Null Results: Documenting Failure in the Digital Humanities

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Abstract: Failure in digital humanities is inevitable, and it is productive. In a field driven by experimentation, iteration, and continual reimagining of itself, the opportunities for people, processes, and projects to fail are countless. Those opportunities for failure are compounded by the fragile digital ecosystems in which digital humanities projects take place and the challenging nature of humanistic data. Digital humanities failures offer crucial opportunities for evaluating and reflecting on the technical infrastructures and scholarly assumptions that shape our work in ways that are often difficult to discern. Despite continued calls for open discussion of failure, the field offers few formal venues that explicitly seek out such work, and few frameworks for what documenting failure might look like. Moreover, even in digital humanities, where pedagogical framings of failure are ubiquitous, a pervasive stigma lingers. This article offers a framework and case study for formally documenting failed projects and their afterlives through a post-mortem project charter.

Sometimes digital humanities projects fail. This is not an indictment of the scholar or even of the research question. Rather, it is a natural outcome of taking humanistic data that is often fragmentary, contradictory, misleading, or simply opaque, and attempting to order it in a way that computers can usefully parse. The field of digital humanities is full of processes that are by nature experimental and iterative and thus prone to failure. However, the results- and argument-oriented nature of academic scholarship does not incentivize or facilitate the dissemination of failed projects. Centering only the projects that work – that produce attractive visualizations or compelling stories, that overturn established narratives or uncover silenced voices, that change the field or capture a classroom – reifies a fragmentary and misleading view of digital humanities scholarship. A broken project does not mean a bad project, and functional or attractive visualizations do not always mean good data. Documenting failure, or perhaps more appropriately "null results," is an essential mechanism for growing and solidifying the field's culture of data transparency, iteration and reuse, and critical reflection on tools and methods.

The term "null results," a borrowing from the sciences and other fields that rely heavily on quantitative analysis, refers to results that have failed to substantiate a given hypothesis. Adopting the language of null results for digital humanities failures offers a useful reorientation for humanists (both digital and analogue) to their failed projects. Although hypotheses are uncommon in traditional humanities scholarship, digital humanities projects do often lay out a hypothesis to be tested through quantitative methods. And even purely qualitative scholarship can elide theoretical frameworks, assumptions, and the scholar's expectations. In both cases, the language of null results helps to reframe failure: failure to reject a null hypothesis reflects upon the validity not of the question, its answer, or its asker, but of the statistical model – that is, the tool or method. As Dombrowski (2019) and Wershler et al. (2022) note, the vocabulary of failure is also destigmatized in lab settings common to the sciences and borrowed by the digital humanities. Nevertheless, null results are rarely published, even in the sciences. Instead, they are relegated to the proverbial file drawer.

The "file drawer problem" is a perennial and interdisciplinary challenge. A 2014 study of the phenomenon in the social sciences found that a large majority of null results in funded projects in the National Science Foundation's Time-sharing Experiments in the Social Sciences grant program were never published, either because authors felt that null results were unpublishable or because they deprioritized the project on the basis of findings (Franco et al., 2014). This problem must surely be compounded in unfunded work, where resources may be tighter and funder requirements for publication are absent. Graham (2019) reported similar results from a study of archaeological research, attributing the absence of both null results and replication studies to the "incentives of professional practice" (p. 4). (In a fitting testament to one of the many failure points of digital scholarship, the link to the study given in the text is now dead.)

Documenting failure is linked to issues of reproducibility, openness, and transparency in digital scholarship, all pillars of open science practices which have seen growing levels of support in the digital humanities community; however, uptake of these principles is still uneven. For instance, the European Union's Digital Research Infrastructure for the Arts and Humanities (DARIAH) established their OpenMethods platform with the explicit goal of cultivating open science practices in digital humanities (del Rio Rande et al., 2020). The OpenMethods team has prioritized infrastructure that supports reuse of project data, recognition of tool development as scholarship, and embracing of content types beyond traditional scholarly publications. However, in translating open science practices into the humanities, they have explicitly excluded both reproducibility and the publication of null results. While implementing these principles does require a culture shift (as del Rio Rande et al note), it also promises to extend the field's priorities of transparency and reuse and capitalize on the essentially iterative nature of digital humanities scholarship.

One explanation for null results' absence in the scholarship is that they are sometimes produced by researcher error. Certainly that is so in the case study described below. However, as digital humanities scholars have argued repeatedly, failure is a crucial and inevitable component of digital humanities scholarship. Documenting failures provides tangible benefits to individual projects and scholars. And although null results produced by researcher error can pose difficulties of interpretation (Mervis, 2014), that interpretation and reflection, rendered visible through publication, advance the field. Rawson and Muñoz's (2019) exploration of their own initial failure in creating a food history data set, for instance, has become a foundational text for critical data studies in digital humanities courses, with insights about data sets and data cleaning derived directly from their false starts and mistaken assumptions.

Benefits to the scholar and the project

Digital humanities projects consume an enormous amount of labor, failed digital humanities projects no less (and sometimes more) than successful ones. In an academic climate that prizes productivity, labor is at a premium. As Graham (2019), Franco et al. (2014), and others have noted this reality often prompts scholars to jettison failed projects to avoid wasting further labor. However, documenting null results also documents labor and renders it visible. Moreover, it renders visible the reflections after the fact (that sometimes in fact proceed

unwillingly, with failures lingering in the back corners of the mind), which generate new processes, new principles, and new projects.

Failures sometimes derive from fragmentary archival records, which in turn produce fragmentary data sets. Moreover, data encoding calls for a forced precision with regard to extant material that belies the ambiguity of historical and other humanistic sources (Posner, 2016). Documenting these lacunae in data sets, which can pass unnoticed to readers who have little experience with a specific collection or a specific tool or methodology, is an important component of data transparency. Calls for data transparency, particularly with regard to cleaning, continue to proliferate, many drawing on Drucker's 2011 critique of humanities "data." While the specific technical challenges of data transparency evolve, the continued attention to them echoes Spiro's call over a decade ago for openness as a core value of digital humanities (2012). But it is more than an ethical responsibility. Opening the project's black box benefits the project by equipping its audience to interrogate and engage with its scholarly claims. Arguments that are transparent can circulate and participate in ongoing scholarly discourses in different and more robust ways than arguments that must be taken with a certain degree of faith in tools and methods with which a humanist may have little or no familiarity.

Documentation of failure is, perhaps seemingly paradoxically, also a matter of project sustainability, particularly for projects that might go through several more or less "successful" iterations before reaching the form in which they are published and preserved. This dimension of failure contributes to what Edmond and Morselli (2020) term a reuse paradigm of sustainability, which prompts project creators to consider future reuse by other scholars or teams of scholars who might bring different skills to the data. Reuse and iteration might take any number of shapes: reusing one's own data or data from someone else's failed project; refining a method in an ongoing project or extracting data for use elsewhere. Reuse and iteration allow data to persist and be refined outside the confines of a jettisoned project. These benefits extend beyond the individual project and scholar to the digital humanities ecosystem at large, inviting a culture of reuse, iteration, and reproducibility that offers projects and data sets a longer and more robust life.

Benefits to the field

Documenting failure also contributes to digital humanities' long-standing emphasis on process-oriented scholarship. As Galey and Ruecker (2010) argue, there is value in ideas, protypes, and theories for broadening the field's imagination. This approach to failure as iterative and process-oriented intersects with Ruecker's (2015) categories of experimental and provocative prototypes, which do not presume a usable product as the final deliverable but rather seek to explore the valences of a topic or question. Multiple approaches to the same question – for which Galey and Ruecker's competing prototypes are a useful analogy – likewise strengthen the field through the discourse engendered among projects and among scholars.

The stigmatization of failure is persistent, pervasive, and insidious. Digital humanities practitioners are accustomed to guiding students in working through the "ugly feelings" failure produces in the classroom (Walsh 2019, p. 520), but that by no means ensures that we effectively and productively process such feelings regarding our own research. This reciprocal relationship between digital humanities pedagogy and critical digital humanities research practices has also

been articulated by Buurma and Levine (2016) as a "sympathetic research imagination," (p. 275) or the ability to both use tools and methods as they currently exist and simultaneously imagine new uses and new futures for them.

Interdisciplinary benefits

Even the most basic of tools mediate and transform information and arguments. But disciplinary boundaries often render those transformations opaque first to the scholar and then to the scholar's audience. Documenting failures that occur as a result of this aporia between tool creator and scholar-user is crucial for rendering those transformations and their underlying theoretical interventions visible. As a result, Edmond and Lehmann (2021) call explicitly for documentation of both successes and failures in bridging the epistemic divide between the allied fields comprising digital humanities. Reflection on our points of collaboration and of aporia benefits our own research and field, but it also speaks to areas vitally in need of further interrogation in the field of technology.

Failure points in areas like data cleaning are not merely a problem of research methods; data used uncritically contributes to the many ways in which technology echoes, amplifies, and reifies injustice. As Johnson has argued, for instance, the datafication of enslaved people in digital humanities projects participates in the "devastating thingification of black women, children, and men," simultaneously erasing the project data's origins with enslavers' commodification of the enslaved and treating as spectacle the immediate and generational trauma they inflicted (2018). Similarly, Safiya Noble's *Algorithms of Oppression* (2018) speaks to the insidious and often indiscernible ways that digital utilities like search engines not only replicate but inculcate racial and gender discrimination. Critical reflection upon data practices and data failures is essential for identifying, calling out, and rooting out digital injustice.

How to Document Failure

So what does failure look like in the digital humanities, and how should we document it? Despite the field's proximity to the social sciences and occasional borrowing of their statistical and computational methods, statistical failure and falsifiable theories are among the least insidious mechanisms by which a digital project might fail. Layered over computational failures are narrative failures that require close interrogation of source encoding, argument, and narrative frame.

Taxonomies of failure speak to its many valences in digital humanities. Dombrowski (2019), for instance, identifies ten types of failure. Six might be classified as opportunities for failure: failures of technology, of a discipline, of career planning, of strategy, and through sheer bad luck. The other four are sort of philosophical or methodological failures: failure to probe assumptions, to acknowledge change, to forge a shared vision, and to do right by others. In the classroom, Croxall and Warnick (n.d.) have classified failures as occurring in four categories: 1) glitches or technical failure, 2) human failure to properly use or understand a tool, 3) error as an artefact from which to learn, and 4) error as epistemology, embracing a reflective and generative approach to failure.

To these taxonomies we might add other types of failure. For instance, Terras identified a failure of infrastructure in her quest to secure usage rights to an orphaned work (2014). Hoover's attempt to replicate Ramsay's analysis of gendered language was a failure to reproduce (2016).

And in 2017, Brennan postulated an utter failure of digital humanities as a field, arguing that its exorbitant claims and celebrity practitioners had mostly failed to deliver on their promises of intellectual and social transformation. While this hypothetical failure resembles Dombrowski's (2019) disciplinary failure, there is an important distinction. The disciplinary failure in Dombrowski's taxonomy describes a field that ceased to exist; Brennan's failed digital humanities is a field that persists but fails to live up to its claims. Brennan's critique, though emphatic, missed the mark. The critiques he leverages of highly visible projects as evidence of the field's failure actually testify to increasingly robust engagement with critical digital humanities.

Recognizing the value of discussions of failure, scholars in multiple fields (for instance, Franco et al., 2014; Munafò and Neill, 2016) have called for incentives to publish null results, including the creation of high-status publication outlets. In the social and physical sciences, dedicated journals have appeared, like the *Journal of Negative Results* and the *Journal of Articles in Support of the Null Hypothesis*, and mainstream journals like the *Journal of Psychopharmacology* have established sections for null results (Munafò and Neill, 2016). In the humanities, however, such outlets are few if any, and scholars who discuss their failure tend to do so in more informal or ad hoc ways, like blog posts (for example, Cordell, 2020; Dombrowksi, 2019; Kemman, 2019), one-off articles (for instance, Barats et al., 2020; Mahoney et al., 2020), and even a book (Graham, 2019). Dombrowski's work, in both formal and informal scholarly venues, has served as a call to arms for discussing failure; however, even when venues are available, the field has been slow to take up the charge. The DH Awards launched their "best failure" category in 2014 with three nominations, but for the next four years, there were insufficient nominations to run the category. In the last three years, it has made a promising comeback.

Discussions of failure in the humanities overlap closely with tools and frameworks for documenting projects. Project charters, ideally produced at the outset of a project, articulate and account for potential points of failure before a project begins. Charters are invaluable for clarifying project goals, modes of collaboration, available and necessary resources, and workflows and processes from the outset. At the other end of the project's lifecycle, frameworks like the Digital Documentation Process (Fostano and Morreale, 2019) help articulate a project's successes in ways that are legible to non-digital humanities practitioners, like promotion and hiring committees and administrators. All three genres of project documentation engage in critical reflection on a project's interventions, successes, and points of potential and actual failure. As Cordell (2020) has noted, however, discussions of failure framed in these contexts can sometimes turn failures into "secret successes" and avoid grappling with serious underlying flaws.

In the following section, I offer one mechanism for systematically documenting null results through what I term a failure charter. Returning to an initial project charter, or constructing one post-mortem when none existed to begin with, provides a framework for evaluating a failed project, identifying both its "secret successes," where failure produced either productive changes in project direction or contributions to a critical digital humanities, and genuine failures. This process helps identify points of departure from the project vision; plans and processes that went awry; and disconnects between audience, goals, and methods.

A Case Study: Lines in the Landscape

"Lines in the Landscape" (Smith, 2017) began its life as a conference paper proposal for the 2017 International Congress on Medieval Studies. I'd recently started working in earnest on my dissertation, which explored the sources of authority and identity formation of the MacCarthy Reaghs, the Irish lords of Carbery, Co. Cork, from 1366-1594. I had allocated one of my chapters to uses of the landscape, and as I gathered sources and data for that chapter, I grew frustrated with existing static maps of the lordship that elided centuries of contention, negotiation, and conquest into a composite image that never existed. In response, I proposed to build a dynamic map that would represent the expansion and contraction of the lordship over the course of three hundred years, as the MacCarthy Reaghs responded to the changing environment of late medieval and early modern Cork.

It was an ambitious project, and as it turned out, the abstract better described my entire dissertation than it did the landscape chapter, let alone a single conference paper. The project failed in multiple senses, from my insufficient technical skill sets at the time to some fundamental problems with the way I approached data. However, those failures offered useful takeaways that both informed my presentation on the project and have continued to shape my subsequent work. I never created a charter for the project while it was underway, but the following failure charter (derived from the Recovery Hub for American Women Writers' charter template (Reed et al., 2021)) highlights some of my points of failure, pivots, and takeaways.

Considerations for material and content

What key questions are you hoping to address?

My dissertation, which provided the frame for the conference paper, focused on the lordship of Carbery, a large territory in West Cork (in Ireland's southern province of Munster) ruled over by the MacCarthy Reaghs. In it, I examined the political, cultural, intellectual, and spatial history of the lordship between the fourteenth and sixteenth centuries. Following the English conquest of Ireland in the thirteenth century, Irish lords like the MacCarthy Reaghs lived in a culturally hybrid but legally increasingly hostile state. I was particularly concerned with the strategies of negotiation the MacCarthy Reaghs employed as they navigated this fraught environment.

For the conference paper, I had two related goals. At the simplest level, I hoped to pin down the territorial extent of the lordship at key moments in its history, but I also hoped that a clearer understanding of changing boundaries would provide greater clarity and nuance regarding the MacCarthy Reaghs' political position throughout the period – who their allies were, where the centers of their authority lay within the lordship, and how their regional rivalries developed. Moreover, I wanted to challenge what I perceived as a pervasive stereotype that the late Middle Ages in Ireland were silent and unknowable due to a lack of documentation.

What existing data sets do you need access to?

First and foremost, I needed a geographic canvas on which to place my data. I began by creating some base layers for specific moments: the pre-Norman kingdoms of the region as

delineated in an early genealogical tract, the cantreds (administrative divisions) that constituted Anglo-Norman Ireland, and some Anglo-Norman-held lands as described in a 14th c. document, along with the boundaries of the townlands, parishes, and baronies that make up modern Cork. There are no freely available shapefiles for medieval Irish boundaries, so I relied heavily on modern ones. These modern boundaries have changed relatively little since the Middle Ages, but they cannot be adopted wholesale without some very significant caveats. And in cases where it seemed like information was missing, I had filled in the gaps in what might generously be called an ad hoc fashion. Of course I had reasons for all of my interventions (although I doubt I could recreate them all now), but there was no easy way to identify those interventions on the maps I produced.

What data sets do you need to create?

With my base layers established, I began creating a dataset of events that documented changes in the boundaries or extent of the MacCarthy Reagh lordship. There were methodological challenges here, too, primarily with regards to cleaning the data. For each item, I needed at least four pieces of data: a description of the event itself, a location, a date, and the actors. But reducing a vague or fragmentary historical text to clean and precise data often gave rise to issues of false precision. For instance, the annals tell us that in 1196, Domhnall MacCarthy demolished castles in Imokilly, but not which castles. So how does that get reduced to coordinates for displaying on a map? Should I show all the castles I know to have existed in Imokilly in 1196? Should I mark the conflict at the border to demonstrate the MacCarthys active beyond their own territory? Should I pin it to the center of Imokilly? In this instance, I chose the last option, but I could have justified any of those choices. The same problem applies to dates. There is no established date for the construction of Kilfeakle Castle, but Domhnall MacCarthy's attack on it in 1196 provides a terminus post quem. In order to have it on my map's time visualization, I gave it a construction date of 1190, when the timeline began. The reason for that intervention was clear to me, but I had no good way to make that transparent to the viewer of the resulting visualization.

Perhaps the most fundamental problem with my project was in the nature of my argument. I initially attempted to frame the narrative of my map in terms of ethnic identity. That is a tricky and problematic maneuver even in a written argument, where footnotes can add crucial nuance and caveats. But on a map that might be stripped of its context and asked to stand alone, it was a methodological hornet's nest. In the end, I settled for a binary of "Irish" and "foreigner." But I quickly realized that in doing so, I fell into the same reductionist trap of oversimplifying an incredibly complex society that I had set out to challenge. Since my project aimed to cover several centuries, a period marked by myriad forms of cultural hybridity and for which scholars continue to argue vociferously about ethnic identities, that binary broke down rapidly.

These two failures of data cleaning did produce some immediate takeaways as I experimented with ways to improve my encoding. In my next iteration, I tried categorizing the actors by families and lordships, and I added a certainty column for dates and places. That was

better from a data standpoint, but still plagued by ambiguous data points and much harder to visualize with the tools I had at hand.

Goals, scope, and audience

Who will be the primary audience of the project? How will you frame the project with this audience in mind?

The obvious answer to this question is my in-person audience at the conference. However, I think the audience I was actually framing it for was a more nebulous scholarly discourse into which I was trying to insert myself.

How can you break your project into definable steps? What defines success for each of these steps?

I did define my project into definable steps, and I did execute them all – after a fashion. First, create a base layer that set the stage for the political and military turmoil of the mid-late Middle Ages. Second, create a data set. Third, lay the data on the map and create the dynamic visualization. And fourth, of course, write the paper (which I imagined would be a good beginning toward a landscape chapter).

Where the project would have benefitted significantly is identifying some key metrics for success, because even though I executed each step, the project was ultimately unsuccessful by the standards of my initial proposal and goals. What would a successful data set look like? It would be robust, drawing on more sources than the annals. It would be nuanced, accounting for the fluid and malleable identities expressed by medieval actors. And it would be granular, allowing for distinct and sometimes opposed factions within a given identity group (whether that identity group is an entire ethnicity or a single family).

Choosing technologies

What technologies do you need to answer the key questions underlying your digital project?

While I settled on GIS in the end, I am not at all sure that it was the only or even the best choice. Other equally good or better options might have included a series of static map images or an interactive map with layers that could be toggled on and off. Here I would have benefitted from considerations of audience: Should this have been something to look at or to interact with? Should it have been intuitive for an expert user or for someone with little technical knowledge? Given my immediate conference audience, the tool I chose was fine. It produced a nice little animation that I was able to embed in my PowerPoint. But if this had become the more far-reaching project I had in mind, something with a little more narrative capability might have been better-suited.

What resources do you and your team already have?

At the time, I had no access to enterprise platforms like ArcGIS. Instead, I turned to its open-source counterpart QGIS. While QGIS has a strong user base and lots of tutorials available online, it can be clunky. However, it was free and the TimeManager plugin gave me the functionality I needed for animating temporal data.

What limitations do you face?

Among the many challenges to this project, two stand out. The first is a perennial challenge for Irish historians: I dealt with a fairly limited source base due to the extensive destruction of Ireland's archival record in the 1922 shelling of the Four Courts which held Ireland's public records. The second was my own limitation: I leapt headfirst into a platform with which I was unfamiliar, meaning everything took longer and I was not fully aware of the platform's limitations. These limitations constrained both the data I was able to encode and the deliverable I produced.

Sustainability

What data will your project need to store and preserve? What software and platforms does your project depend on?

Formats and platforms are often the place where digital humanities fail in the long term. Keeping data accessible and usable in proprietary formats (even simple ones like the Excel sheet in which I stored my data) requires labor and attention. Had I continued this project, I would have probably stored that data as a CSV, and that is now my preferred format for data that I use across multiple platforms or need to preserve.

When will the project be complete?

In this case though, the trickier question was what a complete project looked like. Here again, I would have benefitted from outlining those success metrics for each phase of the project. I suspect that, had I been asked when I began the project, I would have said that the visualization would feed directly into the dissertation and remain actively in development for however long that took. In the end, I called it complete (or rather ceased to work on it) when I had a prototype – however flawed – and some reflections on the course of the project.

Reflections

By the time I got around to the conference, it was clear that my visualization failed to achieve the aims I set out in my abstract. However, the paper itself turned out to be a success. Rather than attempt to salvage the initial proposal, I wrote up my failure, reflecting on the challenges of working with humanistic data and of visualizing medieval Irish data specifically. In particular, I noted the dangers of false precision and of invisible lacunae. I also noted some opportunities for iterating past this failure, including combining a spatial visualization with

network analysis of kinship groups and other data visualizations. Although I have not pursued those projects in precisely the forms I identified then, they have served as seeds for current and future work.

As I have reflected further on this failure and the ways it has informed my subsequent projects, I have formulated some of its lessons into the beginnings of a framework for data transparency in the digital humanities. This project has highlighted three facets of data transparency: how we deal with ambiguous data, where we elide things for the purposes of analysis or visualization, and the basic inferences and assumptions on which we build our data sets. While I have previously addressed the specific manifestations of these principles in my project *Submission Strategies*, it is useful to articulate the direct, causal relationship between failure, reflection, and revision for future projects (Smith, 2024).

This project was riddled with vague and ambiguous data, from unidentified dates and locations to obscure familial relationships to porous geographic boundaries. I made an initial stab at it while working on the project by creating a certainty column in my spreadsheet for my identifications of ambiguous places. While that met a bare minimum standard for data transparency, I felt that tucking that column away in a spreadsheet (where few if any people would ever look at it) was still decidedly opaque. In my current projects, I am taking two different approaches. In one, I have based my tool choice on the ability to create clickable pop-ups with links to authority files I have created for people and places. Each authority file contains a list of sources and a summary of how I identified the entity. This is effective but labor-intensive. In the other project, which has much simpler data, I have taken the correspondingly simpler path of including my data as a searchable table on the page with the visualization.

Because I was committed to a particular kind of visualization, I found myself shoehorning data into a structure to which it was unsuited, with the result that my vastly oversimplified categories elided highly complex and malleable identities expressed by my actors. In my current work, I have largely eschewed identity categories, instead opting for either self-imposed categories (which come with their own challenges for visualization) or categories that describe actions and roles, like interpreter or witness. Encoding actions rather than people seems to avoid some of the reductionist habits I fell into in this project. This is certainly not the only solution to this problem, and there are many far less fraught mechanisms for encoding identities. However, for my current data and my current contexts, this is proving effective. Perhaps that is the true takeaway when it comes to imposing and eliding categories – there is no single right answer that transcends the needs and contexts of a given project.

There are indeed many potentially right ways to encode data, but each step we take when working with humanistic data is an argument. Just like we would footnote or expound on those decisions in a work of print scholarship, we need to provide ways for users to unpack our thought processes, challenge our conclusions, and build on our work. My approach then of encoding ethnic categories was guided by a particular strain of scholarship that placed a heavy emphasis on national and ethnic identities. My resistance to such categories now reflects a distinctly different set of assumptions about the nature of identity both in medieval Ireland and in general. In both cases, my inferences and assumptions shape my data in explicit and significant, but invisible ways. I think about this problem and render it visible in two ways. The authority files I currently use go a long way toward remedying this problem, and in general I am far more

assiduous now about scaffolding my visualizations with interpretive content and references not only to my sources of data, but to schools of thought that influence my encoding, analysis, and visualization of the data.

Each of these measures was designed to meet criteria I identified for data transparency based in part on this project. The data should be visible to the user, not tucked away in a repository or opaquely named page. It should be accessible in a non-proprietary format, and ideally in a variety of formats. And it should be clearly structured so that it can be understood outside the confines of the project. They constitute a work very much in progress that will no doubt be informed by my future failures. And perhaps it will be informed by others' failures too. My failures to date have been frustrating and at times disheartening, and they have wasted time, effort, and resources. However, when I have taken the time to reflect on them (which I confess I do not always do), they have been and continue to be generative and stimulating.

Conclusion

References

Barats, Christine, Schafer, Valérie, and Fickers, Andreas. (2020) 'Fading Away... The challenge of sustainability in digital studies', *Digital Humanities Quarterly*, 14(3). Available at: https://www.digitalhumanities.org/dhq/vol/14/3/000484/000484.html (Accessed: 2 March 2023).

Buurma, Rachel Sagner and Levine, Anna Tione. (2016) 'The Sympathetic Research Imagination: Digital Humanities and the Liberal Arts' in Matthew K. Gold and Lauren F. Klein (eds.) *Debates in the Digital Humanities 2016*. Minneapolis: University of Minnesota Press, pp. 274-279.

Cordell, Ryan. (2020) 'Talking about Viral Texts Failures', *Ryan C. Cordell*, 25 June 2020. Available at: https://ryancordell.org/research/VT-database-fail/ (Accessed: 1 March 2023).

Croxall, Brian, & Warnick, Quinn. (n.d.) 'Failure', *Digital Pedagogy in the Humanities: Concepts, Models, and Experiments*. Available at: https://digitalpedagogy.hcommons.org/keyword/failure/ (Accessed: 20 February 2023).

del Rio Riande, Gimena et al. (2020) 'OpenMethods: A Compass for a More Open Digital Humanities' [Preprint]. Available at: https://doi.org/10.20944/preprints202003.0016.v1 (Accessed: 21 February 2023).

Dombrowski, Quinn. (2019) ‘Towards a Taxonomy of Failure’, *Quinn Dombrowski*, 30 January 2019. Available at: https://quinndombrowski.com/blog/2019/01/30/towards-taxonomy-failure/ (Accessed 28 February 2023).

Drucker, Johanna. (2011) ‘Humanities Approaches to Graphical Display’, *Digital Humanities Quarterly*, 5(1). Available at: https://www.digitalhumanities.org/dhq/vol/5/1/000091/000091.html (Accessed: 15 March 2023).

Edmond, Jennifer and Lehmann, Jörg. (2021) ‘Digital humanities, knowledge complexity, and the five ‘aporias’ of digital research’, *Digital Scholarship in the Humanities*, 36(Supplement 2), pp. 95–108. Available at: https://doi.org/10.1093/llc/fqab031 (Accessed: 21 February 2023).

Edmond, Jennifer and Morselli, Francesca. (2020) ‘Sustainability of digital humanities projects as a publication and documentation challenge’, *Journal of Documentation*, 76(5), pp. 1019–1031. Available at: https://doi.org/10.1108/JD-12-2019-0232 (Accessed: 21 February 2023).

Fostano, Katharina and Morreale, Laura K. (2019) *The Digital Documentation Process*. The Digital Documentation Process. Available at: https://digitalhumanitiesddp.com/the-team/ (Accessed: 18 November 2022).

Franco, Annie, Malhotra, Neil, and Simonovits, Gabor. (2014) ‘Publication bias in the social sciences: Unlocking the file drawer’, *Science*, 345(6203), pp. 1502–1505. Available at: https://doi.org/10.1126/science.1255484 (Accessed: 23 February 2023).

Galey, Alan and Ruecker, Stan. (2010) ‘How a prototype argues’, *Literary & Linguistic Computing*, 25(4), pp. 405–424. Available at: https://doi.org/10.1093/llc/fqq021 (Accessed: 21 February 2023).

Graham, Shawn. (2019) *Failing Gloriously and other Essays*. Grand Forks, ND: The Digital Press at the University of North Dakota. Available at: https://thedigitalpress.org/failing-gloriously/ (Accessed: 28 February 2023).

Hoover, David L. (2016) 'Argument, Evidence, and the Limits of Digital Literary Studies', in Matthew K. Gold and Lauren F. Klein (eds.), *Debates in the Digital Humanities 2016*. Minneapolis: University of Minnesota Press, pp. 230-250. Available at: https://doi.org/10.5749/j.ctt1cn6thb.23 (Accessed 21 February 2023).

Kemman, Max. (2019). 'DH Failures vs Findings', *Max Kemman*, 28 February 2019. Available at: https://www.maxkemman.nl/2019/02/dh-failures-vs-findings/ (Accessed 28 February 2023).

Mahoney, Jennifer, Risam, Roopika, and Nassereddin, H. (2020) 'Data Fail: Teaching Data Literacy with African Diaspora Digital Humanities', *The Journal of Interactive Technology and Pedagogy*. Available at: https://jitp.commons.gc.cuny.edu/data-fail-teaching-data-literacy-with-african-diaspora-digital-humanities/ (Accessed 2 March 2023).

Mervis, Jeffrey. (2014) 'Why null results rarely see the light of day', *Science*, 345(6200), pp. 992–992. Available at: https://doi.org/10.1126/science.345.6200.992 (Accessed 21 February 2023).

Munafò, Marcus and Neill, Jo. (2016) 'Null is beautiful: On the importance of publishing null results', *Journal of Psychopharmacology*, 30(7), 585–585. Available at: https://doi.org/10.1177/0269881116638813 (Accessed: 21 February 2023).

Noble, Safiya Umoja. (2018) *Algorithms of oppression: How search engines reinforce racism*. New York: New York University Press.

Posner, Miriam. (2016) 'What's Next: The Radical, Unrealized Potential of Digital Humanities', in Matthew K. Gold and Lauren F. Klein (eds.), *Debates in the Digital Humanities 2016*.

Minneapolis: University of Minnesota Press, pp. 32-41. Available at: https://doi.org/10.5749/j.ctt1cn6thb (Accessed 4 November 2022).

Reed, Ashley, Rau, Emily, DeSpain, Jessica, and Smith, Margaret K. (2021) 'Questions to Ask When Writing a Project Charter', *Recovery Hub for American Women Writers*. Available at: https://recoveryhub.siue.edu/resources/project-charter-questions/.

Rawson, Katie and Muñoz, Trevor. (2019) 'Against Cleaning', in Matthew K. Gold and Lauren F. Klein (eds.), *Debates in the Digital Humanities 2019*. Minneapolis: University of Minnesota Press, pp. 279-292. Available at: https://doi.org/10.5749/j.ctvg251hk.26 (Accessed 10 October 2022).

Ruecker, Stan. (2015) 'A Brief Taxonomy of Prototypes for the Digital Humanities', *Scholarly and Research Communication*, 6(2), Article 2. Available at: https://doi.org/10.22230/src.2015v6n2a222 (Accessed 21 February 2023).

Smith, Margaret K. (2024) 'Visualizing the Irish Submissions to Richard II', *Interdisciplinary Digital Engagement in Arts & Humanities*, 4(3). Available at: https://doi.org/10.21428/f1f23564.89c3e142.

Smith, Margaret K. (2017) *Lines in the Landscape: The Expansion and Contraction of the Mac Carthaigh Riabhach*. International Congress on Medieval Studies, Kalamazoo, MI.

Spiro, Lisa. (2012). '"This Is Why We Fight": Defining the Values of the Digital Humanities', in Matthew K. Gold (ed.), *Debates in the Digital Humanities*. Minneapolis: University of Minnesota Press, pp. 16-35. Available at: https://www.jstor.org/stable/10.5749/j.ctttv8hq.6 (Accessed 9 September 2022).

Terras, Melissa. (2014) 'Reuse of Digitised Content (4): Chasing an Orphan Work Through the UK's New Copyright Licensing Scheme', *Melissa Terras' Blog*, 29 October 2014. Available at:

http://melissaterras.blogspot.com/2014/10/reuse-of-digitised-content-4-chasing.html (Accessed 21 February 2023).

Walsh, Brandon. (2019) ‘Frustration Is a Feature: Ugly Feelings and the Digital Humanities’, *Pedagogy*, 19(3), pp. 519–524. Available at: https://doi.org/10.1215/15314200-7615485 (Accessed 21 February 2023).

Wershler, Darren, Emerson, Lori, & Parikka, Jussi. (2022) *The Lab Book*. Minneapolis: University of Minnesota Press.