, Hungary, Germany and Finland. We can therefore be confident that our results display some representation of the state of DH training across the continent (see
Figure 4).

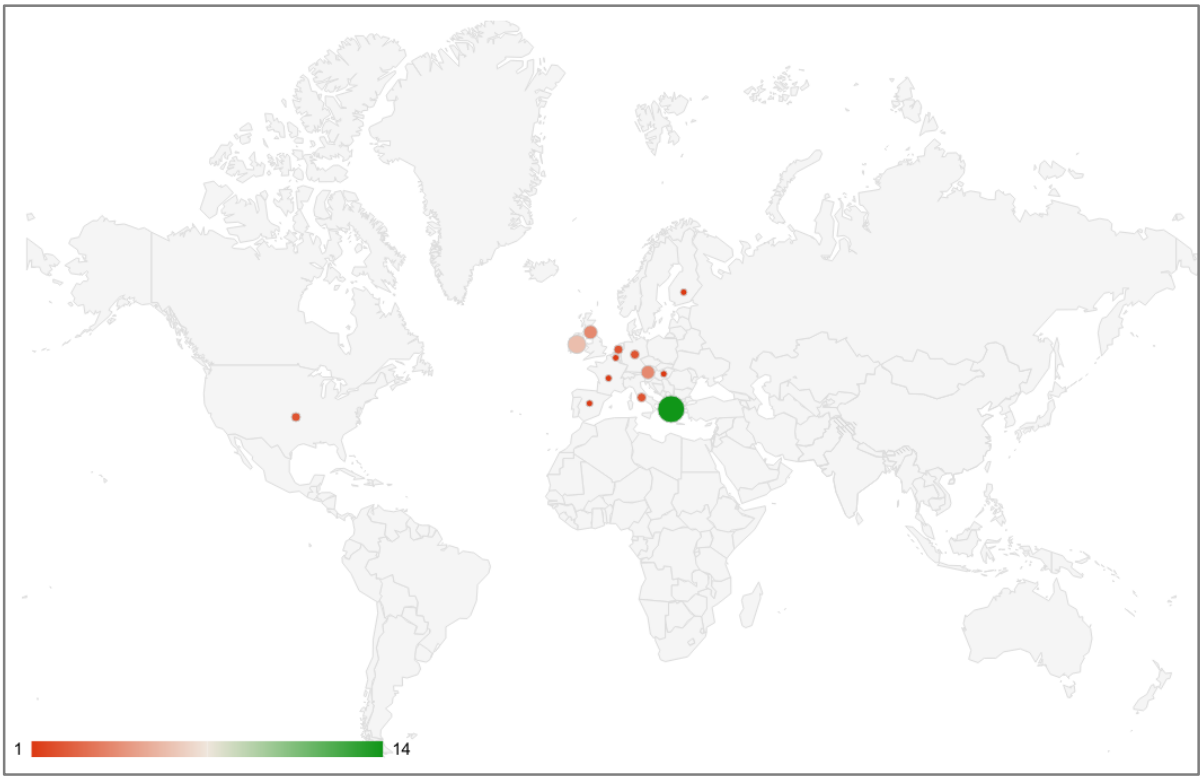


**Figure 4 - Geographical distribution of responses to online survey**

The majority of responses were from course providers, with 17% of responses (n=7) coming from students or recent graduates of DH training courses (see
Figure 5)

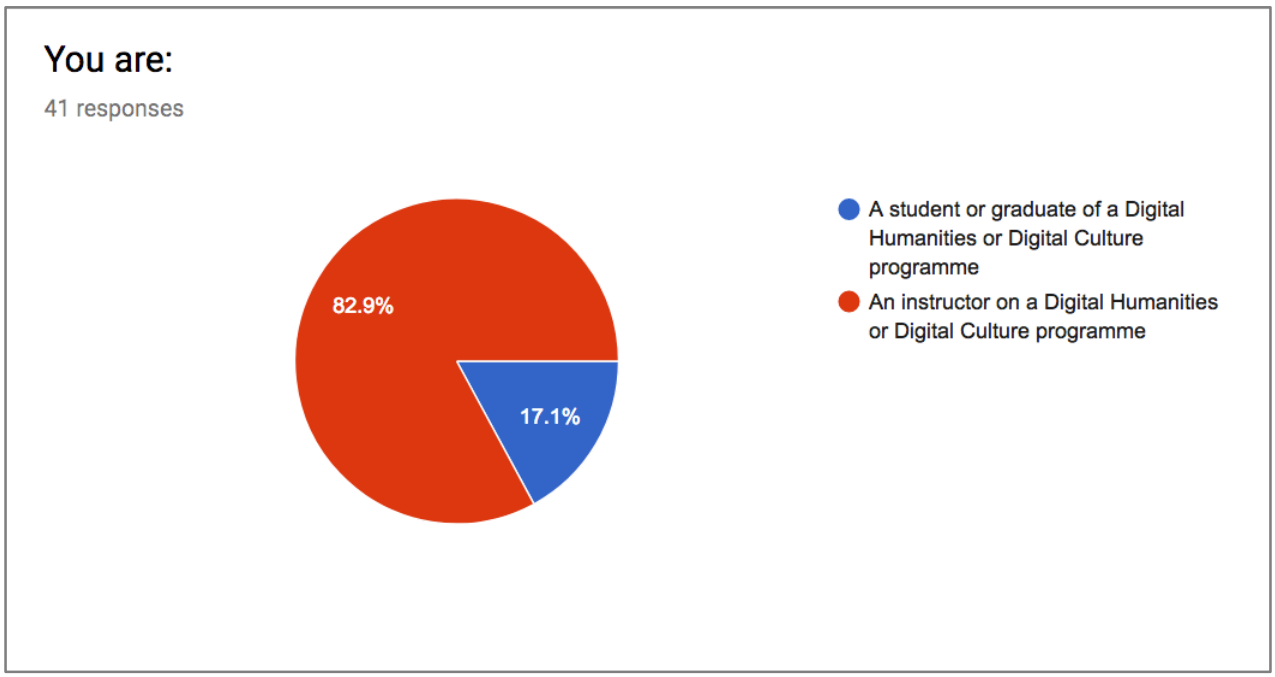


**Figure 5 – Survey responses from course providers and course recipients**

Of the courses taken by the Students/Graduates, 57% were at Master's level, with the remaining number equally split between undergraduate, postgraduate certificates and PhD students (see
Figure 6).

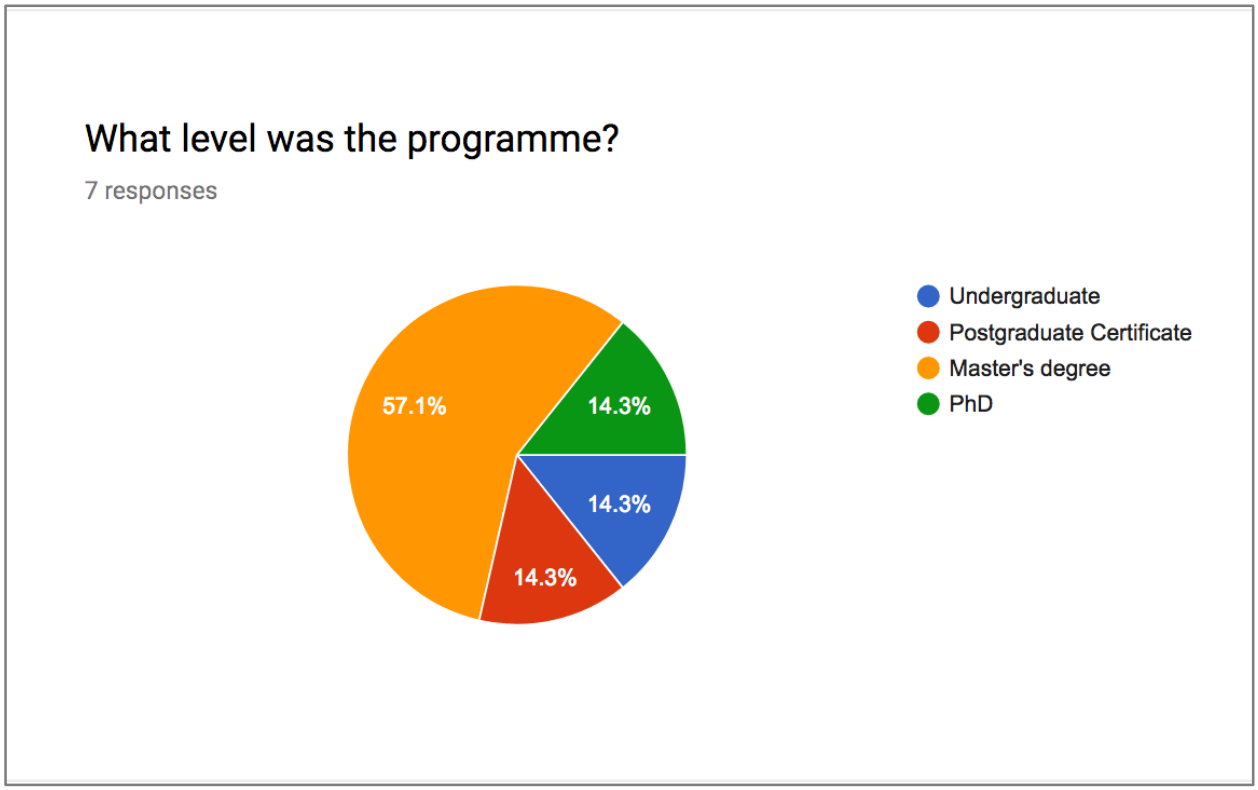


**Figure 6 - Academic level of courses**

The Students/Graduates were asked their reasons for taking the course. From the responses (see Figure 7), it's clear that many are thinking of their future career, or possibly continued professional development in undertaking a course in DH, as this was listed as by far the most common reason for taking the course. While 'Personal Interest' and 'Expand Research Methods' were equally listed (along with 'all three'), overall a desire to increase one's skill-set for whatever reason is the main motivation behind engaging in training in DH.

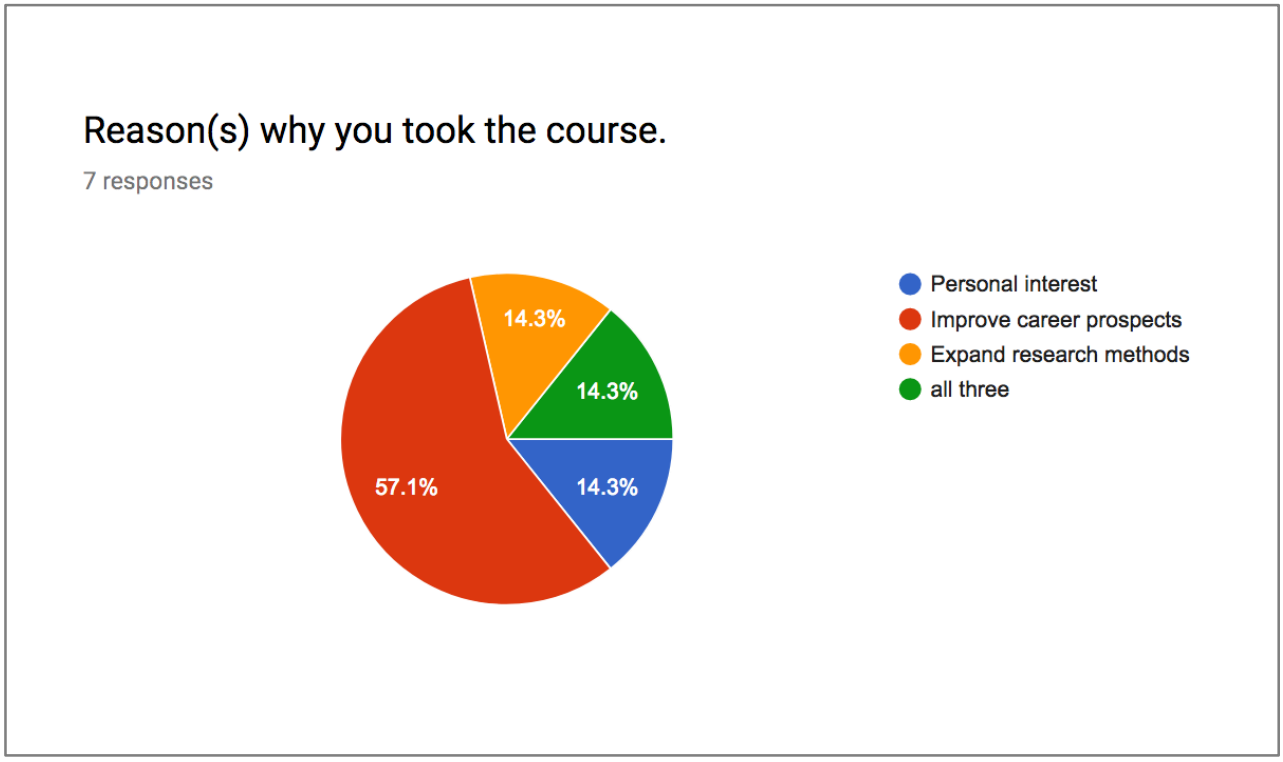


**Figure 7 - Reasons student / graduate respondents to survey took their course**

The responses from the course providers on the motivations for taking courses, however, differ. According to them the main reason for taking the course is due to 'personal interest' (n=18), whereas 'Improve career prospects' and 'Expand Research Methods' came in secondary to this reason (see
Figure 8). Whether the course providers have an alternative view as to the motivation for studying their subject, or we are simply getting different responses from different courses is not clear from the numbers we have. This is not to say that career progression and CPD are not covered in these responses, however; indeed, if the number of responses to both 'improve career prospects' (n=15) and 'expand research methods' (n=14) were to be combined, we would see a strong CPD/career-based motivation among DH course participants.

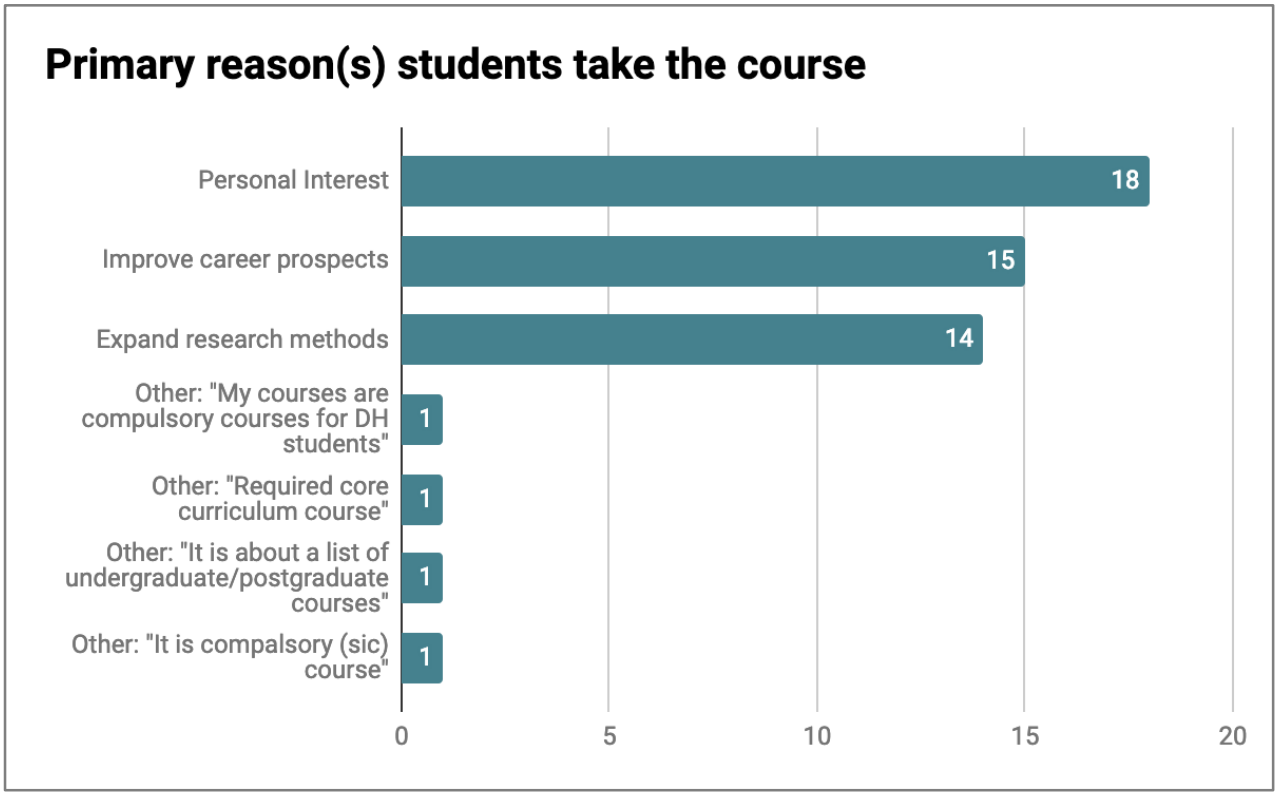


**Figure 8 - Reasons students took courses, according to course providers**

Of course, the main purpose of this survey was to look at how Research Infrastructures are integrated into DH training. Questions around this were aimed at both students/graduates and course providers. We first asked 'How are Research Infrastructures introduced into this course?' and provided four possible answers as well as an 'other' option for free text. The four given answers were:

- Not at all or not really, passing reference;
- Referred to regularly as a frame of reference;
- Covered in one of more lectures;
- Integrated as an internship or project work.

Of these answers, the responses were more or less split evenly, with 'covered in one or more lectures' as the highest answer (29%) where the other three answers each receiving 23% of the responses (see Figure 9).

Of the 'other' answers, which were provided with free text, two were given:

> "difficult to say, certainly my research isn't covered, but then 'research infrastructures' is sort of a disparate concept"
>
> "More than one of the above"

We can see that Research Infrastructures are referred to in some manner or another in the courses, whether they are referred to sporadically, or fully integrated as either an

internship or project work. But what other approaches could be taken to better integrate Research Infrastructures into curricula of DH training?

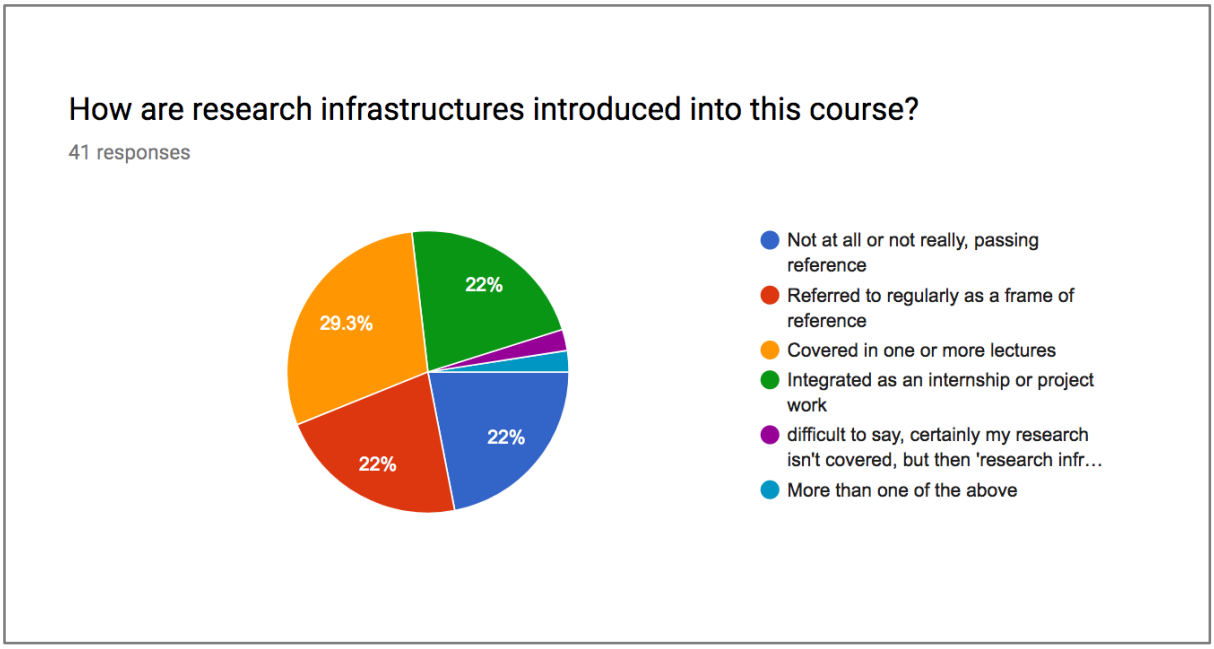


**Figure 9 - How research infrastructures are introduced in courses from online survey**

In asking this question, we once again provided multiple choice answers, as well as offering respondents the opportunity to provide their own answers. The multiple choice answers we provided were:

- By providing reusable teaching materials on infrastructure;
- By providing course outlines;
- By providing free-standing training events;
- By accepting students or teaching staff on internship placements;
- By providing reusable teaching materials on other topics.

Respondents were asked to tick all that applied. Of these multiple choice answers, the largest response came from the option for providing reusable teaching materials on infrastructure (see Figure 10). The next largest portion of the responses then came in favour of internships, with the remaining three options being equally represented.

Of the free text answers, suggestions focused on the content of the courses, such as better clarification of how research infrastructures support teaching methods within DH training, or in the content of the RIs themselves ("by making more complete datasets available"). Another suggestion was "peer to peer lerning" (sic). While no further information was provided, it is assumed that this participant meant something akin to reading groups, or perhaps a mentorship approach with someone working with, alongside or in a Research Infrastructure.

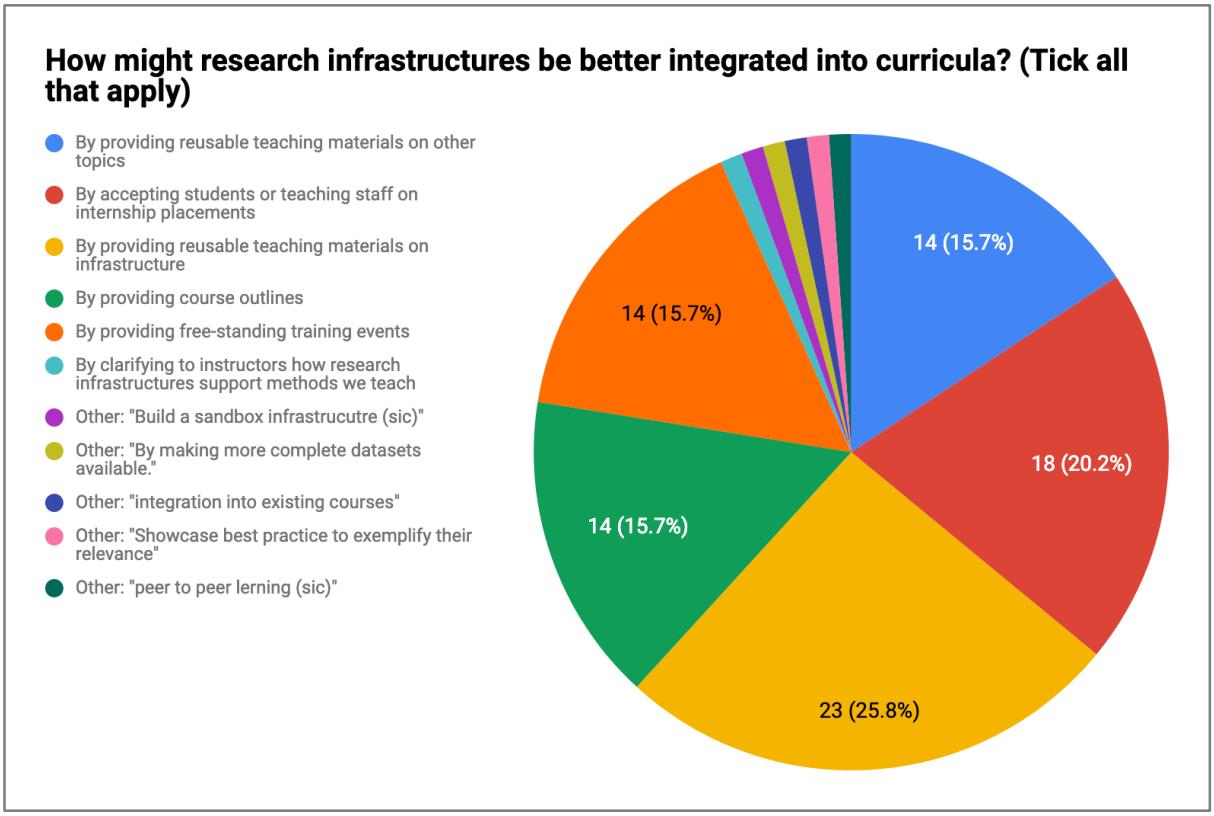


**Figure 10 - Suggestions for how research infrastructures could be better integrated into HE curricula**

The notion of an internship is indeed an interesting one. As the comment above shows, research infrastructures are seen as 'disparate', and definitions can vary from discipline to discipline around what 'research infrastructure' actually means. Within the Humanities, an RI can be a very abstract concept, referring more to distributed networks of communities that might develop tools and services or data collections for use within those communities. However, in the physical sciences, a research infrastructure might be much more tangible. So, perhaps the only way to 'get to grips' with what a research infrastructure means within a given AHSS discipline is to actually work within one. Project work, or at a much more integrated level, an internship, would give the researcher the opportunity to see first-hand what it means to work alongside or within a Research Infrastructure.

There are drawbacks to this approach of course. We identified three main challenges: First, Internships are more likely to require a significant time commitment, and depending on the nature of the work might also require mobility in order to access the main administrative offices of the RI. Second, they also have an inherent limit in terms of scope because RIs often evolve from a specific need within a community of practice and may have developed a jargon that can be difficult to learn in a short time. One way to get around this, however, could to be make the internships very focussed on completing a specific task, such as conducting a study or organising an event. Third, courses on DH might take on large numbers, particularly at a certificate or undergraduate level, and therefore an RI might not be able to accommodate such large numbers. Only a lucky few might get the opportunity.

Finally, we asked our respondents if there was anything else they thought we should know on the topic. The responses received were:

> "Infrastructure would not be my focus, too far removed from research insights, products."
>
> "One of our modules, we teach students basic knowledge about GIS data infrastructures and their interest for the social sciences, it is not exactly the same research infrastructures you meant but it is somehow related. In any case, I would like to integrate your material into our training modules."
>
> "I use first books and university manuals/ then electronic sources are used with a critical eye!"
>
> "Not always clear to others what a RI is, so start there (?)"
>
> "internationalization of curriculum.. "
>
> "By providing permanent technical/informative support to teaching infrastructure by specific one-two staff members of the department"

There is an appetite for further training of some sort on research infrastructures from most of these respondents. Where there is less enthusiasm for including research infrastructures in a formal curriculum, it perhaps falls to both the course provider, and equally to the research infrastructures themselves to better communicate the benefits of participation in large-scale international consortia such as these. Encouragingly, many suggestions for how the provision of training around RIs could be implemented or improved fall in with decisions already taken within the PARTHENOS project to provide reusable training materials, and also engage in some manner of transnational access.

## 5.3. Conclusions from desk research

Research infrastructures and the issues related to them are represented in part in current digital humanities training, but not at a level that leaves graduates feeling confident as to what a research infrastructure can do for them, or how the issues might affect their research first-hand. Given the practical applications of working alongside an RI, it seems sensible that the training in that area would also take a more practical approach. Internships and project work are of course an ideal scenario, but are they scalable for the large numbers of students on some courses? Are they also practical in a CPD course, where the student might be limited in terms of their availability beyond the work they are contracted to complete as part of their employment?

PARTHENOS is already addressing many of these issues by providing reusable training materials, and adopting a 'Train the Trainer' approach that empowers the course provider to decide how the training materials might be used within their course.

# 6. Course Provider Workshops

Following on from the questionnaire that was conducted in the early part of 2017, we decided that further information from course providers would be useful. Our initial approach was to invite participants from the questionnaire to take part in an online workshop via Skype. This call took place in December 2017, with two course providers from Spain and Ireland.

To build on the information that we gathered from this first workshop, T7.4 hosted a second Course Provider Workshop in April 2018, this time with five participants from across Europe.

The questions under discussion during these workshops covered topics around course structure, with a tight focus on how Research Infrastructures were included (if at all) within the course content. The questions used were:

- What RIs if any do you refer to in your course, and how (e.g. regularly throughout course - or one off introduction to RIs)?
    - Why do you include RIs (if at all)?
- Where do you typically draw your training materials from?
- How do you express course/module specific learning objectives and the skills you teach to help students meet these outcomes?
    - What theories and concepts do you expect students to be familiar with by the time you finish a module on DH or data management?
- What challenges did you find in providing your course?
    - How could a cluster project like PARTHENOS be useful to you in combating this?
- Your thoughts on skills-based learning (e.g. group work, learning to code, project-based work, handling and preparing data-sets, etc.).

## 6.1. Participants and the courses

### 6.1.1. Locations of participants

The nine participants from both workshops represented courses across Europe:

- Bulgaria (two participants);
- Finland (two participants);
- France (one participant);
- Germany (one participant);
- Ireland (one participant);
- Spain (two participants).

### 6.1.2. Overview the courses they provide

Nearly all of the courses represented were based upon in-class face-to face formal teaching, with two of the courses taught via distance learning (one in Spain, one in Germany). All courses were at a postgraduate level, with some course providers discussing both a postgraduate and an undergraduate course. Nearly all courses on offer were ‘Digital Humanities’ themed, although not all used that phrase in their course

title. Some course providers also indicated that while their course, or module, formed part of a 'Digital Humanities' degree, the modules were open to anyone within the institution undertaking a Humanities degree.

The typical topics that were covered within the courses were software-based skills such as GIS or TEI, practical skills such as archival practices or 'hackathon' activities, or more theoretical topics such as digital literacy issues, and research data management.

## 6.2. Inclusion of Research Infrastructures in HE Courses

As with the results of our online survey, the inclusion of Research Infrastructures in the courses represented in our Course Providers' Workshops was varied. In some cases, the course conveners were already directly involved in RIs such as DARIAH, or CLARIN, and were, therefore, more comfortable including RIs as an integrated element within the course.

One course provider in Finland noted that it can depend on the structure of the course, with some of their courses using RIs to introduce concepts to MA students with a non-digital background, and others taking a more practical approach (in the case of 'hackathons' where they work in direct collaboration with an RI to provide data or tools for the students to use.

Other course providers, however, suggested that while they had included RIs via the tools and services on offer, they had difficulty integrating them into the courses as the **concepts around RIs could sometimes be a little vague**, particularly for scholars who had not come from a 'Digital Humanities' background. Of those who offer distance learning, there was particular concern around introducing RIs and the tools and services they can offer, as **sustainability of the resources** could sometimes be an issue.

## 6.3. Use of Training Resources

As one might expect, the training materials used within the courses depended on the course. Some of the course providers drew a lot of the resources from RIs such as DARIAH and CLARIN, whereas other course providers noted that much of the training material came from books and online tutorials. For the most part, however, the course providers drew from their own research or team resources.

## 6.4. Setting and meeting learning objectives of the courses

When setting the learning outcomes of the course, some re-used a syllabus from previous years, and others modified or set the learning objectives based on the research interests of the course members. In order to help the students meet the objectives of the course, all offered continual support in the form of regularly checking in, offering helpful tools, and requiring students to write short reviews of their learning progression in order for the course provider to keep a track of engagement with the content.

However, this was not without its challenges. As one course provider noted: "It's a collaborative course, so how do you get a group working where not everybody has the

same skills set?". Similarly, as indicated by one of the distance learning course providers, there is a strong sense of isolation among students, which is a known issue for distance learning. One of the ways these course providers have tried to combat this issue is to teach the students how to learn as part of the course.

## 6.5. Challenges in providing courses (and how can PARTHENOS help?)

Some of the course providers noted that challenges for the students came from a variety of different backgrounds and, therefore, picked up different aspects of the course content at different rates. As already noted, the feeling of isolation among distance learners is very strong, which is only exacerbated if they are having difficulty picking up a particular concept.

Frustration was also noted among the students if they were trying to learn a new tool within the space of a term, as one course provider noted, many of the students just gave up trying to learn the tool at all. Similarly, in relation to learning about and engaging with RIs, many students (and indeed the course providers themselves) expressed a lack of interest in the case of smaller RIs where the sustainability was of concern.

One course provider mentioned that sometimes the challenge in trying to provide information around RIs came from a lack of clarity from the RI as to its purpose, its intended user and what services it can offer. As noted before, some of the course providers are not directly involved in RIs themselves, or are not hugely familiar with what they can offer, particularly as definitions around RIs can also vary among different scholars.

### 6.5.1. How can PARTHENOS help?

From the description of some of the issues that students and course providers alike are facing, sustainable and reusable training resources are obviously in demand. This is something already provided by PARTHENOS through the Training Suite in its 'Train the Trainer' approach, and is something that has also been adopted by other non-PARTHENOS RIs such as CESSDA, and projects such as DariahTEACH.

However, when it comes to specific interventions that were mentioned by the course providers, a call for PARTHENOS to help to define the skills or basic concepts needed to understand RIs was given. The creation of platform with requests for subject-specific topics such as Standards and Ontologies was also called for (topics which at the time of the Course Providers' Workshops either had only recently been released, or were under development as modules on the PARTHENOS Training Suite).

## 6.6. Additional concerns and thoughts around skills-based learning

As is evident from the responses we received to our questions in the CPWs, the issue of long-term sustainability of not just RIs, but tools, services and indeed training resources is

a major concern for the course providers. They are reluctant to invest too much of their courses in outputs from RIs that might not be available in the near future.

The range of skills that might be required both in a wider DH-themed course, and more specifically in relation to RIs is somewhat daunting, and there were requests for a 'Need to Know' checklist for both students and course providers. As was pointed out during the discussion, however, this can be highly subjective, as "Digital Humanities has become a 'self-contained' thing… some value approaches such as Topic Modelling, others don't". Support from cluster projects like PARTHENOS to help point those who wish to 'retrain' or 'upskill' in the right direction was suggested by one course provider.

# 7. DHBenelux 2018 Roundtable session

## 7.1. Background

In conjunction with Task 7.3, the Task 7.4 team held a roundtable session around Continual Professional Development (CPD) entitled ***"Holding the Ladder: How can Research Infrastructures assist in Continual Professional Development?"*** at the DHBenelux conference in Amsterdam in June 2018. The aim of this roundtable session was to gain insights from both recipients and providers of CPD activities such as Transnational Access programmes (the focus of Task 7.3) and Skills Development (within the purview of Task 7.4).

## 7.2. Design of the Roundtable

The Roundtable session ran for 90 minutes, and was broken down into the respective areas of TNA and Skills Development. Lightning presentations (of around 5 minutes) were given by a recipient of either TNA, or of formal training around Research Infrastructures in a Higher Education Institution (HEI) whereby they discussed their experiences, and what they considered the benefits, or indeed the areas for improvement, of such programmes. These were then followed by providers of either TNA programmes or formal training, again reflecting on their experiences and what they considered to be benefits or areas for improvement. After each sub-session, the floor was opened up for discussion with the audience. At the end of the Roundtable session, the discussion was summarised by a rapporteur.

The full running order of the session was as follows:

"Holding the Ladder" Roundtable Session

- **Introduction to the PARTHENOS project** (5 mins)
- **Brief outline of the aims of Tasks 7.3 and 7.4** (10 mins)
- **Case Studies** (60 mins total)
  4 panellists, each bringing a 'case study'-like presentation, to showcase their own experience:
  - **Higher Education experiences**
    - Daan den Braven - The Graduate Perspective (10 mins)
    - Dr. Kristen Schuster - the Course Provider Perspective (10 Mins)
    - Discussion (10 mins)
  - **Transnational Access experiences**
    - Dr. Anna Ullrich - The TNA Provider Perspective (10 Mins)
    - Dr. Simon Hengchen - The TNA Recipient Perspective (10 Mins)
    - Discussion (10 mins)
- **Further discussion** (10 mins)
  Wider discussion around continual professional development.
- **Concluding remarks from Dr. Steven Krauwer, CLARIN** (5 mins)

## 7.3. Audience

The Roundtable was designed to welcome researchers and professionals at any level in their career who were either looking to develop their own skills, or advise others looking to develop skills. In particular the session attracted professionals from the Cultural Heritage sector who were keen to develop new skills and offer their experiences of CPD, as well as course providers from across Europe.

## 7.4. Summary of presentations and group discussion

### 7.4.1. Outcomes of the discussion

*Please note, the full description of the outcomes from the discussion around Transnational Access programmes are available in PARTHENOS Deliverable 7.4. For that reason, this deliverable will only offer a brief synopsis of the outcomes for TNA, and focus in particular those outcomes pertinent to training around Research Infrastructures.*

Among the members of the roundtable audience, in particular those who had experience of course provision, there was an acknowledgement that there is often a difficulty around anticipation of skills and prior knowledge of the students. The perception of Digital Humanities as 'Humanities with Coding' is both a barrier for many, or an expectation from others, as many potential students are put off by the idea of 'coding', or find themselves disappointed if the course doesn't include an introduction to a coding language such as Python or Ruby. Instead, it was suggested that courses could turn to the provision and use of tools within Humanities research, rather than the need for coding.

Others commented that course provision for (or inclusion *of*) Research Infrastructures and DH-themed modules should happen before even postgraduate level, ideally incorporating the themes into undergraduate programmes.

Access to further training or TNA programmes for professionals in the Cultural Heritage sector, however, are often subject to the support of line managers or those at a more executive level in the organisation. Budgets and workloads can place constraints on access to upskilling through (Higher) Education or TNA programmes, requiring the professional to make a strong case for the financial or resource costs against the benefits. Many Cultural Heritage professionals within the roundtable were in agreement on this, but also made the point that often the notion of 'Research Infrastructures' is either not used, or misunderstood by stakeholders in their sector. They called for Research Infrastructures to reach out to archivists (and their employers) to first make it clear what a Research Infrastructure *is*, and secondly what the proven benefits of engaging in such programmes will have for the overall organisation.

It was also acknowledged that many courses in Europe are teaching issues related to DH and Research Infrastructures from a European context, yet many of the students taking the courses, especially at Masters level, are much more international (coming from the US or Asia). Therefore, special care has to be taken to make sure that while the responses were presented from a European context, there are still efforts to ensure that the skills and overall knowledge the graduates of such courses come away with are globally relevant.

## 7.5. Key points

In summing up the discussion, the rapporteur (Steven Krauwer, CLARIN) noted the following:

- There is **no perfect way to introduce Digital Humanities skills into a course** as sometimes the coding can scare some people off if it is included, or be a disappointment to others when it is not.
- It is very important to **ensure interdisciplinary contact** (primarily through TNA, but can also apply to training) to gain an appreciation for how other disciplines *think*.
- **Digital Humanities should ideally be on the curriculum for Cultural Heritage students** too, but it is difficult to know where to place it.
- There is a need for **Research Infrastructures to put more efforts into raising awareness**, especially as many Cultural heritage practitioners (and Humanists) don't always know what they don't know.

# 8. Specific interventions by PARTHENOS

## 8.1. Outline of the module at King's College London

The module "Research Data Management" at King's College London introduced postgraduate students to the core concepts and practices of research data management (RDM). Lecture themes and seminar activities revolved around three educational aims:

1. Discuss the role data management plays in digital humanities work and research;
2. Evaluate the foundational concepts and practices necessary for data management;
3. Apply best practices for selecting and implementing technologies, policies and workflows that support data management.

Over the course of ten weeks, students developed strategies for discussing and defining data, institutional repositories and research infrastructures. While gaining theoretical knowledge and practical skills students used best practice guidelines and models to develop research data management strategies.

## 8.2. Including PARTHENOS materials

The PARTHENOS training materials used throughout the module included video lectures with accompanying downloadable presentation slides (made available on SlideShare), shorter videos around basic concepts in Research Infrastructures, and links to content in sections of the "Manage, Improve and Open Up your Research Data" PARTHENOS module and the "Introduction to Research Infrastructures" module, which was given as required reading in preparation for lectures in classes. The students participating in the course were mostly non-native English speakers, and many of them came from outside Europe.

## 8.3. Structure of the Module

### 8.3.1. Module Weeks 1-5

During weeks 1-5, lectures and seminars were conducted at King's College London. The module began with an overview of best practices and standards for research data management. Lectures introduced the following topics:

- **Defining terms & evaluating models;**
- **Research infrastructures;**
- **Working with datasets – Considerations, benefits and challenges;**
- **Sharing and reusing data.**

Two questions guided lectures and helped structure seminar activities:

1. What is data?
2. What do we mean by research infrastructures?

Asking the question 'what is data?' helped to contextualize the functional requirements for creating, describing and preserving structured information. To prepare for classes, students were asked to read a combination of academic journal articles, and PARTHENOS training materials. Students were able to apply theories and models discussed during lecture. Understanding theories and practices for defining and managing

data segued to descriptions and analyses of research infrastructures. Asking 'what do we mean by research infrastructures?' required students to explore different requirements for developing policies, protocols and technical specifications for collaborative endeavours to create, use and re-use research data.

During seminars students worked in small groups and developed strategies for managing a 'dataset' created by students from another course offered at KCL entitled "Digital Archives". This seminar work required students to apply best practice guidelines such as the FAIR Data Principles and evaluate the appropriateness of models such as the DCC Curation Lifecycle Model (Higgins, 2008). This work presented opportunities to experiment with and adapt guidelines for handling structured information. Students were given opportunities to receive regular feedback during and after seminars. Students worked on projects during one hour in-class seminars, and were able to receive immediate feedback which they could apply to a draft RDM strategy (which they received ongoing feedback on via an online class discussion forum).

At the end of Week 5 students were tasked with writing a 1,000 word essay based on their work with the module datasets that addressed the following points:

- Provide a concise definition of research infrastructures;
- Using your definition, briefly discuss how curation lifecycle models can support evaluating and implementing research data management strategies.

The King's College London marking scheme for postgraduate courses falls into the following framework: 50%-59% = pass; 60%-69% = merit; 70% and above = distinction. Students did well and the average marks ranged between 55-65% with only a few exceptions.

Students most frequently referenced PARTHENOS materials that addressed research infrastructures (for example training videos such as "What IS Research Infrastructure?", and the accompanying slides). In part this was due to the essay prompt, but it is also likely students found the PARTHENOS materials on RIs relevant based on their emerging understanding of RDM as a collaborative and ongoing negotiation of researcher, discipline and institutional needs.

### 8.3.2. Module Weeks 6-10

During weeks 6-9 students worked at the Royal United Service Institute (RUSI) and implemented their RDM strategies. While working at RUSI students were asked to evaluate and revise their RDM strategy so that it met the following criteria:

**Review, revise and augment the existing data:**

- What additional information can you find on the items included in your dataset?
- Following the digitization and curation guidelines previously developed, add 10-15 new items to the dataset.

**Managing your research data: Organizing, preserving and sharing your data**

- What RI would you recommend RUSI develop or implement?
- What IPR principles and policies might you need to apply to ensure ongoing curatorial work with this data?

**Develop a strategy to publicise and make your research data open**

- Social media, blogs, repositories… which will be the most accessible, affordable, and sustainable?

During week 10, students summarized their projects in short (15 minute) presentations. Student projects all developed some type of user interface, recommendations for repositories, guidelines for managing metadata, and outlined plans for future work that included recommendations for selecting and adding new materials to their repositories, steps needed to develop functional indexes and databases and guidance for digital preservation practices.

At the end of the module, students wrote 3,000 word essays that discussed how their understanding of RDM evolved over the course the semester. Before submitting their 3,000 word essays, students presented summaries of their group work. Presentations were short (no longer than 15 minutes), but they were an opportunity for students to recognize and discuss the variety of approaches researchers and cultural heritage institutions can take to contribute to RIs based on the development and maintenance of RDM strategies.

Students based their response to their final assessment on their term-time project. While their first assessment asked them to define terms while they were drafting RDM strategies, their final assessment required them to assess the strengths and weaknesses of their project based on the definitions they presented, as well as a critical analysis of how their initial definitions could be revised. Asking students to write about their contributions to a group project resulted in diverse and complex discussions about the ways RDM can contribute to the development of institutional repositories, and the roles institutional repositories play in the development of RIs. Students successfully based their observations in analyses of the many different types of data cultural heritage institutions like the Royal United Service Institute need to manage, and the types of partnerships necessary to undertaking research projects.

Overall, students successfully addressed their final assessment prompt and demonstrated a more nuanced understanding of research data management. Marks ranged from 59%-71% (pass to distinction) with a few exceptions.

In feedback from the King's College London 'module and teaching feedback' internal evaluation procedure, students expressed that they felt prepared to work on their essays. While students did not overtly mention whether they planned to use the PARTHENOS training materials, based on the essay prompt it is reasonable to expect that they will in some way draw on materials relating to RIs and preservation.

## 8.4. Evaluation of the module

To further evaluate the usefulness of PARTHENOS training materials within the course, PARTHENOS conducted a separate evaluation process in which we asked the students to complete two surveys: one at the end of the theoretical classroom-based section in weeks 1-5; and a second at the end of the practical section in weeks 6-10. We were interested in how useful the students found the materials from a classroom learning perspective, and

how the materials might be received and referred to in a task-based setting. The first questionnaire was completed by 17 of the 47 participants in the module.

The first set of eight questions aimed at identifying the participants' profiles (academic background, intersecting fields of interest, previous experience, digital literacy).
Responses concerning the academic disciplinary background showed that Cultural Heritage and traditional Humanities disciplines such as History and Archaeology, or even fields that have widely adopted DH methods and tools (Language, Linguistics) were not represented, whereas Media and Communication Studies were dominant (6), followed by Advertising (2), Art history (2), Chinese Language and Literature (1), English literature (1), International Relations (1), Anthropology (1), Philosophy (1) and Journalism (1).

The most common MA programmes the participants of the module were enrolled in were by far the Digital Asset and Media management MA (10 students), with the Big data in Culture & Society (3), Digital Culture & Society (2), Digital Curation (1) and Digital Humanities (1) MAs giving the whole picture.

When asked what motivated them to follow the specific module, five (5) students linked their decision directly to employment prospects i.e. "get a decent job", career planning, academic aspirations and the acquisition/improvement of research skills. The majority (12) expressed a general interest on data management, digital content or virtual reality "society", big data and metadata, and gaining knowledge.

A variety of other modules seem to have captured the interest of the participants, in addition to the module in question: Form Digital Publishing (2), Curating and digital preservation (2), Management for Digital Content Industries (2) to Data Visualisation and Analysis and the Dark web.

Almost a quarter of the students had previously been involved in cultural heritage roles or projects before taking the module (23.5%). The latter comprised curation and planning of an exhibition, library services, cultural heritage preservation and ancient Chinese handicrafts research.

Two questions on digital literacy completed the set of questions we posed to create the students' profile. "Which elements of digital literacy are you familiar with?" and "On a scale of 1 to 10 how familiar are you with digital tools, services and infrastructures?". Digital publication platforms were the most familiar, while participants having learned a programming language followed (see Figure 11).

Finally, when assessing their familiarity with digital tools, services and infrastructures the majority of the students considered it rather little (15 responses graded up to 5).

The second set of five questions focussed on the usefulness of the PARTHENOS course training materials. We investigated their accessibility (in terms of both language used and pace of delivery), the format most/least useful to the students' study and their relevance to the practical group work.

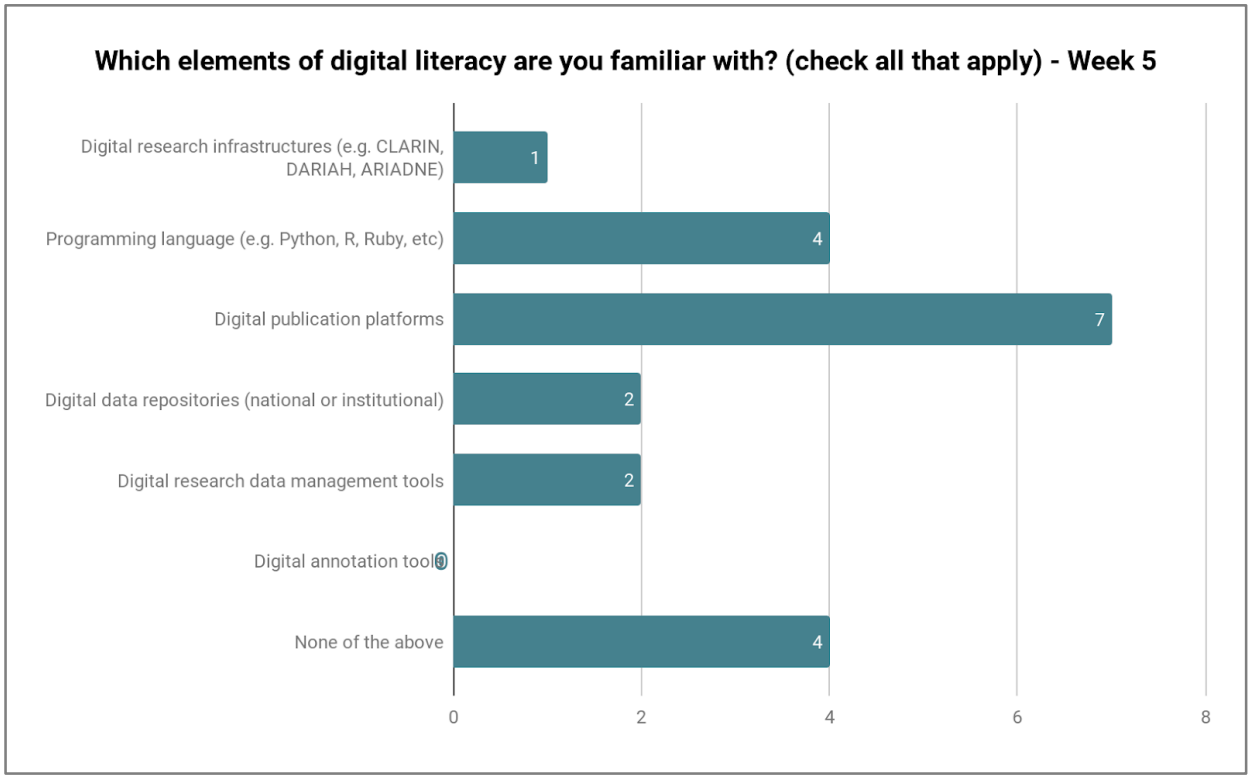


**Figure 11 - Level of digital literacy in certain techniques among KCL module students**

Concerning accessibility, the students argued for easy access and clean concept definitions “in plain English”, whereas the more sceptical ones expressed the need for hands on guidance or specific projects as case studies to implement them. Furthermore, they suggested that the material should have more captions to facilitate indexation.

We asked the students which format(s) of the training materials they found most useful to their study. The online text (52.9%) and the downloadable slideshows (52.9%) prevailed, with the shorter videos (47.1%) and the lecture videos (29.4%) only to follow. This can perhaps be explained by the fact that the majority of the students on this course were not native English speakers and felt more comfortable/safer with written sources. The answers received for the least useful material confirmed these initial results.

Finally, the participants’ expectations regarding the course training materials in relation to the practical group work that followed in weeks 6-10 were recorded as relatively high.

The second survey was performed at the end of the practical section of the module (weeks 6-10). Due to the nature of this second phase considerably fewer participants responded (n=4).

Two of the respondents were enrolled in the ‘Big Data in Culture and Society’ MA programme and the others in the ‘Digital Culture and Society’ and ‘Digital Asset & Media Management’ programmes.

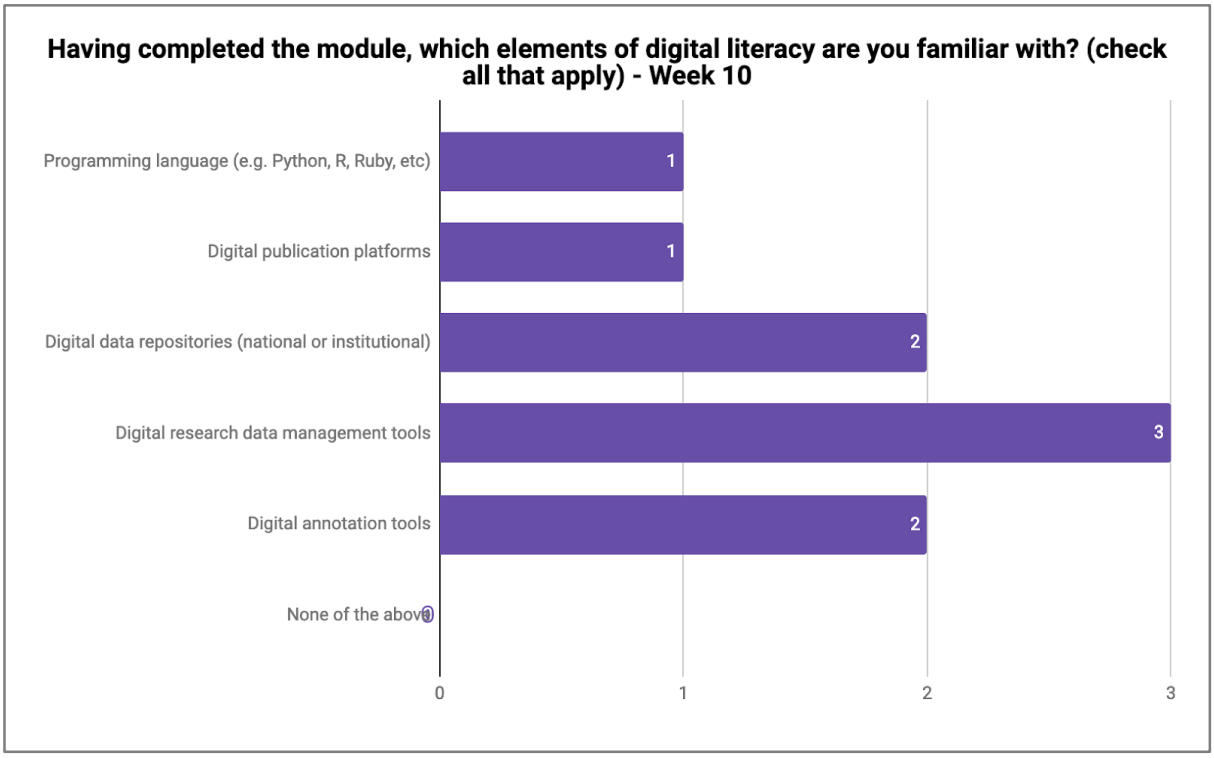


**Figure 12 - Digital Literacy / Skills acquired by students during KCL module**

In order to gauge if the materials had made any difference to how the students felt with regards to their own digital literacy, we asked them to once again identify their familiarity with specified digital tools and practices. This question was an opportunity to assess how the contribution of the PARTHENOS materials enabled the students to engage with digital tools and practices for the development of digital skills.

Most students replied that they improved their digital research data management skills (3) and the Digital annotation tools (3), while two felt more familiar with Digital data repositories, national or institutional. Other answers referred to Programming languages (e.g. Python, R, Ruby, etc.), digital research infrastructures (e.g. CLARIN, DARIAH, ARIADNE), and digital publication platforms (see Figure 12). Overall, two respondents rated their familiarity with digital tools, services and infrastructures on a fairly good level (7), while the other two felt less confident, giving a 5 and 6 rate. When asked if the PARTHENOS training materials met up to their expectations during their practical assignment, only one participant gave a negative answer.

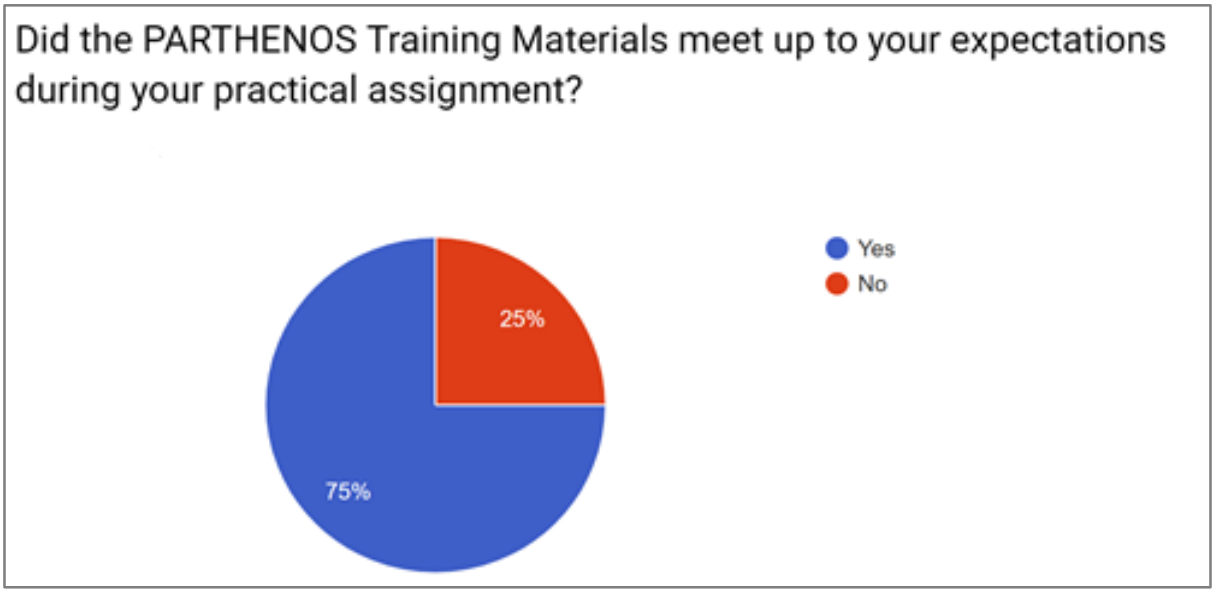


**Figure 13 - Efficacy of PARTHENOS Training materials according to students on KCL module**

The clarity of structure of the website and the concise definitions seem to be the most valuable assets, while integration of the materials during the project work could be improved. The most used materials after the completion of the module are the online texts (three responses), the downloadable slideshows (two responses), the subject specific webinar videos (two responses), with the lecture and shorter videos following. These results align with those of the first survey, allowing us to draw definitive conclusions. Half (50%) of the participants would recommend the PARTHENOS materials to others with a special reference to the 'Introduction to Research Infrastructures' module (http://training.parthenos-project.eu/sample-page/intro-to-ri/). Most of the respondents (75%) said that they revisited materials to improve knowledge. Finally, when it came to possible improvements, an interesting suggestion has been to introduce more case studies and references to similar projects.

While processing the module's second survey results, we were concerned with the low response rate we received. We identified two likely causes: one administrative and one structural. Firstly, the Faculty of Arts and Humanities decided by mid-term to reverse its initial decision not to circulate evaluations for Term One modules, which resulted in the short time frame in which students could provide feedback for their instructors. Students who had not expected to complete module surveys were given short notice. The second factor is the practical feature of the second phase, as students were finalising their project work at the Royal United Service Institute, preparing their final group presentations and drafting their final essays for the "Research Data Management" module and an additional module ("Digital Archives"). It is reasonable to assume that this workload prevented students from completing the PARTHENOS survey. For that reason, we also look to the overall results from course evaluations such as essays to see how frequently PARTHENOS materials are referred to in bibliographies, etc.

### 8.4.1. Summary of Evaluation

In summary, having drawn on previous experience and the structure of a module on Digital Archives, the RDM module in the MPhil programme at King's College London was enriched with the materials on RIs which were elaborated in week 3 using the

PARTHENOS modules on FAIR principles and trusted repositories and Management challenges in research infrastructures.

The essay assigned to the students at the end of week 5 showed a positive reception of these materials. They proved most useful in helping them contextualize why organising data would support sharing research findings and research data. After the implementation phase at the Royal United Service Institute (RUSI), they showcased their projects and wrote the final essay. While all marks remain provisional at the moment (until June), preliminary qualitative indicators drawn from the essays such as references of the PARTHENOS materials in bibliographies, etc. show that the average performance level is quite adequate. The trend found in our data is that students used the written content and video recording and definitions in equal measures and made clear efforts to use these materials to evaluate the sustainability and scalability of the RDM strategies they developed with their groups. In the majority of essays (44 total submissions), students referenced PARTHENOS training materials while discussing research infrastructures and the FAIR principles.

The overview of the two survey questionnaires results leads to the conclusion that the most challenging issue when embedding RIs in Higher Education DH Curricula is to make the notion of an RI in the Humanities fields tangible, denote its usefulness and make it appealing for future researchers. Given the fact that project work is considered an essential means to visualise the benefits from leveraging RIs, special emphasis on the implementation should be given during the designing of DH training courses.

Concerning the enhancement of training methods and the further development of training materials, results point towards a dual-format approach of accessible videos used in conjunction with written content as the ideal approach, especially given the not necessarily English-speaking target group of DH students. While the more 'mobile-friendly' materials such as videos may be useful for those who are comfortable with spoken English, the additional support of written content to provide context and allow for longer rumination is of benefit to those who are less comfortable with spoken English and all its dialectal varieties currently presented within the PARTHENOS training materials.

# 9. Conclusions: outcomes for embedding RIs in Higher Education programmes

The aim of Task 7.4 was to:

- analyse current experiences of higher education concerning digital humanities and digital cultural heritage, and
- establish a reference curriculum for such

This analysis required to achieve these goals followed several approaches: desk research surveying the current offering of DH courses across Europe, followed by an online survey asking course providers and students/graduate of such courses about the nature of their courses. The findings of this desk research revealed that while many courses are overtly 'Digital Humanities'-focussed, many do not have 'digital' in the course title at all, yet make

references to either Digital Humanities methods, or Cultural Heritage practices within their course descriptions.

## 9.1. What motivates scholars to take up DH courses?

Motivations for taking up Higher Education study in specifically Digital Humanities or Cultural Heritage courses were varied, depending on who you asked. When asking students or graduates of courses what motivated them, in both the desk research, and in our evaluation of the KCL module, the students/graduates mostly indicated that they undertook the course in order to 'improve career prospects'. The course providers responding to our online survey, however, placed 'Personal Interest' higher than 'Improve Career Prospects' as motivations behind why students took their course.

## 9.2. Level of study

The majority of courses represented in all of our methods of analysis were pitched at Postgraduate level. Our online survey showed a combined total of just over half (52.3%) the courses were specifically aimed at postgrads (see Figure 2) with 32.3% aimed at undergraduate level, and the remainder either below undergraduate level, or unspecified. This was also the case in the Course Providers' Workshops, with all 9 participants representing postgraduate courses (with some also discussing an undergraduate course). It made sense, therefore, to take lessons from these courses and apply them to a postgraduate course, as with the KCL module.

## 9.3. What works, and what doesn't when integrating Research Infrastructural training into Higher Education Curricula?

- **Internships and practical work**

The surveys and workshops indicated a strong desire for more practical work, either in the form of internships, or as part of a larger project for an assignment within the course. This was implemented in the module with KCL, with the entire second half of the module dedicated to on-site practical project work, with close connection to the theoretical principles to be demonstrated as a requirement in the assignments.

- **Not everyone wants coding**

The desk research, workshops, roundtable and the KCL module all demonstrated that coding is not necessarily a requirement among course recipients, and course providers. Issues relating to research infrastructures in the digital humanities do not all require resolution or address through coding, although in certain fields of digital humanities coding is an integral element, particularly if they need to be able to understand how a coding language *could* be used within their research (even if they are not necessarily the ones writing it). Moreover, many RIs prefer to offer data and tools that don't necessarily require any coding experience for researchers to get what they need from them, while also allowing scope for those who do like to code the option to modify the tool, or interrogate the data in a novel way.

- **Making course content reusable works, but some students require guidance**

The approach PARTHENOS, and indeed many other research infrastructure and training projects have taken in the past five years, is to provide reusable training materials, either to support the course provider in their work, or to allow self-guided students the chance to 'pick 'n' mix' their training. However, while many may turn to online training materials for upskilling or revision, there are still those who require some additional guidance as they move through the materials. This, of course, is where the opportunity to use these materials as part of a more formal Higher Education course can become highly beneficial.

Some criticisms of providing reusable tools may point to a feeling among course providers that this could be considered cheating; that they are paid to develop teaching themselves. However, as the KCL module demonstrated, by putting some of the materials on the 'required reading' lists for students, it doesn't necessarily diminish the requirements or opportunities for a course provider, but it does allow opportunity for discussion around the materials and free up the course provider to delve more deeply into certain areas during contact hours through lectures or seminars.