Key Themes in Digitizing Cultural Heritage: An Analysis of Core Competencies, Topics, and Methods in Digital Humanities Higher Education Offers

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Abstract

This article, that is part of the Horizon Europe-funded project DIGICHer, provides insights into structures, offerings, and content dedicated to digitization and humanities topics within study programs at the European level. Structures in the broad field of university-based Digital Humanities (DH) training are defined before competence-theoretical and curricular components based on current literature research are examined in detail. A descriptive analysis of the DH study program descriptions from studyportals.com shows that at the European level, it is mainly Master's programs (followed by Bachelor's and PhD programs) that are dedicated to DH in higher education. The quantitative evaluation of key terms from the course descriptions shows that different thematic focuses exist at the various study program levels, ranging from more basic-oriented competencies to organizational and method-oriented aspects to research-oriented topics. Finally, a recent survey of experts in the field of cultural heritage and Digital Humanities shows current and desired content and topics of DH training and reveals related needs that include technical-infrastructural, financial, personnel, time and cooperative aspects. The contribution concludes with the derivation of thematic and organizational focal points of the given and potentially possible design of DH study courses and programs at the European level as well as a proposal for a further research design to investigate the precise curricular differentiation of specific DH study offers.

Keywords: educational research, higher education, digitizing culture, digital humanities, cultural heritage

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Introduction

The digitization of cultural heritage offers opportunities for its preservation, maintenance and promotion, but also brings challenges (Siliutina et al., 2024). One challenge is the adequate imparting skills for planning, initiating, implementing and critically monitoring digitization processes in all their facets. Educational formats with a focus on digitization in connection with cultural heritage fundamentally offer the opportunity to reach potential actors and target groups who are interested in digitization in the cultural sector and thus to advance them through theoretical and practical units.

Educational programs are structured activities that support learning and development at different levels within a specific educational context (UNESCO Institute for Statistics, 2012). They vary greatly in scope, duration and focus and target different age groups, academic levels and learning objectives, such as formal offerings (such as accredited degree programs or certification courses) and informal offerings (such as community workshops or online courses).

Since the spectrum is broad and there are no uniform terms for degree programs that explicitly deal with digitization in the context of cultural heritage, and the spectrum of digitization methods in the field of cultural heritage is also diverse, ranging from digital archiving techniques to presentation technologies (Markopoulos et al., 2019), this article focuses on Digital Humanities (DH) as the object of study. Within DH, the focus is on the preservation of culture, cultural heritage itself, digitization strategies, data, and digital approaches and concepts (Terras, 2006). Digital Humanities (DH) therefore offers a meta-level framework that integrates humanities and computational approaches. In a sense, DH form the bridge between institutions and researchers in this data-driven context (Terras, 2006).

A study of the study programs in the field of DH, an analysis of the curricula, their content or existing needs in relation to the educational offer in the field of DH can not only show the current state of the educational offer but also identify the needs necessary for the development of a sustainable educational system. This analysis has been carried out within the DIGICHer[1] project and will be discussed below.

Methodology

This article begins by looking at the competency-oriented and curricular structures of educational programs related to digitality. This is followed by a literature review that focuses on curricular aspects in the field of DH training, that identifies content, currently predominant topics and organizational strategies in this area (sections curricula and literature review).

Building on this, an investigation of study and graduate programs in Europe is carried out. For this purpose, study programs with the designation Digital Humanities in the field of humanities were filtered and extracted on the platforms (Studyportals, 2007-2024) Bachelorportal, Masterportal and PhDportal (Bachelorsportal, 2007-2024; Mastersportal, 2007-2024; PhDportal, 2007-2024). They were further analyzed descriptively in terms of content (section DH course descriptions and their contents).

[1] DIGICHer = Digitization of cultural heritage of minority communities for equity and renewed engagement; Funding number: 101132481

An online survey aimed at experts in the field of Digital Humanities and digital heritage provides insights into opinions on the educational landscape (section results of the survey).

In addition to descriptive statistical methods (absolute and relative frequencies), Natural Language Processing (NLP) approaches were also used to evaluate the data. The statistical software R and the text analysis tool Voyant (Sinclair & Rockwell, 2024) as well as approaches of summary qualitative content analysis (Mayring & Fenzl, 2019) were used for this purpose.

Competency-Related and Curricular Aspects of DH Study Programs

The educational offer in the field of DH includes university degree programs, continuing education courses, certifications, internships, research projects and workshops as well as self-learning materials and online resources (ADHO, n.d.; CORDIS, 2024; European Summer University in Digital Humanities, n.d.; HarvardX, 2024). While these formats differ in structure and content, they generally aim to provide a combination of theoretical and practical skills and to integrate aspects of cultural heritage, computer science and information science (e.g. “Digital Heritage” (University of Amsterdam, 2024), “Digital Humanities” (Linnaeus University, 2024), “Digital Curation” (University of Michigan, 2024) and related fields such as cultural management or studies (Goldsmiths University of London, 2024; Rome University of Fine Arts, n.d.). All of them, in different ways, highlight core competencies required to digitization in, for and of cultural heritage.

Competence Frameworks

Competency frameworks are important tools for improving educational effectiveness. These frameworks outline specific competencies required for performance in educational or professional contexts, provide clear objectives, categorize skills and define competency levels (IAEA, n.d.). They promote lifelong learning by facilitating knowledge implementation, assessment and alignment of education with professional needs (UNESCO-UNEVOC, n.d.).

In higher education, competency frameworks bridge the gap between academic and industry standards and promote career preparation and interdisciplinary integration (Erickson, 2018). They address technical (hard), behavioral (soft) and industry-specific skills and shift the educational focus from knowledge transfer to active learning and application (Bacigalupo, 2022).

On a European level frameworks related to digitization include the European LifeComp framework (Sala et al., 2020), the European Digital Competence Framework (DigComp) (Ferrari, 2013; Vuorikari et al., 2016, 2022), the DigCompEdu framework (Punie & Redecker, 2017) and, at a global level, for example, the DLGF (UNESCO, 2018) of UNESCO or, with a more general view of digitization infrastructures in higher education, the Building Digital Capabilities Framework (Jisc, n.d.-a) or the Framework for Digital Transformation (McGill, 2023). Together with resources such as the AI Maturity Toolkit (Jisc, n.d.-b) or the Digital Literacy Curriculum (Microsoft, 2022) from Microsoft, these frameworks diffuse into concrete recommendations for action for actors in the education sector.

In addition, frameworks such as the Partnership for 21st Century Learning (P21) (Battelle for Kids, 2019) and 21st Century Children (OECD, 2022) of the OECD address cross-cutting skills and are primarily aimed at learners and future opportunities and challenges in their lives and working environments.

Although competency frameworks are not legally binding, their flexible application allows adaptation to different contexts, user groups and educational phases (Jisc, n.d.-a; Jisc, n.d.-b). Competency frameworks are central to modern education as they can adapt curricula to evolving needs and promote relevant skills for the digital age.

Curricula

A curriculum is a structured framework that includes learning objectives, content, teaching strategies, and assessment methods designed to achieve specific educational outcomes (Adela & Valentin, 2020). Curricula are typically adapted to different educational contexts, training programs, and learner demographics (e.g., Haring, 1970). It is an iterative process that determines how learning and progress are assessed (Nicholls & Nicholls, 2018).

In disciplines such as Digital Humanities curricula are not standardized but evolve through interdisciplinary approaches that combine digital tools with cultural heritage (Burdick et al., 2012; Cobb & Golub, 2022; Warwick et al., 2012). Curricula include material-related content (e.g. texts, images), subject-specific content (e.g. archaeoinformatics, digital curation), and interdisciplinary topics (Sahle, 2013).

They often emphasize practical skills such as digitization, data mining, and critically assessing the impact of digital innovations on cultural heritage (Cobb & Golub, 2022). Sahle's DH Reference Curriculum (2013) highlights the specialized connection of the humanities with computer science.

DH programs at the European level are usually more extensive than North American programs, which are more specialized or focus on practical application (Mahony et al., n.d.).

DH curricula include the teaching of both theoretical and practical skills and a reflective engagement with technologies in relation to culture. This also means that they are very flexible to integrate emerging digital tools, methodologies, or interdisciplinary approaches.

Literature Review on Curricular Aspects and Its Central Results

On April 10, 2024, a literature search was conducted in the Web of Science database (Clarivate, 2024) to identify publications that focus on Digital Humanities and curricular aspects (search terms: digital AND humanities AND curriculum; period from 2015; English language). The search resulted in 53 publications. (Publications that contained terms such as “undergraduate”, “vocational training”, “special schools” or “non-European countries” in the title were excluded. Publications without free access, from uncertain sources or with non-clickable links were also excluded.)

Regarding the organization and structure of DH offerings, Cobb and Golub (2022) found that most DH programs are at Master's level, a fact that is also confirmed by Sahle (2013) and Mahony et al. (n.d.) is found. Walsh et al. (2021) confirmed this and found that DH is usually

offered as a minor or additional qualification in Bachelor's degree programs, reflecting the evolving identity of the field (Walsh et al., 2021).

On a content level, Onet (2021) emphasizes the increased need to integrate cultural heritage as a topic in DH curricula in order to connect social, political and cultural contexts within education.

Regarding the topics addressed within DH curricula, Sula and Berger (2023) identify topics such as big data, text analysis, data visualization, programming and sociopolitical theories in their analysis. Interdisciplinary research methods are also relevant (Mahony et al., n.d.). Even though technical elements are increasingly reflected in DH curricula, Gleason (2020) argues for maintaining critical evaluation when integrating them into the humanities. Walsh et al. (2021) call for clearer distinctions between Digital Humanities and information sciences. In contrast, Yao and Xiao (2022) explicitly suggest that academic librarians could build a kind of bridge to Digital Humanities and improve collaboration.

Sula and Berger (2023) emphasize the importance of collaboration between teachers, students and professionals to ensure that DH curricula correspond to real-world professional roles. Cobb and Golub (2022) point out that emerging roles such as project managers and data specialists are creating new opportunities for DH graduates. Collaboration with cultural heritage institutions is crucial for early practice experience. Bajec (2019) also suggests using innovative tools such as augmented reality and games to make DH teaching even more relevant and practical.

In terms of preparing for the future job market, Sula and Berger (2023) identify essential skills for DH graduates in problem-solving, assessment and methodological competence.

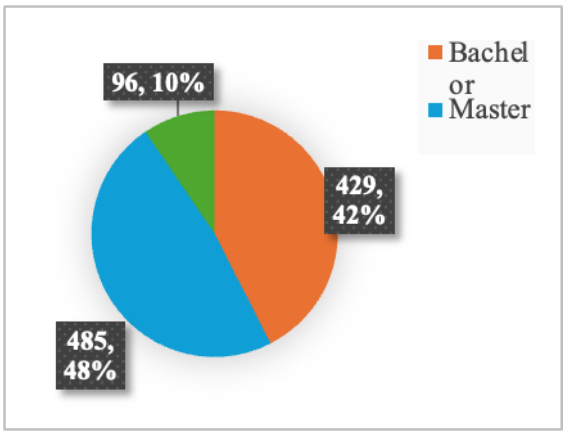
The publications examined also point out challenges. Cobb and Golub (2022) identify inconsistencies in the terminology for DH courses, which makes comparisons of acquired skills of learners difficult. Clement and Carter (2017) point to a (still) inadequate integration of digital methods into humanities theories in the context of DH training and recommend a stronger theoretical foundation overall.

DH Course Descriptions and Their Contents

The international platform studyportals (Studyportals, 2007-2024) aggregates worldwide offers at various educational and degree levels as well as information about them. Studyportals cooperates with more than 3,750 universities and is supported by the European Commission and educational stakeholders (e.g. DAAD, British Council). The platform allows filtering by Bachelor's, Master’s and PhD offers (Bachelorsportal, 2007-2024; Mastersportal, 2007-2024; PhDportal, 2007-2024). Accordingly, data for an analysis on DH offers were retrieved here in May 2024 (limited to offers from the European (continental) area, in the domain Humanities). They were analyzed descriptively in terms of their degree, location and duration of study. In addition, the course descriptions were examined using content analysis methods (frequent terms).

DH programs are predominantly offered at the Master’s level, with almost 50% (48%) of offerings in this category. Bachelor's programs (42%) often combine DH with other subjects, while PhD programs (10%), though less common, are notably present in the Anglo-Saxon world, with 96 available.

Figure 1
DH Study Offers (in Europe) on studyportals.com



The UK leads in DH offerings, accounting for 75% of Bachelor's degree offerings, 41% of Master's degree offerings and 67% of PhD degree offerings. This indicates a significant concentration of DH programs in the region. All program-levels include online learning offerings, which can improve accessibility to degree offerings in general, but also highlights the increasing role of online learning in this field.

The analysis of course descriptions for Digital Humanities (DH) by Studyportals (Studyportals, 2007–2024) examined Bachelor's, Master's and PhD programs to identify key terms in them.

Course descriptions at the Bachelor's level (Figure 2) emphasize basic skills and practical applications. Terms such as “busi” (business) and “program” appeared 164 times each, emphasizing the integration of business, management and programming skills. “Studi” (study) appeared 150 times, emphasizing the academic nature of the programs. Bachelor's programs combine business and technology with basic research skills and prepare students, in addition to basic research skills, for professional and technological roles in the DH.

In the case of Master's degree programs (Figure 3), the focus in the course descriptions seems to be more on advanced technical and digital skills. Here, too, the focus is on business, programs and studies. However, “digit” (with a value of 205) could indicate a stronger emphasis on digital skills and digitization. In addition to basic skills, Master's degree programs therefore integrate technical, scientific and technological aspects in connection with media, culture and languages.

PhD programs (Figure 4), on the other hand, prioritize research and specialization, especially in the fields of art, literature, and history, reflecting an interdisciplinary and research-oriented approach (which is due to the abundance of humanities departments).

This distribution shows that each academic level focuses on different topics, from basic management and research skills to advanced digital competencies and interdisciplinary research skills at the PhD level. This also reflects the complexity of working in the Digital Humanities field.

Figure 2

Frequent Occurring Terms (Stemmed) in the Bachelor Program Descriptions (absolute frequency n ≥ 60)[2]

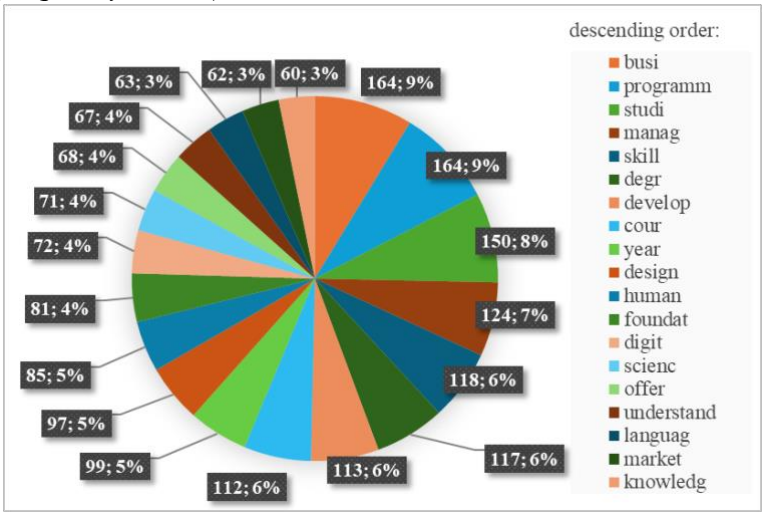
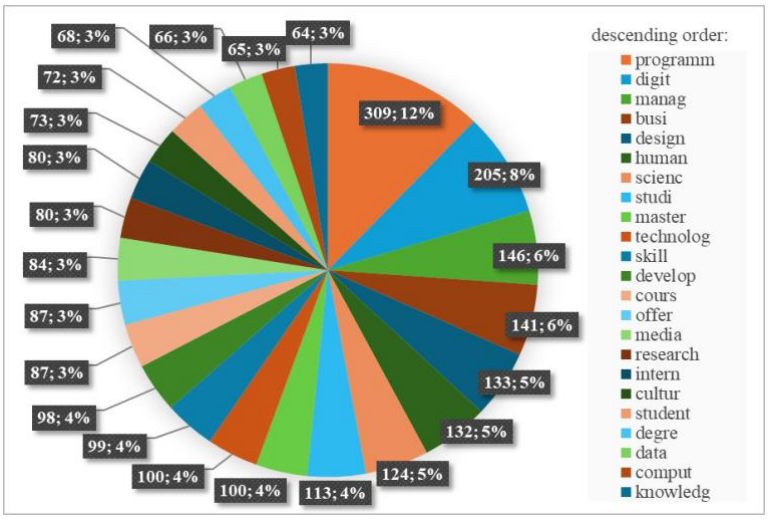


Figure 3

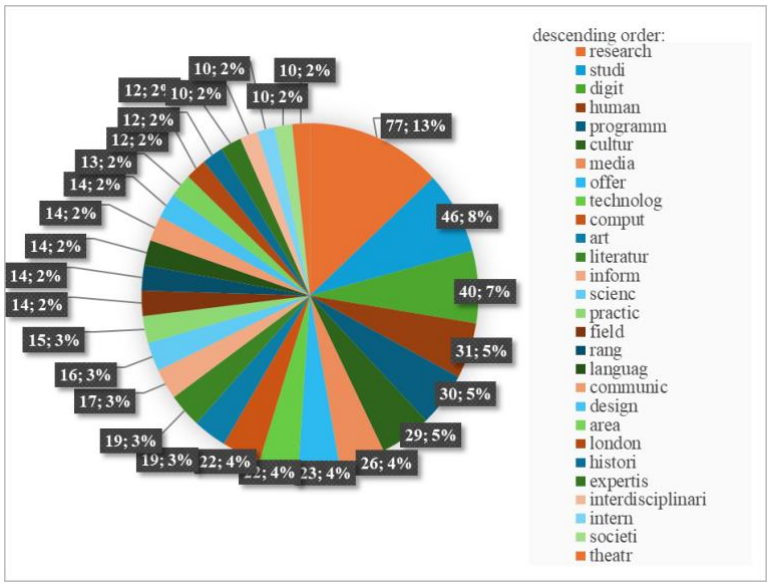
Frequent Occurring Terms (Stemmed) in the Master Program Descriptions (absolute frequency n ≥ 60)



[2] The terms in the graphic have been pre-processed (stemmed) due to the preprocessing steps in the quantitative analysis. Stemming makes it impossible to subsequently recreate the actual word of the original description (for example, programm can stand for programming or for program).

Figure 4

Frequent Occurring Terms (Stemmed) in the PhD Program Descriptions (absolute frequency $n \geq 10$)



Results of the Survey of Experts From the Field of Digital Cultural Heritage and Digital Humanities on Topics and Content of Training and Continuing Education Formats

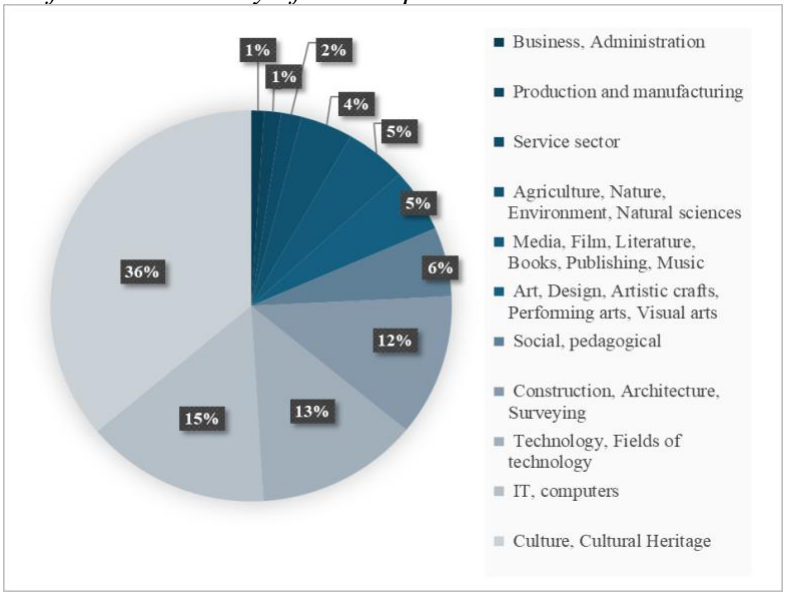
In addition to reviewing existing research on Digital Humanities education and available training formats, a survey was conducted with experts in cultural heritage and digitization. Contacts were collected over several years (Münster, 2019) through publications at conferences and journals on the subject. These contacts were validated and supplemented with additional experts identified in the earlier reviews.

The online survey, based on Münster (2019), ran from June 4 to July 2, 2024. It was distributed via EU Survey (European Union, 1995-2024). A total of 4,268 invitations were sent, with 277 responses (276 usable).

First, respondents were asked to categorize their current professional, academic or practical activity. Using a partially standardized format based on the EU's CulturEU funding guideline (European Commission, 2021), respondents could select several options, which were assigned to the corresponding categories as follows. The number of people in each discipline varies considerably, but the majority of respondents come from the areas of culture and technology.

Figure 5

Professional Activity of the Respondents[3]



One question focused on digitization and the use of digital technologies in the field of cultural heritage and assessed the use of digital methods by respondents. It can therefore provide information on a spectrum of used and possible digital methods in the field of cultural heritage.

Responses were preprocessed and cleaned, and frequent terms were visualized in a word cloud (Figure 6), with frequently mentioned terms displayed in larger font (created using Voyant [Sinclair & Rockwell, 2024]). “Digital” was the most frequently used term, indicating the central role of digital technologies. Other prominent terms such as “data,” “processing,” “3D,” “reality,” “virtual,” “publishing,” and “GIS” (geographic data analysis and visualization) underline the focus on related data management, 3D technologies, virtual environments and worlds, and the importance of geographic data in the field of cultural heritage. The word cloud also highlights concepts such as “scanning,” “capturing,” “lasers,” “infrastructures,” “heritage,” “analysis,” and various technologies and methods that are relevant from the respondents’ perspective. “Data” and “processing” indicate a strong presence of data-related processes and procedures. Overall, the focus is on digital technologies and methods, particularly with regard to the processing, management and presentation of data with reach for the cultural and scientific fields.

[3] Additional answers that could not be grouped: Geography, Education / Education in Cultural Heritage, Landscape architecture / Architectural and cultural landscape conservation, Photogrammetry / Laser scan / Advanced recording technologies, Digital preservation and conservation / Conservation science, Research / Academic science, Language, Cross-disciplinary activities, Digital heritage, Remote sensing / Aerial survey for archaeology / airborne and space remote sensing, Economy / economic enhancement, Anthropology, Archaeology / Landscape archaeology / Experimental archaeology, Archives/ Archival studies / digital archiving, Game design / Game development / Video games / Serious games, Tourism / Urban studies, Information science, GIS / GNSS / Space technologies, Computer vision / Immersive technologies / Augmented reality, Data science, 3D reconstruction, Space habitat design, Humanities / Digital Humanities, Library science, Motion capture / Character animation, Math / Physics / Development of digital tools for archaeological research, Museums / Museum education and learning / Museum and visitor studies, Inclusive Design

Figure 6

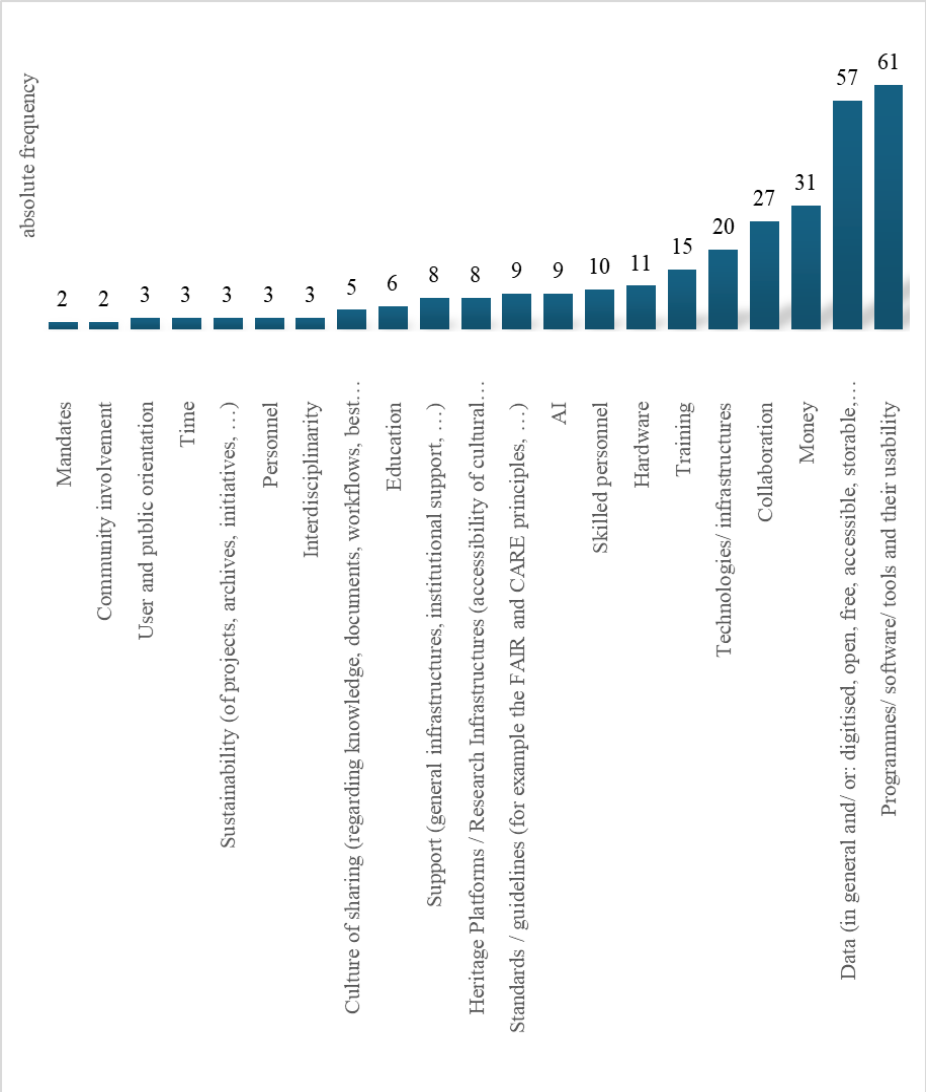
Mentioned Digital Methods by the Respondents (occurrences n ≥ 4)

The survey also asked participants to assess the development perspectives for digital opportunities in their field. The qualitative question was analyzed in summary and the results categorized (after Mayring & Fenzl, 2019).

Figure 7 shows that from the respondents' perspective, there is a diverse and comprehensive need for improvement measures. The main focuses are on the need for information technology components and technological resources, better research and human resources, more collaborative and participatory approaches, strategies and infrastructures for human capital development, better developed cultural knowledge infrastructures, expanded use of AI, better policies (e.g. on the use of technologies), more support (at different levels) and sustainability aspects. In addition, respondents emphasize the importance of “cultural heritage platforms or research infrastructures” that promote collaboration and innovation. Training and education tailored to the sector are essential to ensure that staff can use digital tools effectively. In summary, respondents emphasize that successful digitalization approaches depend on a combination of technological tools, financial resources, qualified personnel and effective training to ensure sustainable and efficient results.

Figure 7

Needs for the Development and Establishment of Digital Opportunities [4]



In addition, further statements were made by respondents that could not be assigned to these categories (data security (legal) framework, digital policy and digital rights, digital publishing, digitization process, documentation system for heritage conservation, ethical standards, free accessibility and awareness, free resources, knowledge of responsibilities in the Culture/EU sector, public relations, (more) publications, reducing bureaucracy, values of digital concepts, web technologies, assistance to diagnose structural problems, awareness for minor heritage/ low techs, awareness for the possibilities of digitization in culture sector).

When asked about their wishes and needs regarding training opportunities and training offers, respondents provided examples that were then categorized into nine thematic areas (again according to Mayring & Fenzl [2019]) (Table 1). Ideally, knowledge transfer in relation to DH and the digitalization of cultural heritage takes place through qualified trainers with practical experience, through inclusive teaching methods, project-based learning and with up-to-date materials. In addition, secure, standardized data storage, open access to data and

[4] Truncated values in the diagram: Culture of sharing (regarding knowledge, documents, workflows, best practices, ...); Data (in general and/ or: digitized, open, free, accessible, storable, standardized, and/ or specialized, consistent, not biased)

flexible IT infrastructures should be guaranteed. The importance of free and open-source software was also highlighted by respondents.

Table 1

Categories With Indicators Built Concerning the Design of Educational Offers

Category	Indicators
Where content should be conveyed	
	Digital formats, MOOCs, Education platforms, Specific courses or projects, University offerings, Academic programs (graduate and postgraduate), Web-based materials, Hackathons, Game jams, …, via resources generally available and accessible to all
Other formats	
	Training, Workshops, Best practices and representative projects, Research projects in general, Web-based materials, EU funded initiatives (UNESCO, ICOM), Scientific journals, Initiatives, Conferences, Summer schools, Digital offers for school classes
How the content should be conveyed	
	Good teachers (practitioners or those working on projects themselves), Inclusive teaching and learning methods, Project based learning, Practical work (programming, database design, analysis tools, ...), Maintaining currency of materials
Digital and data-referred aspects (needs and necessities)	
	Data repositories, Expertise databases, Open data/ Access to digital repositories, Finding a standardization for data and data types that is recognized in the scientific community (data quality, …), Finding better and unified standards for data (e.g. OA models of places), Digital practices should be fully based on the use of free software
Technologies (needed for educational offers)	
	Special technologies (e.g. for monitoring), Software free licenses for educational purposes (e.g. for data modelling), Scientific documentation (e.g. for virtual reconstructions)

Two other categories (Table 2) focus on professionalization and social engagement. Respondents would like more specialized projects to help researchers develop their skills and make them integrable in both research and teaching. Respondents also suggested more collaborative formats, such as secondments to other institutions to broaden the range of skills of researchers. The importance of involving citizens and volunteers in educational formats and associated with this, increased promotion of public participation in science and culture was also emphasized. Crowdsourcing was suggested as a tool for gathering interests and needs.

Table 2

Additional Categories Referring to Educational Offers

Category	Indicators
Professionalization	
	Specific projects for university researchers, Secondments, More integrated community capacity-building processes, More integrated community capacity-building processes, Collaborative platforms, Community engagement, Standards and existing groups maintaining these standards
Including citizens/ volunteers/ the audience in educational formats	
	Special and focused volunteer activities, Diverse formats for citizen and community engagement, Diverse formats for audience engagement, Crowdsourcing

Respondents also suggested several topics for educational formats (Table 3).

Table 3

Examples of Potential Course Topics

Project management (skills)
Awareness (e.g., in CH (Cultural Heritage) knowledge and digitization strategies; technologies)
Technical specialization (e.g. Architectural survey)
Thematic specialization (e.g. Digitization and AI)
More general topics such as: - Digital literacy training - Tools and their application guidelines
More specific and practical-oriented topics such as: - Virtual and augmented reality for cultural preservation of intangible and tangible heritage - Implementation of game tools in cultural heritage digital formats

Respondents were also asked about their preferences regarding topics and formats for training and continuing education. This qualitative data was processed using the analysis tool Voyant (Sinclair & Rockwell, 2024) and visualized as a word cloud to highlight the most frequently mentioned terms (Figure 8).

Figure 8

Mentioned Topics (n ≥ 3) of Desired Courses or Further Training Offers by the Respondents[5]

Main topics include digitization and data-related processes (e.g. digital, data, databases). Topics related to cultural heritage, especially those linked to specific cultural areas, also play an important role for respondents. 3D technologies emerge as a main area where respondents would like to see training formats. The focus on cultural aspects suggests that educational formats (on methods or theories) should be tailored to cultural data and digitized materials, rather than simply adopting scenarios from other areas. There is a general interest in "courses" and "training", which also underlines the importance of professional development on the part of respondents. Management skills, especially in the project and cultural organization context, are also mentioned, which also underlines the social component related to the application and implementation of digitally based practices. Overall, there seems to be a diverse need for topics for training programs to enable potential learners to receive the appropriate training or further development of these skills.

The study conducted has several limitations. Regarding the studyportals platforms, no conclusions can be drawn about their course collection practices or the representativeness of the offers. The course descriptions analyzed are based on the word frequencies of key terms in the course descriptions associated with the offers. For a more comprehensive assessment a deeper analysis would be necessary, for example using module catalogs and exploration methods (e.g. cluster analysis). The survey conducted was based on a contact list created in Münster (2019). Although 10% of the list was manually checked, a full update was not possible due to time constraints. The survey is not representative, and future research should aim to expand this work in a more comprehensive and representative context. The sample size of 276 respondents is relatively small, which limits the generalizability of the results. The respondents came mainly from Europe and here predominantly from Italy, which may lead to regional biases. Furthermore, the focus on experts in the digitization of cultural heritage may not capture the field of Digital Humanities. The cross-sectional nature of the study therefore only provides a snapshot and does not allow for representative conclusions.

[5] GIS are geoinformation systems for the collection, processing, organization, analysis and presentation of spatial data, mostly digitally based.

Derivation of Possible Criteria for DH Study Programs and Draft of a Possible Further Research Design

The results of the research can lead to the derivation of design criteria for DH education in higher education.

DH programs should combine technical skills with humanities research and offer an interdisciplinary curriculum that combines both technical and humanities theories.

They should be adaptable to different learning styles and needs and use flexible formats such as digital tools, interactive scenarios or hybrid learning to improve accessibility and engagement.

One focus can be project-based learning, which effectively involves local and international experts, minority groups and cultural institutions and offers students real application scenarios. Universities should also actively cooperate with external organizations to this end.

Programs should cover all academic levels, from Bachelor's to doctoral programs (and also part-time or qualifying), and ensure a coherent (comparable) standard.

Overall, DH education should produce professionals with both technical and cultural expertise, which requires programs that focus on creating specialized professional profiles.

Lifelong learning opportunities can ensure that professionals can adapt to evolving technological and cultural developments.

These implications suggest a flexible, interdisciplinary and practical approach to DH education, emphasizing accessibility, collaboration and real-world applications.

A research design, that provides a structured approach to assessing and improving the course offerings, could begin with the continuous and ongoing collection and analysis of data from educational programs, including course descriptions, student feedback and surveys. Needs and trends can thus be tracked in a data-centric manner. To do this, it should first be determined which data sources (course content, student opinions, …) need to be collected as part of this.

A clear research strategy that combines qualitative and quantitative approaches to evaluation can ensure that the investigation is carried out in a rule-based manner. For example, methods of trend identification and pattern recognition can be used in the design of educational offerings or structuring content analysis of surveys.

As soon as results are generated and processed, they should also be shared with the stakeholders (educational institutions, politics, cultural institutions, teachers, learners). Further feedback can be collected in this phase (e.g. by discussing the results in focus groups). Such an iterative feedback loop can allow for continuous exploration of educational offerings in the field based on new evidence and changing needs. In addition, collaboration between stakeholders can foster the engagement of external partners such as cultural institutions, technology developers and policy makers to jointly develop educational strategies and incorporate the knowledge gained into DH training.

Conclusion

This analysis has highlighted topics at the interface between Digital Humanities and the digitization of cultural heritage in higher education. They highlight the growing importance of interdisciplinary curricula integrating technical and humanities competencies, the need for flexible and practical learning opportunities and the demand for collaboration with external partners (e.g. minority groups and cultural institutions). The findings indicate a strong need for specialized training in digital methods (such as data management, 3D technologies, AI) and emphasize the need for continuous professional development through lifelong learning.

In terms of education design, the results suggest a flexible, project-based and accessible approach to DH education. DH study programs should bridge the gap between technology and humanities and promote the development of new professional profiles that combine IT expertise with cultural applications. In addition, engaging with minority cultures and incorporating community-oriented methods will be of key importance for the development of DH education to ensure that it remains inclusive and relevant to different global contexts.

By continuously collecting and analyzing educational data, stakeholders can refine DH programs, incorporate stakeholder feedback, and adapt to technological and cultural changes. A dynamic approach can help create robust and sustainable frameworks for DH education and incorporate the elements of the ever-evolving landscape of cultural heritage digitization.

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