DASH Swedish National Doctoral School in Digital Humanities: From Local Expertise to National Research Infrastructure

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Abstract

This paper presents the Swedish National Doctoral School in Digital Humanities: Data, Culture, and Society – Critical Perspectives (DASH) that is run in 2023–2027 by Uppsala University, Umeå University, Linnaeus University, and Gothenburg University. Though Swedish universities have established PhD courses, MA programmes and training in digital humanities previously, DASH is the first encompassing educational programme in digital humanities at the doctoral level. The present paper discusses the rationale behind the DASH doctoral school, its role in the landscape of Swedish humanities infrastructures, and provides insights from the first PhD courses and seminars. The focus of DASH is to equip PhD candidates in humanities and social sciences with knowledge and skills necessary to pursue high quality, innovative and critical research in digital humanities. DASH aims to provide knowledge in relation to digital research, its methods, tools, and critical perspectives, and to build and strengthen the networks among early career scholars. DASH facilitates access and use of the resources in the national infrastructures in the humanities, but also emerges as an element in the infrastructure by providing new resources and competences.

Keywords
digital humanities, doctoral education, research infrastructures, doctoral school, Sweden

1. Introduction

DASH (*the Swedish National Doctoral School in Digital Humanities: Data, Culture, and Society – Critical Perspectives*) is a national doctoral school funded by the Swedish Research Council during 2023-2027. Emerging as a new educational programme in the national humanities infrastructure, DASH aims to provide knowledge and skills in digital humanities (DH) research – the use and critical study of computational methods and tools in humanities scholarship (see e.g. [1]) – to PhD candidates in the humanities and social sciences.

Sweden has pioneered digital research and promoted the use of computing technologies in disciplines outside of the natural sciences (see [2]). Over more than two decades, several Swedish universities have established research centres in DH, offered PhD courses, and instituted master's level education and training in DH. DASH, however, is the first doctoral school in DH, and addresses the growing need for education and training at the doctoral level. PhD candidates in the humanities conducting digital research at different departments across Sweden rarely have the opportunity to meet and discuss methodological or ethical dimensions of their work outside of broader national or international meeting points, for example the yearly DH conference in the Nordic and Baltic Countries

(DHNB) or with the interdisciplinary Association of Internet Researchers. DASH will play an important role as the first platform for PhD candidates to meet, exchange, and develop their research.

This paper presents an overview of the DASH doctoral school and provides experiences from its activities during the first year of the doctoral school in 2023-2024. Moreover, the paper highlights how such doctoral education emerges in interaction with the national research infrastructures and the local expertise. The challenges in providing education and training in DH relate especially to the interdisciplinary nature of digital humanities research, where various humanities disciplines engage with each other, but also with computational research approaches that have often been developed outside the humanities disciplines (see e.g. [3, 4, p. 4-8]). In DASH, these questions are addressed through a collaboration between the four partner universities, their research centres in DH, and their experts with different disciplinary backgrounds: the Centre for Digital Humanities and Social Sciences at Uppsala at Uppsala University, which is also the administering organisation; Humlab, Infrastructure and Centre for Digital Humanities at Umeå University; the GRIDH (Gothenburg Research Infrastructure in Digital Humanities) at Gothenburg University; and the DH Hub at Linnaeus University. DASH provides students access to knowledge and resources in DH spread throughout Sweden, strengthened even more by the collaborating universities' participation in the national humanities research infrastructures.

2. DASH – a National Doctoral School in Digital Humanities

The main aim of DASH is to provide PhD candidates in humanities and social sciences knowledge, skills, and critical perspectives in relation to digital research, its methods and tools. Moreover, DASH aims to build and strengthen the networks among early career scholars, and enable them to work in close collaboration and develop their thesis projects within the research environments that are part of DASH. The doctoral school admits doctoral candidates from all Swedish universities during the application period every spring. DASH functions as a network, a scholarly meeting place, and an interdisciplinary resource for PhD candidates, and does not fund individual doctoral studies. In order to complete the DASH doctoral school, participating PhD candidates must complete two courses, and take part in the advanced graduate workshops and the DASH National Summer School in Digital Humanities.

The courses included in DASH are coordinated at each partner organisation, but are also collaborations. The courses are given in different periods during the academic year, to ensure flexibility in choice for the doctoral candidates both regarding timing and the variety of disciplinary approaches. The courses include:

- *Introduction to Cultural Analytics* (Uppsala) introduces methods for computational text analysis from a humanities and social sciences perspective, and combines practical hands-on tasks with critical discussion and reflection on methodological concerns.
- *Reconstructing/Deconstructing Cultural Heritage in the Digital Age* (Uppsala and Umeå) covers a variety of aspects related to tangible and intangible cultural heritage in a digital age, including the digital transformation of cultural heritage institutions focusing on possibilities, skillsets and organisational perspectives.
- *Data Management and Open Science* (Umeå) which addresses the development toward open science and the increased need for data management skills in academia. The course is designed in order to address specifically the needs and challenges of research in the humanities and social sciences.
- *Digital Research. Methods and Perspectives in the Humanities and Social Science* (Umeå) provides an introduction to key qualitative and quantitative methods including digital media ethics. Digital research is the oldest PhD course in Digital Humanities in Sweden. It has been offered by Humlab at Umeå University since 2015.
- *Digitisation, XR-technologies, and digital diagnosis within the heritage sector* (Gothenburg), where PhD candidates carry out photogrammetric documentation of heritage objects, buildings and environments, and model, simulate and visualise 3D interpretations and associated research data.

The courses have been partly developed before DASH, and exemplifies how DASH expands the local expertise and scope into national level doctoral education. Moreover, DASH includes master's level courses that have been reshaped into doctoral level education by deepening their scope and adjusting them to knowledge and skills needed in doctoral training. Among these courses are:

- *Critical Theory and Digital Transformation and Ethics, Politics and Policies in Digital Humanities* (Linnaeus): the first course applies critical theory on the implementation of digital technologies and associated digital practices. The second course on the ethical and political aspects of DH research.
- *Tools and Methods: Critical Encounters* (Uppsala) introduces a selection of tools and methods used in DH, that will be discussed critically and in relation to theoretical literature and ongoing debates in DH.

The DASH Advanced Graduate Workshop is a yearly meeting in Spring each year where PhD candidates participate in a workshop at a partner institution to discuss their research and to receive feedback from the local research milieu, external experts, and their peers. The key aim of the advanced graduate workshops is to provide a critical understanding in the use of digital methods in humanities and social sciences research. The local and external experts help to identify methods and tools that are relevant for the candidates, and share best practices about their use. The work with the experts and the teachers at the Advanced Graduate Workshops, and also the National Summer School, enable to render visible and to investigate the challenges of interdisciplinary research inherent to DH. Moreover, the candidates are helped to develop an individual action plan. Activities will be coordinated by each partner institution and their DASH coordinator annually.

The DASH National Summer School in Digital Humanities builds upon previous efforts by LNU and Uppsala University in collaboration with University of Zadar in Croatia. The summer school comprises two online weeks and one intensive week of training focusing on digital tools and programming. This includes topics like text analytical tools, topic modeling and sentiment analysis, GIS and other visualisation tools as well as machine learning, procedural programming and the use of Python libraries, web scraping and data visualisation. The Summer School is enriched by lectures, workshops and exercises on tools and themes not previously covered, by the extended expertise of DASH's partners.

3. DASH – a Collaboration Between Local and National Research Infrastructures

Digital research infrastructures weave the fabric of DH. These ensure the flexible co-operation and knowledge exchange among researchers and other stakeholders (see [5, 6]). DASH is run by the four local digital research infrastructures in Uppsala, Umeå, Gothenburg and Linnaéus universities. These research and teaching units collaborate across their universities transcending IT, humanities and social sciences disciplines. All DASH research environments have expertise in digital technology and methods, data management and critical digital humanities albeit with varied foci in each research environment including: data science, such as structured data, data aggregation and modeling; artificial intelligence and machine learning methods such as image recognition; scientific visualisation such as networks and maps, 3D modeling and digitisation; critical perspectives, including reflexive use of digital methods and critical metadata and interface design.

More importantly, DASH works in close collaboration with the national research infrastructures Huminfra and InfraVis. Huminfra is a national research infrastructure for DH. It is led by the Humanities Laboratory in Lund and partners with 12 universities and organisations with expertise in e-scientific/digital materials, research tools, and experimental methods for the humanities. DASH both collaborates and complements Huminfra by offering PhD training and engaging with Huminfra's network of partners and their resources. InfraVis is a Swedish national infrastructure for the visualisation of research data. It pools state-of-the-art visualisation competence from nine partner universities to provide advanced visualisation services on research data from. In addition, all DASH

partner organisations are variably connected to other national infrastructures such as SweDigArch and SweClarin. SweDigArch is a national infrastructure for digital archaeology aimed at providing guidelines and new approaches for digital methods for archaeology. SweClarin is a node in CLARIN-ERIC (Common Language Resources and Technology Infrastructure) which develops national and European infrastructure for advanced language technology research. Also, DASH builds on the pedagogical research collaboration between CDHU and WASP-ED, the life-long machine learning programme with a national perspective.

4. DASH – Learning Through Courses and Workshops, Experiences from Fall 2023

Two introductory 'kick-off' days were held in Uppsala in September. This offered students, organizers, and instructors the opportunity to meet and explore ideas for upcoming research. The programme included an introductory session which presented the doctoral school's overarching goals, as well as an overview of resources available to PhD students. This included presentations by each of the participating institutions and DH environments, information on the DASH summer school, DARIAH (the European Digital Research Infrastructure for the Arts and Humanities) and the Huminfra infrastructure and information portal.

The kick-off days included a "Design your own DH project!" workshop during which groups were formed comprising doctoral students, CDHU research engineers, DASH organizers, DH instructors from Uppsala's Department of ALM. Students were asked to fill out a questionnaire about their research including research questions, primary sources/datasets, methods and tools, data work, and ethical approval. While the first student intake in 2023 prioritized those who were at early stages of their doctoral studies, this session provided a valuable opportunity to brainstorm research design and work through potential challenges with other PhD students as well as experienced research engineers, researchers, and teachers. The introductory days concluded with a guest lecture and workshop on "Comics as computation" by Ilan Manouach (FNRS, ULiège, Metalab at Harvard). The workshop invited students and participants to engage with notions of automation and production within artistic practices as well as digital ethics and ownership.

Students reported that the sessions were valuable for framing their ideas, making contact with other PhD students, obtaining feedback at an early point of research design, and finding approaches they had not yet considered. It created an important contact point linking organizers with PhD students and making explicit the wide breadth of resources within the Swedish DH infrastructure, especially in terms of courses, workshops, seminars, and tools available for use.

The first courses organised for DASH students in Fall 2023 were *Introduction to Cultural Analytics* and *Tools and Methods: Critical Encounters* taught at Uppsala University. *Introduction to Cultural Analytics* is a doctoral course that introduces methods for computational text analysis from a humanities and social sciences perspective. The course proceeds thematically through a research workflow, covering data collection, curation, and various text analysis methods such as NLP methods and basic machine learning. Hands-on exercises are conducted in Python using Jupyter notebooks, and students work with data and research questions stemming from their thesis projects. The course teachers have interdisciplinary expertise in the thematic areas. The second course, *Tools and Methods*, is a course taught in the master's programme in DH. The DASH students acted as experienced peers for the master's students. For instance, the DASH students planned one of the seminars, where they presented and reflected on their thesis work, and provided the other students a critical introduction to a tool used in DH.

The first seminar series, organised by Humlab, focused on the timely topic of AI and its implications for the humanities. The series took place in Fall 2023, with invited speakers Assistant Professor in Philosophy Dimitri Coehlo Mollo (UmU) and Associate Professor in Informatics Karin Danielsson (UmU). Under the title "AI Today: Between Reality and Hype", Dimitri Coehlo Mollo invited the participants to reflect upon and question central issues about AI systems, such as who benefits from the hype around AI and how these narratives change our attitudes towards technology. In a second combined lecture and workshop, Karin Danielsson introduced perspectives, understandings, preferences, and relationships that humans have to AI and/or robotic system(s) in a talk entitled "You

and me(chanical) robot. Post-human futures – what comes after tomorrow and how we can understand it?". The talk was followed by a discussion in which the participants were invited to bring in knowledge from their disciplines and discuss what kind of futures can be pictured. The seminars are open to other PhD candidates and researchers outside DASH, as a means for the DASH students to get the opportunity to meet other peers. Similar short seminar series are offered within DASH every semester, rotating between the four partner universities, and addressing various topics within the specific expertise and research interest of each responsible organization.

5. Conclusion

The aim of DASH is to provide the PhD students with knowledge, skills, and critical perspectives in regards to digital research, to offer the students support for their PhD work, and to establish networks among early career scholars and the partner DH environments. Thereby, DASH fills a gap by providing an arena for PhD candidates to access resources, develop skills, and create networks when specific knowledge and research environments in digital humanities are lacking at their home departments.

DASH activities build on existing courses, established resources, as well as new courses and national collaborations. They also encompass the *Advanced Graduate Workshop*, and the *DASH National Summer School in Digital Humanities*. To achieve its aims, DASH builds not only on the expertise at the four partner organisations but also on the resources available in the collaborative research infrastructures. This diverse range of disciplinary approaches and backgrounds facilitates open and engaging discussions regarding the interdisciplinary nature of digital humanities scholarship. Consequently, DASH itself emerges as an element of the national humanities research infrastructure, that offers education and competences for future researchers in digital humanities.

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