Developing Digital Research Workflows among Undergraduates

Dr Mike Cosgrave
@mikecosgrave

Digital Arts & Humanities, UCC

• Structured PhD in Digital Arts & Humanities
• Masters in Digital Arts & Humanities
• Masters in Digital Cultures (online)
• BA in Digital Humanities Humanities & IT
• Academic Admin and Funding
• Interdisciplinarity
• Undergraduate Research Methods
Humanities Computing in UCC

- First Webserver 1991 (1st in Ireland, 5th in World)
- Supported CURIA (Now CELT) Project
- TEI encoded versions of Irish Historical Texts
- Teaching: Final Year Digital History Seminar, 1990 onwards
- UG Seminars in History, English since 1990: Texts, Census Data
PRTLI Structured PhD in Digital Arts & Humanities

First intake Sept 2011 (47 nationally, 10 at UCC)

UCC DH Phd intake 2012 - 5
2013 - 3
2014 - 3
2015 - 2
2016 – 7
2017 – 3
MA Programmes

- Why the MA DAH?
- Minimum Class Size: 6
- Base Camp for PhD
- Feed-in to PhD

- Why the online MA in Digital Cultures?
- University Policy – put 24 MA programmes online
- Admin required new title, new module codes!
Undergraduate Programmes

• What we had hoped to do
  • Small Range of options
  • 2 x 2000 level
  • 2 x 3000 level
  • Flexible, experimental, limited numbers
  • Pilot DH at UG, Test student response, Introduce DH into the BA Degree (CK101)

• What actually happened
  • Govt initiative to increase places in information technology.
  • BA DH&IT designed and approved in weeks (May) (CK118)
  • First intake: August
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<tr>
<th>Year 4, Spring</th>
<th>Research Seminar (5 Credits)</th>
<th>Research Project (10 Credits)</th>
<th>Other CK101 Subject (10 Credits)</th>
<th>Research Project (10 Credits)</th>
<th>Digital Content Management (5 Credits) (P1 &amp; P2)</th>
<th>Information Systems and Electronic Commerce (5 Credits) (P1 &amp; P2)</th>
<th>Digital Video Content Creation (6 Credits) (P1)</th>
<th>Digital Audio and Sound Technology (6) (P1)</th>
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<td>Research Methods (5 Credits)</td>
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<td>Year 2, Spring</td>
<td>Digital Tools &amp; Methodologies II (5 Credits)</td>
<td>Digital Curation (5 Credits)</td>
<td>Other CK101 Subject (10 Credits)</td>
<td>Introduction to Digital Media (5) (P1)</td>
<td>Computer Information Systems (5) (P2)</td>
<td>Authoring (5 Credits)</td>
<td>Webserver (5 Credits) (P1)</td>
<td>Introduction to Relational Databases (5 Credits)</td>
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<td>Year 2, Autumn</td>
<td>Concepts and Collaboration in Digital Humanities II (5 Credits)</td>
<td>Knowledge, Research and Learning (5 Credits)</td>
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<td>Year 1, Spring</td>
<td>Digital Tools &amp; Methodologies I (5 Credits)</td>
<td>Other CK101 Subject (15 Credits)</td>
<td>Fundamentals of Internet Computing (15 Credits) P1/P2 (mainly end of year exam)</td>
<td>Fundamentals of Internet Computing in Python (5 Credits)</td>
<td>Programming in Python (5 Credits)</td>
<td>Usability Engineering (5 Credits) (P2)</td>
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<td>Concepts and Collaboration in Digital Humanities I (5 Credits)</td>
<td>Introduction to Student Learning in the Digital Age (5 Credits)</td>
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**Placement or Year Abroad**
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<th>Phd</th>
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<th>BA DH&amp;IT</th>
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<td>47 (106)</td>
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<td>2017</td>
<td>3</td>
<td>30?</td>
<td>50? (160?)</td>
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Creative Learning Space

Privileges Student

Collaborative learning over reading powerpoint

All devices can be shared to the screens over Eduroam (Solstice)

Main Camera – full rotation and zoom

Presentation Norm – Wandering iPad

Lecturing Discouraged!
Ontology

Disciplinary Epistemologies

Methods / Scholarly Primitives

- Discovering
  - Searching: 'Google', RSS, Twitter
- Sampling/Selection
  - Text Analysis: Voyant, GATE, CATMA, R
- Annotating
  - Photogrammetry, 3d scans
- enCoding
  - hypotheses
- Comparing
  - CAQDAS: Nvivio, Atlas.ti, f4Analyse,
  - Quant Analysis ; SPSS, GPSS, R
  - Network Mapping :Gephi
- Linking
  - Topic Modelling: LDA, MALLET
- Illustrating
  - Transmedia storytelling: Blogs, wikis, Jupyter notebooks, infographics, podcasts, elit
- Representing
  - Visualisation: d3.js, VR, AR

Research

Analysis

‘Writing’

Open Digital Scholarly Workflows
Disciplines and Methods: Literature
Disciplines and Methods: Art

Art History - Las Meninas
Disciplines and Methods: Politics

- His political career seems 'written for him'. Don't see any rebel against the orthodoxy or look at alternatives?
- No mention of Damascus events.
- Social and political engineering?
- Is Wilson being entirely truthful or is this post facto justification to appeal to readers?

- Harris: Some men go into politics almost as a matter of course and some form of personal Damascus. Why are you in politics?
- Wilson: Suppose the short answer is because politics are in me, as far as I can remember. Farther than that, they were in my family for generations before me, as my wife was in the families of dozens of members of the Labour party. The first time I can remember thinking systematically about politics was when I was seven. I was in hospital with appendicitis. My parents came in to see me the night after my operation and I told them not to stay too long or they'd be late to vote – for Philip Snowden. Then when I was 16, I moved to West Australia where my uncle was an A later President of the Upper House. That was politics.
Text Analysis everywhere

Working with R for the first time today in DH. Makes statistical analysis kind of fun! 😊 #UCCDH
Network Analysis everywhere

Spatial Representation: Comparing Erasmus and Wimpfeling
Topic modelling everywhere
Suddenly we find we can use the same (digital) tool for research in all these “different” disciplines (DH, and computation in general, forces us to be explicit about methods, and reveals these similarities)
Disciplines have similar methods

Search for patterns which help us to understand the world and provide frameworks within which we can take meaningful action: patterns which support agency.
Research Methods are about finding patterns

Which are to some extent generalisable

Explication of human action in context

How far does can generalizations or laws stretch?
Scholarly primitives (Unsworth)

This aligns to the experience of John Unsworth which led him to the idea of scholarly primitives

- Discovering
- Sampling/Selection
- Annotating
- Comparing
- Linking
- Illustrating
- Representing

1. Queries: What questions will you want to answer? What types of data will you need to answer these questions? Which of these data types are permanent, which are temporary but important, and which will need to be regularly updated? What uses will you have for generic data in the next 5 years?

2. Tools: What protocols and tools for data submission, viewing, analysis, annotation, curation, comparison, and manipulation will you need to make maximal use of the data? What sorts of links among datasets will be useful?

3. Infrastructure: What critical infrastructures will be needed to support the queries you want to perform and what attributes should these infrastructures have? In what ways should they be flexible, and how should they stay current? How should they be maintained?

4. Standards: What kind of community-agreed standards are needed, e.g. controlled vocabularies, datatypes, annotations, and structures? How should these be defined and established?
Methodological Commons (McCarty)

Figure 1. Digital humanities methodological commons (after McCarty & Short (2002); see http://www.allc.org/content/pulse/map.html (last accessed 26 April 2010)).
Ontology

Disciplinary Epistemologies

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- Comparing
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- Illustrating
- Representing

Searching: 'Google', RSS, Twitter
Text Analysis: Voyant, GATE, CATMA, R
Photogrammetry, 3D scans
hypothes.is
CAQDAS: Nvivo, Atlas.ti, f4Analyse
Quant Analysis: SPSS, GPSS, R
Topic Modelling: LDA, MALLET
Network Mapping: Gephi
Transmedia storytelling: Blogs, wikis, Jupyter notebooks, infographics, podcasts, elt
Visualisation: d3.js, VR, AR

Research

Analysis

‘Writing’

Open Digital Scholarly Workflows
Into the LMS

**Introduction**
Starting points: What is Digital Humanities, Who are we and where do we go from here?

**Seeking**
This week there are several things to do:

1. Think about how you search for information on the web now - make some notes, and post them. (This may be quite short, that’s ok) Then

2. Read any two of the Biddix, Head or Colon_Aguirre articles and compare what they have discovered to your experience - how is it different? what can you learn form this article. Share this as a reply to your original post. Feel free also to draw together points you see in people posts

3. Sign up for Zotero and use it to capture the results form some websearches on a topic of interest to you.

**Overview: Reading Around the Field**

**Networks - Hierarchy to Wirearchy**
Enabled: Statistics Tracking

**Literature Reviews**

**Collaborative Knowledge Creation 2018**
Collaborative writing, using Wikimedia

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**Head2009**
Enabled: Statistics Tracking
Attached Files: [Head2009.pdf](#) (150.81 KB)

A report of preliminary findings and analysis from student discussion groups held on 7 U.S. campuses in Fall 2008, as part of Project Information Literacy. Qualitative data from discussions with higher education students across the country suggest that conducting research is particularly challenging. Students' greatest challenges are related to their perceived inability to find desired materials. Students seek “contexts” as part of the research process. A preliminary typology of the research contexts is developed and introduced. Finding contexts for “backgrounder” topics and for figuring out how to traverse complex information landscapes may be the most difficult part of the research process. Our findings also suggest that students create effective methods for conducting research by using traditional methods, such as libraries, and self-taught, creative workarounds, such as “presearch” and Wikipedia, in different ways.

**Biddix2011**
Enabled: Statistics Tracking
Attached Files: [Biddix2011.pdf](#) (519.543 KB)

Student Online Research Behaviours
Engage with the ‘text’

Read for argument

For interpretation

Caterina Fake’s copy of Ulysees
This emphasis on limiting the size of garrisons conforms to the dictates of early modern military commentators and theorists. In his *Writings* of 1673, Raimonde Montecuccoli anticipated garrisons of only one hundred to five hundred men for most bastioned fortresses; Prague’s garrison was to stand at fifteen hundred men. Sir Roger Williams, a British participant in the Eighty Years’ War, calculated that a two-thousand-man garrison could be considered a secure force “sufficient to guard against 10,000.” More broadly, in *Della Architettura Militare* (1599), Francesco de’ Marchi noted that “behind good walls a small force can defy a much greater host.”
The Irish war, 1919–23

The Irish War of Independence, ‘Anglo-Irish war’ or ‘Tan war’ – it would be ridiculous to describe the conflict as a war – started in April 1919. By comparison with other twentieth-century wars of national liberation, it was a small-scale affair, rather resembling those earlier uprisings that had broken out in areas of Macedonia following the collapse of the Ottoman empire in 1919, or perhaps one of those little wars waged in remote areas of the Empire during Queen Victoria’s reign. Despite the shortness of the century, it was not a tragic struggle for national liberation on the scale of later struggles witnessed in Vietnam and Algeria. Instead, especially in Ulster, Sinn Fein and British troops were involved, with considerably fewer deaths and casualties. However, the troubles that followed were more widespread in form and affected millions for years to come. The war was not only a conflict between the Irish and the British but also a domestic civil war fought between the Irish communities and Catholic and Protestant. The war was characterized by violence, sporadic outbreaks of violence, and a lack of clarity in its goals.

Members of the Royal Irish Constabulary, in the front line from the beginning, were quickly joined by to be sustained to a guerrilla struggle, and they were soon supplemented in January 1920 with several thousand British troops, initially detached, became of their motley origins, the Black and Tans (figure 6.1). These, in turn, were continued by a paycheque force of ex-army officers, who were attached in numbers to the Royal Irish Constabulary. ‘These Asians’ (figure 6.2, page 82) had been trained in the Indian War, and had no desire to settle back into humdrum civilian life thereafter and wished to take advantage of the opportunity offered by the war in Ireland to sustain a counterinsurgency based on action on the Western Front and elsewhere. In modern parlance, they were unshackled, deterritorialized, and their successes, particularly against civilians, were a dismal proof of this.

In summary, the ‘Irish War’ can be defined as a war fought by the British in Ireland to suppress the Irish Republican Army (IRA) and to maintain control. The war lasted from 1919 to 1923 and resulted in the partition of Ireland into two separate states, Northern Ireland and the Irish Free State (now Ireland).

[Diagram of the Irish War 1919–23]

Bartlett "Irish Wars" 1919–21
the obsession of the age is with the original. Only the original possesses an aura,

I don't think this is true. Maybe you see the aura, or in other words 'understand' a painting better when it is in a place which it was originally intended for. Even if it is a facsimile. It doesn't make it 'more original' though. It just makes it more authentic. There is a difference between original and authentic, in my opinion.

birtejo 19/12/2018 13:04:56 in Public

Is it possible that the Venice version, undeniably a facsimile, is actually more original than the Paris original, she wonders?

What is the definition of 'original' for her then? Seeing a painting where it's creator actually bowed over and drew the lines gives you a different connection to the painting than seeing it in a place for which it was actually created. None of these connections are wrong. But per definition original means: 1. present or existing from the beginning; first or earliest. 2. created personally by a particular artist, writer, musician, etc.; not a copy. With this in mind, her question is easily answered: No, it is not.
## Mindmapping

**Tools - Mindmapping**

- **Enabled:** Statistics Tracking

This week we're going knowledge mapping - read the two readings, watch the video and then pick a reading to map.

Reading: Video should not take more than an hour. Budget a half hour to play with your chosen mindmapping app, and set aside about 2 hours to actually map out a reading.

There are arguments in favour of mindmapping by hand, and sharing it by attaching a photo, and that is perfectly fine for our purposes.

However, I do encourage you to have a go and use a digital tool. There are some excellent free mind-mapping tools to experiment with:

- **Freemind:** Old but still excellent, and totally free and open-source. It exports to images as well as several text formats. It only works on desktop PCs - Windows or Mac, and requires Java. Updates are not as frequent now, so it may become less usable on recent versions of the OS.
- **Xmind:** Has excellent free versions for Windows, Mac and iOS. As with Freemind, I've used it comfortably for years.
- **SimpleMind:** Has free versions, but they are not as feature-rich as Freemind or the free version of XMind - exporting can be a bit less intuitive. On mobile devices, Share as Image works well. It works on Windows, Mac, iOS and Android, so it allows me to access my mind maps on any device.

There are many others out there, but these are my top picks. You should not need to pay for the 'pro' versions of any of these - the free versions are adequate for experimenting for now. Others may not export well, or at all so if you do explore, make sure you can get your data out before you invest time in using one. **Whatever digital mind-mapping tool you use, spend a few minutes working out how to export your map from it as an image.** (Getting your work out of any app so you can move it and re-use it is as important as getting it in!)

Also note that digitally highlighting and annotating the article itself can be an important step in the process, if you are not comfortable in doing it in one leap.

**Sensemaking**

- **Enabled:** Statistics Tracking

Discussion thread to hang exported images of your mind maps

**Knowledge Cartography**

- **Attached Files:** [Bank/lecture2014.pdf](Bank/lecture2014.pdf) (233 KB)

Knowledge Cartography; Software Tools And Mapping Techniques - Preface introduces some of the basic versions of mind mapping, concept maps etc

**Mindmapping**

- **Enabled:** Statistics Tracking

This is a link to a video I did on YouTube working through and mindmapping an article on my MacBook, using Xmind

https://youtu.be/Vyn0C6NkQc8

**Weick 2005**

- **Attached Files:** [Weick2005.pdf](Weick2005.pdf) (2732 KB)
First Year undergrad, 2015
From install and first use of mindmapping tool to finished in under 2 hours
Discussions

Rachel Mc Carthy
RE: Seeking information: Search Strategies
4 months ago

When searching for written information, I always use Google. I will type what I’m looking for, and then read through the first page of results. If I need to go beyond the first page as the information tends to get more and more vague, I will open every search result in a new tab and then go through them to find the information that I’m looking for. If I cannot find what I’m searching for, I will reward my question and search again.

If I’m searching for video’s or music, then I will usually use YouTube. Once again, I will type what I’m looking for into the search bar, and scroll through the video’s until I’ve found what I want. If I cannot find a specific video/audio, I will reward my statement and try again.

If I’m searching for research or academic information, I always use Google Scholar as I feel that it provides the most accurate and helpful results. However, if I cannot find anything on Wikipedia or Google Scholar to help me, then I will branch out to other websites such as Aktiv for math/science/computer related topics, or Wolfram Alpha for language/history/art topics.

Rachel Mc Carthy
RE: Seeking information: Search Strategies
4 months ago

The two articles I read were by Biddix and Colón-Aguirre, and I noticed many similarities, but also a few differences, between how I search for information and how the students in the articles searched.

In the introduction paragraph of Biddix’s article, he writes “Respondents consulted the Internet first before any other source, including experts, family members, government agencies, or libraries”. I agree wholeheartedly with this statement. I personally do turn to the Internet and to websites such as Google and Wikipedia before consulting anywhere else. I find it a quicker and more efficient method of finding useful information than asking family members or friends who might not know the answer, or who might have the wrong answer. However, I do understand that there are many websites with incorrect information on the Internet as well, which is why I only search for answers on what I believe to be credible sources i.e. Google, Wikipedia, Wolfram Alpha, etc. The library may be a more accurate and reliable source of information, but it is time-consuming and sometimes difficult to navigate. This can discourage students from using it, especially if they have a 1000-word due the next day. It can be difficult to balance credibility and efficiency, which is why I always turn to trusted websites before searching for books.

Colón-Aguirre’s article deals with how reliable certain websites are, which is necessary to consider when writing an academic paper. But time is also an important factor, as one student writes “…I feel like it’s hard to get a lot of information out of a book, unless you want to read the entire book…” My search experience is similar to this, as such that it is difficult to find the single fact that you are looking for inside a 700-page academic novel. It-dissuades students from searching the library, a similar point that was made in the Biddix article. It is far easier to source information on the Internet than make your way through a research paper, and this is a habit that I share with the students throughout this article.

Joshua Nyagaya
RE: Seeking information: Search Strategies
1 month ago

Hi Rachel. I admire the process you go through to find what you are looking for. Not a lot of people use the ‘reward and search’ technique as they would often get frustrated when the content that they are looking for doesn’t come up the first time. Personally, I consider myself a very patient young buck, so I would also use this way of searching. I’m glad to see that we have that in common. Merry Xmas!
Debates
to *the root of identity*. You get to that *base, where you can’t go any further. And that is race.*

... It was an open country for Europeans who confronted people who were radically different than they were. *And that confrontation, I’ll be honest, was terrible, bloody and violent.* It was terrible, bloody and violent, but we conquered this continent. Whether it’s nice to say that or not, we won. And we got to define what America means, we got to define what this continent means. America, at the end of the day, belongs to white men.

... I re-watched perhaps my favorite movie, which is John Ford’s *The Searchers*.

... But we won’t be out on that limb forever. At some point, Texas is going to be a wonderful place to live. It’s going to be a great place to live. But perhaps our bones have to be in the ground before that will happen.”

... Texas is a wonderful place to live. *And there are a lot of the white man’s bones in the ground to make that happen.* White people did it. And I’m not going to ever claim that there wasn’t a lot of brutality that went along with it. But we did it. Our bones are in the ground, we own it, and at the end of the day, *America cannot exist without us.* We defined it. This country does belong to white people, culturally, politically, socially, everything. We defined what America is.

... it’s not just whoever happened to do the labor. Other people could have done it. But no one could have imagined it, no one could have designed it, because no one else did. History is proof.
Themes

What does it mean to be human in the digital age?

- ‘Hot’ Topics
- Topics from students disciplinary areas
- Topics the reflect students interests or career hopes
- Topics in contemporary history, society
Collaborative Writing

Video Conference/Google Docs editing, 12/11/2018

- Beginning: Spread, Emmet, Simon
- Attention economy and fake news mentioned by several people
- Procedure:
  - Splitting individual texts into paragraphs with headlines to be able to sort them according to general theme
  - Creating a list of headings
  - Regrouping paragraphs according to content

- We need to talk about and discuss the overall sentiment of what our piece will be. We've all said some pretty negative things about the specifics of SM so potentially one of our challenges here would be to have a balanced finished piece. Objective?

- From my skinned head earlier on, it seems that Charlotte and Simon had some particularly well-balanced views.

- Yes, good idea, Emmet. I suppose it could make sense to talk about the sentiment that people have in mind. I like having a balanced view, but I tend toward the upside of SM and the positive aspects.

- Unless we plan on going back to our own individual tasks to put fresh ideas in, we will be working with what we have. The argument and sentiment should appear organically enough with the pieces of the puzzle we have to put together. So maybe we shouldn't spend too much time on sentiment etc. It should just sort itself out.

- I think it will sort itself out. As far as I can see, we have chunks for introduction and conclusion and the rest seems to group itself quite neatly into parts of the main body. It goes ahead and mark the conclusions and introductions, so we can have a look at the rest.
Topic Structure

Reading: Methodological or Epistemological Case study

Practical Task using a digital tool

Discussion: Trigger; Exploration, Integration, Resolution
Developing Digital Research Workflows among Undergraduates

Dr Mike Cosgrave
@mikecosgrave

Digital Arts & Humanities, UCC

- Structured PhD in Digital Arts & Humanities
- Masters in Digital Arts & Humanities
- Masters in Digital Cultures (online)
- BA in Digital Humanities Humanities & IT