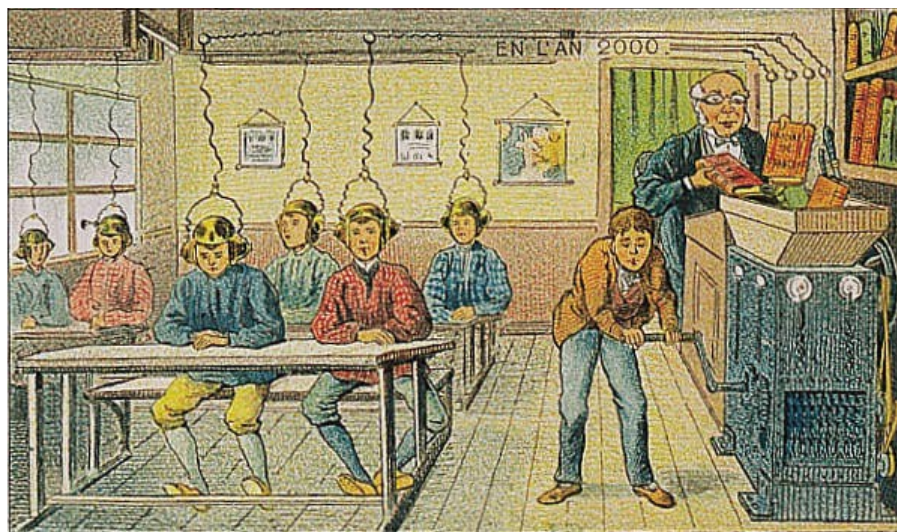# Teaching in the Digital Humanities – an RSA Roundtable

Summary of a roundtable, Renaissance Society of America, New Orleans, March 22-24, 2018, edited by Angela Dressen and Molly Taylor-Polenksy

Participants: Charles van den Heuvel, Rachel Midura, Ellen Prokop, Ray Siemens, Catherine Walsh

Source: http://expositions.bnf.fr/utopie/grand/3_95b1.htm, Paris, BNF

The following comments were adapted from a roundtable on Digital Humanities pedagogy at the 2018 Renaissance Society of America annual conference in New Orleans. The lively and well-attended session suggested that DH pedagogies are becoming mainstream as the field becomes more established with its own associations, journals and academic degrees. The irony, though, is that most practicing DH scholars did not have formal training as such. They trained as art historians, historians, and literary scholars, but the DH part of their academic profile is largely self-taught.

Apart from being its own discipline, DH has penetrated into all humanities disciplines with new theories and methods. Teaching digital humanities happens on a broad basis: in some disciplines DH courses are an occasional offering within traditional teaching, other universities have created a proper curriculum with BA, MA or PhD degrees. Apart from dedicated curricula, there are single courses and workshops within the humanities disciplines. This roundtable is dedicated to methods for teaching DH, particularly beyond dedicated curricula—as additions to classical humanities fields.

Now that institutions are funding and forma-lizing DH programs, some of us are bene-fitting from fellowships, grants and even tenure-track positions in DH, yet we are left with enormous creative freedom to decide how to train others. Teaching DH requires identifying the appropriate digital tools for class projects that deepen students' under-standing of their topic as well as their re-search, analysis and communication skills. It also means determining concrete logistics like making grading rubrics for non-traditio-nal outputs and leveraging networks to get students necessary resources. Likewise, we also need to anticipate what training will best serve students in their future professio-nal lives.

DH is simultaneously criticized and lauded for its "Wild West" character. In fact, DH is so lawless that we can't even decide on a definition (is it a field, an approach, a sub-field, an investigative lens?). In this ambi-guous context, how can we teach DH with-out limiting our students' own creative ca-pacity? As the two consistent qualities of DH are experimentation and collaboration, we decided to turn to a panel of experi-enced DH teachers to share their thoughts on the challenges and best practices for te-aching digital humanities.

How does DH pedagogy differ from tradi-tional pedagogy in your field?

[Charles]
I work four days a week as head of the Department History of Knowledge at a research institute and one day per week for the University of Amsterdam to train students in digital methods for history disciplines. My DH pedagogy is a direct extension to my work at the research institute. In the classroom, I focus on practical skills and set up collaborations with members of large IT and Digital Data Management teams. To simulate that work situation (learning on the job), I bring in colleagues or other experts from my network to teach practical skills. Normally, I give an hour introduction to a specific method or tool and then give the floor to an expert to work together with the students on a practical assignment in the classroom. On the one hand, this format is more collaborative, but since there are more differences in student skill levels than in traditional pedagogy, the approach of teaching on the job is more individualized.

[Rachel]
On a conceptual level, historical pedagogy often emphasizes taking a deceptively straightforward topic or causality and demonstrating the underlying messiness. By comparison, DH often requires a stream-lining of thought, especially during the period of structuring data collection. Historians often find the choices they must make in this regard restrictive, however in pedagogy, it can provide an important opportunity for discussion. What is gained, and what is lost when data is approached in this manner? How can categories be applied, iterated, refined? In fact, the "operationalization" of data is not at all dissimilar to traditional historical work of interpreting primary sources, but the

emphasis on the clarity of models, and the product of a data set differs from the usual pedagogy. On a practical level, DH pedagogy requires a different set of skills and materials from both instructor and student. It is still possible to teach a history course without utilizing technology more advanced than a pen, paper and copier.

[Ellen]

Digital Art History (DAH) introduces collaboration (between students and among departments) and new technologies into the classroom and encourages students to consider how images are used in the digital world, specifically, how images construct knowledge in different environments and among varied communities. Teaching DAH, however, poses a unique set of challenges: transitioning from the traditional lecture format reliant on the projection of images in a darkened room and the instructor's specialized knowledge to an interactive model that requires students to engage with data collection, digital technologies, and each other is not a simple process. Art history classrooms often feature fixed stadium-style seating—they are simply not designed for group projects—and the art history curriculum, which emphasizes the cultivation of a comprehensive visual vocabulary generally developed through the memorization of thousands of works of art, promotes individual study.

Yet despite these challenges, a handful of art historians have embraced DAH and successfully incorporated its tools and methods into their courses. One excellent example is Karen Mathews at the University of Miami who uses [photogrammetry techniques and modeling software to teach her students about Florida's architectural history](). Point clouds produced using drones equipped with lightweight cameras afford Mathews and her class increased understanding of the buildings as well as access to architectural details that are otherwise difficult to study. Her students collaborate on a series of short written assignments focused on these monuments and all materials that are produced during the semester are published on an interactive website, a project that increases the students' and the public's engagement with these cultural heritage sites. Thus, instead of focusing exclusively on the construction history and formal qualities of these architectural monuments and communicating this knowledge through a series of lectures (a more traditional pedagogical approach), Mathews also teaches her students about collaboration, digital tools, data collection and curation, digital storytelling, and public art history.

[Catherine]

To build upon Ellen's points about the physical structures required by digital art history (DAH) classrooms and the collaborative nature of DAH, and how these differ from traditional art history spaces and methods, I would like to dwell a bit more upon how DAH students encounter images of artworks. While artworks as objects of study remain central in DAH, the artwork's digital image - as an object itself - and its metadata also require close and careful examination within the context of many DAH methods. This particular facet of the relationship between images and know-ledge construction is of great consequence for the essential art historical practice of viewing reproductions of artworks.

The ways in which digital art history courses ask students to engage images fundamentally differ from the traditional practices of instructors presenting images with side-by-side slide carousels and stu-dents accessing those carousels via library course reserves where one student at a time reviews slides for a limited period of time. The more recent early twenty-first century

development of using PowerPoint in the art history classroom and posting PPT files (wherein labels or annotations reflect only the professor's knowledge) to course websites represent some distinct, but, especially in the context of classroom pedagogy, slight shifts from the ways traditional slide carousels were used by teachers and students. DAH pedagogy departs from these models and employs image sharing platforms and image making technology through which students practice social learning and contribute to the production of knowledge about artworks and their digital representations. This approach can be deployed even in a lecture-based art history course. For example, in my survey courses, students use Flickr and Google Maps to collaboratively describe, tag, interpret, and organize the course content. This method of study develops awareness of information architecture and of how restructuring knowledge (metadata) that surrounds an object (artwork or digital image) can affect interpretation of that object. Projects such as the architectural photogrammetry that Ellen described earlier provide opportunities for students to ask more complex questions about the relationship between digital reproductions and original artworks, between artworks and metadata, and between beholders and digital reproductions of artworks. Like Ellen noted, this pedagogy shifts focus away from acquiring knowledge through memorization. DAH pedagogy upends the conventional student-as-consumer role and instead positions students as critics, creators, and collaborators in the acts of interrogating, manipulating, and curating digital images. These kinds of DAH approaches challenge hierarchical, binary structures of traditional art history classrooms.

What conversations are happening at your institution about digital humanities pedagogies (among students, faculty, and administrators)?

[Charles]
My research institute has no specific institutional pedagogical task imposed by the government. Nevertheless, it is important to be directly involved in teaching and other pedagogical activities. We develop several tools; working together with researchers and students in practice is important to establish whether the tools are useful to them. Therefore it is also in the interest of the research institute to work closely with the universities. Together with other universities, we design DH internships in which students participate in DH research projects, cultural heritage institutions or small start-up companies for a longer period.

[Ellen]
I work at the Frick Art Reference Library in New York, a research institution affiliated with The Frick Collection. In the fall of 2014, the Library established the Digital Art History Lab (DAHL) to provide support and training for students and art professionals interested in exploring digital tools and new methodologies based on computational techniques. As the field has evolved, however, the Library's role has expanded to become an intermediary between digital natives and analog natives—it has become a translator between the two groups. While the DAHL has the full support of the institution, we have a limited budget: since its foundation, we have had to be resourceful, and persistent. We have had to rely on the goodwill and enthusiasm of several computer scientists and GIS specialists to lead informational workshops and complete various digital projects. Fortunately, the DH community in New York

City is generous. We've managed to stay afloat for four years with a program that offers at least two public lectures and six workshops per year; we've also spearheaded the development of two major digital projects, one of which, the ARt Image Exploration Space is in beta. But again: this has been accomplished solely because we found people who would collaborate with us and funders who supported our vision. I worry if this model is sustainable.

I also teach part-time at a few local universities, including Hunter College of the City University of New York (CUNY). Teaching DAH at Hunter College has been challenging. The administration is interested in the field and anxious for art history majors to develop "real world" skills, but it has not provided me, an adjunct, with a budget for guest lecturers, software, and subscriptions and scheduling time in the computer lab is impossible. So I have had to rely on friends in the DH community to lead (unpaid) informational sessions during class sessions (which means that if a student does not have a laptop, he or she is limited to taking notes) and I have had to rely on the students to take the initiative to master these resources outside of the classroom.

Thus, in both cases, I would say that the conversation has only begun: while administrators may be excited by the prospect of introducing DAH into the curriculum or their institution's programming, funding and resources are restricted. My concern is that as a result, students and workshop participants receive a very basic introduction to the field and do not have the support to engage with it fully, which can be frustrating. I can only hope that they will not be discouraged from exploring these tools and methods in the future.

[Catherine]

I teach at the University of Montevallo, a small public liberal arts institution. UM does not have a digital humanities degree or certificate program; DH instruction tends to be developed on a course-by-course, project-by-project basis; and currently the administration is not formally invested in DH as a field or methodology. For my department (Art) and for the College of Fine Arts, digital technology is important to multiple curricular programs, thus tools that support some DH pedagogies are regularly acquired and maintained (but not always with the express purpose of serving DH; often these are cross-purposed for DH applications). Colleagues in the College of Arts and Sciences regularly teach DH courses or courses with emphasis on digital collaborative projects. Within my department, there is support for DAH pedagogy and for the projects that I spearhead; colleagues see the two ongoing digital projects that my students are developing as opportunities for the students to acquire "real-world" digital skills. Students see these public-facing projects as meaningful opportunities to contribute to the campus and local communities. In short, the reception of DH pedagogies is positive, and the practice of DH methods widespread but not codified or organized university-wide.

Unsurprisingly, the library has become the default hub for DH instructional and technical support, and often interdepartmental conversations are informally mediated by the space and staff of the library. Occasionally Carmichael Library hosts digital methods workshops, and regularly library personnel make connections between faculty members working with the same tools or software or on projects with overlapping content or goals. All of this is to say that generative exchanges between faculty occur, and at the department level a broad view of the value of DAH is taken; but, we do not tend to have "big" conversations about the shape of DH pedagogy at our institution or long-range plans for DH pedagogy in our

programs. Yet, faculty are expected to emphasize digital literacy across the curriculum, and general education classes must incorporate high impact learning practices such as project-based learning. DH pedagogy serves these goals, and in part because of such goals (but especially because of faculty interest and initiative) it is, in fact, common across departments and colleges. In a sense, without using DH-specific rhetoric, multiple constituencies at UM are talking about DH, and they view the acquisition of DH skill sets as integral to the undergraduate experience.

[Ray]

What I've noticed most strikingly in recent years is the way in which what we might have seen some time ago as *separate* conversations around digital humanities pedagogical issues now being a key and core part of the larger conversation about pedagogy itself. At the Digital Humanities Summer Institute, wonderful instructors over the past few years like Diane Jakacki, Chris Friend, Robin de Rosa, Jesse Stommel, and many others have in their pedagogy-focused courses brought longstanding pedagogical traditions and values together with new and emerging practices and possibilities. Friend and Sean Michael Morris, in preparation for their offering at DHSI 2018, highlight in their course description concerns with collaboration, outcomes, best practices, instructional design, learner experience and praxis; they continue, "Digital Humanities, with its deep reliance on technological tools, is replete with courses about those tools. This course offers an alternative: It is an exploration of pedagogy, challenging teachers to re-think how they approach their classes and interact with their students. We will," they note, "discuss critical pedagogy and the importance of letting students define, control, and take

responsibility for, their learning environment. This course will also serve as a playground, letting participants experiment with critical digital pedagogy in a class-created open-access online course that we co-design, build, deploy, promote, and assess." Entitled "Critical Pedagogy and Digital Praxis in the Humanities," this course and others like it reflect a very positive turning point in discussion, one that is unifying and promising as we look to the future, one that is indicative of many discussions going on in institutions around the globe.

Practitioners of DH today have rarely had formal training. How much does this affect how you design classes and what DH classes you offer? How do you manage?

[Charles]

Not only the practitioners, but also teachers of DH have rarely had a formal training. Moreover, even if they have had a formal training it is often in one particular method such as GIS or network-analysis. The training of undergraduate students requires an elementary overview in several DH methods and trying out several tools. This in my view is only possible if more people are involved in the design and in teaching of DH classes. This is managed by preparing a DH program rather than by preparing individual classes.

[Rachel]

I began graduate school with little in the way of DH experience beyond some public history applications from my work in museums. As I completed a graduate certificate at the Center for Spatial and Textual Analysis, I took coursework on topics like spatial history with Professor Zephyr Frank and text analysis with Mark Algee-Hewitt, as well as spending summers at the Digital Humanities Summer Institute

or Early Modern Digital Agendas. There is a tendency among instructors to shy away from DH because they cannot be the technical expert in the room. I witnessed instructors readily admit where their skillset began and ended, but teach students how to find the right resources and experiment, which is actually a key DH skill in its own right. The instructors remained the authority on critical consideration of the data collection, structuring, and interpretation, as well as the integration of contextual expertise, and I now aim to impart those lessons in my own teaching.

[Ellen]

Since I lack technical skills and often cannot find a more experienced person to lead a workshop or informational session for my classes, I generally focus on the issues underpinning DAH rather than the technologies themselves. For example, I incorporated a section on computer vision technologies into the museum studies class I taught last semester at the School of Professional Studies, New York University (SPS) through an in-class debate on the ethics of applying these technologies to the study of the arts. Art history students (and their instructor) might not understand how computer scientists can "teach" a computer to recognize an image of a cat, but they can certainly discuss the ethical implications of using machine-learning techniques to direct search results—a technology developed by large corporations to encourage consumer consumption—in a museum's search engine or a library's catalog. In this section, we read articles by Emily L. Spratt of Princeton University and watched videos of conference presentations that introduced a range of DAH projects that rely on computer vision technologies, such as the [project to harness computer-based detection algorithms to study the gestures and postures of figures illustrated in medieval](#)

[manuscripts](#) led by a team at Friedrich-Alexander University, Erlangen-Nuremberg. Students were asked to prepare short written responses to these materials, which ensured that they were ready to participate in the general discussion. Learning how to assess these projects was a valuable experience. More importantly, thinking deeply about how these technologies determine one's experience and under-standing of the works of art under study encouraged many of the students to explore DAH more broadly.

[Catherine]

Though I possess no formal academic training in DH, I have attended workshops and institutes offering methodological and technical instruction and have invested a significant amount of time in online courses and tutorials. Still, the breadth and depth of my DH skills are, certainly, limited. But because I do not teach in a formal DH or DAH program, I have much freedom in terms of the design of and DAH content in my courses. (In fact, none of my courses are explicitly DAH courses in title or solely DAH in content - but all of them incorporate DAH methods in significant ways.) Like Ellen, I foreground critical and theoretical issues, especially in the two seminars I regularly teach that are devoted to ongoing, student-created digital projects (an online catalogue of the UM art collection and a website exploring the landscape history of a local park). I agree with Rachel that acknowledg-ing gaps in knowledge and the ability to locate human and digital resources that can bridge these gaps are crucial to the practice and teaching of DH. In addition to helping students develop these cognitive and metacognitive skills, my courses dwell on data acquisition and data curation. These are fundamental technical skills that serve multiple scholarly and professional practices outside of the DAH realm. Though

there are exceptions, most of my students are studio art majors who do not intend to pursue museum careers or art history graduate education. Focusing on skills that have broad potential for application benefits a greater number of these students. Arguably, anyone charged with locating, vetting, and organizing information - whether in an art gallery or an urban planning office - could draw upon this skill set. Beyond those foundational competencies, I also focus on digital mapping methods. As I develop my own digital mapping project, teaching mapping in my courses allows me to draw upon my existing strengths and at the same time to improve my proficiency with mapping tools through teaching. In addition, my students and I have benefitted from the generosity of library, new media, DAH, and GIS colleagues - both in terms of trouble-shooting particular technical questions and in terms of co-teaching and guest lecturing. In sum, strategic and focused course planning that draws upon one's own experiences and strengths is one way to manage; when colleagues are willing to supplement and support instruction, goodwill complements strategy.

[Ray]

Like most others of my generation—I was in graduate school in the very late 1980s and well into '90s—I "apprenticed" in Humanities-oriented computational method in many ways, under experts in the tools and practices that we now call the Digital Humanities even as they were emerging. Typically, the protocol used for this sort of training, if we were to have thought of it that formally at the time, was imitative: "just do what I do," some people call it, one to one or in small groups. This was exciting and energising, and built strong and close professional relationships, but I wouldn't be the first to note that it was a difficult model

to scale and sustain, especially at a time when there was increasing interest in these methods and yet little by way of formal curriculum in academic departments. At that time, we can note the earliest of the community-spawned institute-based teaching and training that we now find so visibly-present today; CETH at Princeton, CCH at Toronto, and the group at Oxford are just several that emerged in those days, ultimately inspiring elements of the earliest formal academic curriculum and, further, the group of DH institutes that work together today connected via the international Alliance of Digital Humanities Organisations DH Training Network which, taken together, train some few thousand annually. There are many more possibilities and avenues for learning about the Digital Humanities today, and all of them have specific strengths to offer; for me, though, I find that the approach in my own classes goes back to the foundations in the small-group, just-do-what-I-do approach that fosters intellectual community as much as it conveys pragmatic skills.

How do you keep up with the latest research and trends in DH pedagogy?

[Charles]

I keep up by following conferences, reading literature and websites, DH lists, and especially by going through tutorials and by a lot of talking with colleagues.

[Ellen]

Fortunately for me, this is part of my day job, so I spend at least an hour every morning reading online journals and newspaper articles on DAH, DH, computer vision, digital mapping, and related subjects.

[Catherine]

In addition to keeping up with academic publications, I follow DH practitioners and groups on social media. Often in this sphere, insights about practical issues related to pedagogy surface. Likewise, following scholars and topics on Humanities Commons and on various Digital Humanities Slack channels is useful.

[Ray]

I follow core research publications and attend conferences in the area, survey the DHSI curriculum (and delve deep into, as time allows), and am as engaged as time permits in social scholarly venues and on social media more generally.

How has your institution formally integrated teaching DH? (DH certificates for DH in general, or specific for a sub-discipline, like DAH?)

[Charles]

My research institute does not provide official certificates but rather report to the supervisors of the students on the various skills the latter learned during the internships. These not only provide assessments of methods or skills learned but also reflect participation in the organization through meetings, etc. Together with the theoretical DH training at the university, this results in a grade for the DH minor by the responsible university teachers.

[Rachel]

We now have several bodies active in promoting DH on campus, however CESTA remains a hub. Undergraduate students can pursue a digital humanities minor, choosing between a focus on Geospatial Humanities, Literary Text Mining or Text Technologies. A separate undergraduate research assistant program, which pairs undergraduates with faculty projects, has been immensely popular in past years. Graduate students can pursue either a digital humanities certificate and/or apply to be a fellow. The certificate requires coursework chosen from an interdisciplinary offerings across the university and the completion of a capstone project, while the latter is graduate-student led, with frequent guest speakers, workshops and work group meetings leading to final presentations. CIDR (The Center for Interdisciplinary Digital Research) is based in the library and offers frequent workshops and office hours for researchers.

[Ellen]

There has been a great deal of discussion among the administrators at Hunter and SPS about "building connections" between what students learn in the classroom and their future careers. Yet no formal, integrated strategy to achieve this goal has been developed for the art history concentration. In some ways, this is an advantage: I enjoy great flexibility when designing my courses. The downside, as I noted above, is that I lack resources such as technical support or access to a computer lab. My concern is that students will leave my class with the wrong impression—that no one really cares about digital literacy, or that DAH is too "hard." This is why I incorporate basic DAH skills (such as collaboration) into the classroom and introduce critical issues of the field (such as the limitations of computer vision technologies) into the curriculum. Hopefully, these skills and information can—and will— be applied in the future.

How do you *teach* abstract DH methods like interdisciplinary collaboration?

[Charles]:
I teach interdisciplinary collaboration either by making students part of an inter-disciplinary team by an internship within the research institute/within other projects or by bringing in more teachers from other disciplines directly in the classroom.

[Rachel]
I would love to see more spaces like CESTA, which bring faculty, graduate students, and undergraduates together for joint learning workshops and project development. While there are advantages to the current build-your-own-curriculum approach to graduate student training, it would be helpful to have a interdisciplinary "basics" course, similar to the introduction course that most students take within their discipline in their first year. DH is of course constantly changing, but like these introduction courses, the focus could be developing a DH hermeneutic and orienting to the history and current directions of the field. For PhD students, a PhD minor could be very useful for representing their qualifications on the job market, as well as representing to advisors the end-goal of what may seem to be tangential coursework. Relatedly, DH training increasingly requires some familiarity with statistics, which has not been a part of my training, but I hope will be for future digital humanists.

[Ellen]
Most art historians have been slow to embrace the digital turn because until very recently, few tools that allowed us to search, organize, catalog, and investigate images effectively were available. With recent developments in computer vision technologies and Artificial Intelligence (AI),

however, the situation is changing rapidly: tools and methods that support visual analysis and learning will soon be available, but only if scholars are engaged in the conversation. AI-generated paintings are now a reality, which is impressive but in my experience, most art historians regard such a development as redundant. So they ignore what is going on rather than consider how this development can teach us something about creativity and, more importantly, how the logarithm can be harnessed to advance art-historical research. Thus, for me, it is critical that my students and colleagues are aware of what is happening in the scientific community and are inspired to join the conversation. So for the immediate future my goal is to ensure that my students are aware of these technologies and have the ability to evaluate them and their impact on the discipline of art history

Do you think DH methods and tools will be part of a post-school life for your students? For example, how much preparation do students need at the university, to cope, for example, with a museum's job and requested technical skills?

[Charles]
Yes, I do think that DH methods and tools will be more and more part of the post-school life of my students. In my view, it is hard and not even always necessary to teach the technical skills. Often you do not know where your students end up and which skills would be required now, let alone for the future. However, what one could try to teach them is a critical approach towards the use/expectations of DH methods and to create a "data-awareness." By letting students creating a database, cleaning up data in excel sheets, etc. they learn the limitations of DH methods and understand how important

data quality is for research. This should be taught both at a undergraduate and a graduate level.

[Ellen]

Museums rely on interactive websites and social media to communicate with their established audiences and reach new ones. Thus, the skills students develop by engaging with DAH such as confidence in working with a variety of applications and software and translating scholarly content into a digital environment are invaluable. For survey classes, I often assign the creation of a Wikipedia article on a work of art or a little-known artist in lieu of the standard two-page visual analysis. For students applying for internships at museums, galleries, and research libraries, this has been a real advantage: by the end of the semester, not only have they become comfortable with the tool and learned how to write for a general audience, they also have something tangible to showcase in their applications.

The most pressing question that has recently been raised among my colleagues is whether we should be encouraging art history majors to learn to code. A curator at a major collection with a strong record of scholarly publications and the ability to code could be a game changer, but I have yet to meet that person. The problem hinges on a central aspect of art history. Students who are committed to earning a PhD in this discipline must learn several (spoken) languages, especially if they want to study art produced before the modern era. They will also have to acquire some training in paleography. This is a lot; adding in the study of a few programming languages may be too much. There is also the issue of just how many years can a student afford to be in school—what is this going to cost in terms of tuition and lost income? (Many art historians don't start earning a living wage until

they are in their 30s.) Summer courses and high-quality online classes are not affordable for many students, and many of us—myself included—cannot learn Greek or R from a book. So the debate pits those who believe art history majors should learn how to code and develop their own DAH projects against those who maintain art historians should be allowed to be art historians and rely on collaborators to produce successful projects and tools. There is a large group of us in the middle who think art historians should be familiar with various technologies so they may communicate effectively with various collaborators, but how to develop such "digital fluency" is proving difficult to determine. Is it even possible to establish a core set of concepts that art historians should master in order to work successfully with computer scientists and engineers? So yes, I firmly believe that DAH methods and tools will be part of my students' post-school life but I remain uncertain as to how much and what kind of preparation they will need.

[Catherine]

Yes, and I would extend the impact of DH training beyond museum careers and preparation for graduate school. As noted above, I think that DH methods and tools have many and varied applications beyond the digital art history classroom. This skill set includes collaboration, critical thinking, and problem solving - the abstract methods, or cognitive skills, referenced above - as well as general digital literacy (and fluency) and particular data wrangling techniques. Some of my students (most of whom are art majors, some of whom are art history minors) plan to pursue art history graduate degrees and museum careers, but the vast majority do not. Still, these students report that the tools and methods they learn about in my courses serve them in measurable ways. For example, students

seeking to build careers as professional artists and those applying to MFA programs especially appreciate the familiarity with content management systems and the digital cataloguing skills they acquire: these emerging artists are able to create online portfolios and websites and to track their own inventory using cataloging platforms as a result of learning with DAH pedagogy.

[Ray]

I know that DH methods are part of students' postgraduate life: some of the employers that have hired from among our alumni come back to ask if we can recommend any others like those they've already hired. Typically, they praise the balance of human-oriented thinking and communication—the liberal arts toolkit, in short—with computational skills. It is a winning combination and strong foundation, even if not directly applicable to any one specific job.

What's been your favorite/most successful DH assignment?

[Charles]

The most useful DH assignment for me is letting students clean up data with Open Refine. However, the most interesting and satisfactory one for me was the inter-disciplinary use of Iconclass (a classification system developed for the visual arts) for mapping subjects of painting to classical poetry.

[Ellen]

My favorite assignment is a team project to develop an online exhibition. This assignment familiarizes students with some of the basics of DAH: collaboration, engagement with data collection and organization, and exposure to innovative technologies. The project also requires students to assess online resources and digital images and address the ongoing problem of copyright. Finally, it helps them to refine their skills in research and writing. For art history students accustomed to receiving knowledge passively through lectures, this can be a difficult process, so I break the project into sections beginning with an in-class discussion of popular online exhibitions and an assignment for which students evaluate online images and try to determine their copyright status (and I credit Lauren G. Kilroy-Ewbank for designing this assignment). We have workshops on Omeka, an open source web-publishing platform that allows users to share digital collections and create online exhibits, which is offered by NYU's Digital Scholarship Librarian or, if I'm teaching at Hunter, by a friend. Omeka relies on Dublin Core, a schema used to describe digital and physical objects that many students find difficult to grasp; however, grappling with Dublin Core is proving an advantage as the students gain a basic understanding of ontologies. I set aside class time for brainstorming sessions to determine the theme and scope of the project and select the objects that will shape the narrative. To ensure that the students do not simply divvy up the entries but compose all didactics as a group, I set aside time for writing workshops as well. This does not always work out to plan: one student generally takes the lead. Assessment is another issue: to hold each member accountable, I request peer evaluations, which I factor into final grades. While some students enjoy the process and the result, which they can feature on internship and job applications, there are inevitably those who would rather work alone and share their results at the end of the semester in an in-class presentation. But I persevere with this assignment because I have found it has an extraordinary by-product: it forces students

to consider the limitations of digital visual culture. One student reported being overwhelmed by the amount of information her group had to eliminate from one entry due to restrictions related to metadata standards, design specifications, and copyright. The exhibition, she observed, was not telling the "whole story." While I shared her frustration, I at least had the satisfaction of knowing that next time she accesses an online resource, she will understand the complexities and compromises involved in how information is constructed and conveyed in the digital world. She may even be motivated to look up a book or two to supplement her online investigations.

[Catherine]

My favorite and most successful assignment is an ongoing project, the creation of a database of the University of Montevallo art collection. The online catalogue (not yet public) is complemented by a digital exhibition drawn from the catalogue entries. Thus far, two under-graduate classes and several independent studies have contributed to the project. The project asks students to apply critical thinking skills, assess the quality of acquired data, and apply technical DAH skills.

By developing this database, students learn about theoretical and practical issues related to the management of art collections. At the beginning of the course, through readings and meetings with a variety of museum and library professionals, we study issues such as the public trust and how the digital public humanities serve society. Then, for the duration of the semester, students work in teams to document artworks using conventional methods (generating collection worksheets, condition report forms, and photographic documentation) and to transfer the collected data to Omeka.

Using metadata standards established in the Getty Categories for the Descrption of Works of Art (CDWA), the first student group to work on this project defined each of the Dublin Core fields within the Omeka environment. (Now a CDWA plugin exists, but when we began the project, it did not.) Completing this task, students learned valuable lessons about information architecture and how it serves both the metadata structure and the users of the online catalogue. Making choices about which fields to populate and which categories to select helps students understand how labeling an artwork is itself an act of interpretation. As the multi-authored database grows, so does students' appreciation for the importance of standards of description and of all contributors regularly and carefully following these standards. As the students create knowledge about the collection, they learn how knowledge is constructed in broad terms and in the digital environment in which they are working.

This project makes art history come alive for students at the same time that it builds students' digital literacy. Participants have responded well to the collaborative en-vironment and experiential learning. Multiple students have said that being part of a long-term project with other cohorts of UM stu-dents makes the work particularly meaning-ful. One student reflection paper captured some of these sentiments: "I felt like every class period I was learning something or *doing* something beyond the classroom... The class was focused on a purpose… It was so different to have a product based, not traditional grade/test based class. And I loved it."

Authors

Charles van den Heuvel is Head of Research for the Department History of Science and Scholarship at the Huygens Institute for the History of the Netherlands of the Royal Netherlands Academy of Arts and Sciences in Amsterdam. Furthermore, he holds the chair: "Digital Methods and Historical Disciplines" at the University of Amsterdam.

Rachel Midura is a PhD Candidate in the Stanford History Department and senior DH fellow at the Center for Spatial and Textual Analysis. She is advised by Paula Findlen, and currently at work on her dissertation, "Reading the Mail: The Culture of the Post in Northern Italy, 1530-1630."

Ellen Prokop is the Associate Head of Research at the Frick Art Reference Library, New York, and a member of the institution's Digital Art History Lab. She was the co-editor of a special issue of *The Journal of Interactive Technology and Pedagogy* dedicated to Digital Art History and has published several articles and essays on Spanish art of the sixteenth and seventeenth centuries.

Ray Siemens is Distinguished Professor in the Faculty of Humanities at the University of Victoria, in English and Computer Science, and past Canada Research Chair in Humanities Computing (2004-15). He is founding editor of the electronic scholarly journal *Early Modern Literary Studies*, and his publications include, among others, Blackwell's *Companion to Digital Humanities* (2004, 2015 with Schreibman and Unsworth).

Catherine Walsh is an art historian and assistant professor in the Art Department at the University of Montevallo. She was Mellon Fellow in the Digital Humanities at Villa I Tatti, The Harvard University Center for Italian Renaissance Studies, in 2017.

Title