



Costis Dallas & Nephelie Chatzidiakou (eds.)

# European survey on scholarly practices and digital needs in the human sciences



**DARIAH-EU**

Digital Research Infrastructure  
for the Arts and Humanities

Digital Methods and Practices Observatory Working Group (DiMPO)



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DARIAH-EU Digital Research Infrastructure for the Arts and Humanities Digital Methods and Practices  
Observatory Working Group (DiMPO)

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# Introduction: DARIAH-EU research on scholarly practices and digital needs

*Costis Dallas*

## 0.1 Introduction

This report summarizes the results from a transnational questionnaire survey conducted by a research team within the *DARIAH-EU Digital Methods and Practices Observatory Working Group (DiMPO)*. DiMPO was established in 2015 to take forward earlier work within *Task 2- Understanding and expanding scholarly practice* of DARIAH VCC2 – *Research and education liaison*, under which the broader work plan on scholarly practices research had been initiated. The work undertaken in this research project has been supported in kind by several institutions across Europe. It benefited also from the generous contribution in expertise and effort from more than twenty researchers from fourteen European countries (see *Contributors* page in front matter).

Considerable research has been conducted internationally regarding various aspects of digital scholarship, digital research infrastructures, the organisational and disciplinary structures enabling digital work in the field of humanities research, and the information seeking and use patterns of researchers in the human sciences (for an overview, see Borgman 2007; Schreibman, Siemens, and Unsworth 2016; Case and Given 2016, 287–96). Yet there has been to date no systematic attempt to take stock of the information practices, needs and attitudes of researchers working within the human sciences in the digital environment across Europe. This is essential in order to provide much needed baseline information for further work on understanding digital practices, for education and learning among early researchers in the field, for better requirements analysis and functional specification of digital infrastructures, tools and services, and, last but not least, for much needed epistemological reflexivity within

the human sciences, in light of the huge changes in the external technological, social and cultural environment in which humanistic scholarship and education operates. This multi-chapter report, providing an evidence-based account of salient questions regarding the practices, needs and attitudes of researchers in the human sciences across Europe, aims to contribute to addressing this lacuna.

## 0.2 DARIAH and the scholarly community

The DARIAH consortium (Digital Research Infrastructure for the Arts and Humanities, <http://www.dariah.eu>) is a large-scale, long-term, pan-European endeavour whose mission is *‘to enhance and support digitally-enabled research across the arts and humanities’* in all parts of Europe, among other means by overcoming the fragmentation and duplication of national, regional and local initiatives in providing support for digitally-enabled scholarly research. It was originally conceived in 2006 as an initiative of the European Strategy Forum on Research Infrastructures (ESFRI), and, after successful completion of a preparatory phase (Constantopoulos et al. 2008; Blanke et al. 2011), it was finally established, after a transition period, as a European Research Infrastructure Consortium (ERIC) by fifteen founding members – universities, computing services, libraries, commercial partners, and research institutes – sponsored by different European member-states, and legally adopted by the European Union on the 15th of August 2014.

Recognising the diversity and multiplicity of the field of research in the human sciences, DARIAH operates more as an integrating activity between existing national digital research infrastructures, including thematic and institutionally-based initiatives and hubs, than as a centralized, monolithic infrastructure with large-scale systems in operation. It aims, among other things, to operate as a platform enabling transnational arts and humanities research. It works by sharing and sustaining digital arts and humanities knowledge, and it is made by researchers and for researchers. It is lightweight and networked. Essentially, DARIAH accepts the reality of research in the human sciences, whereby custodianship and curation of scholarly resources, and research activities around these resources, is local and distributed. Instead of forced centralisation – a ‘melting pot’ approach – DARIAH focuses on building technical, methodological and conceptual ‘glue’ that will nurture collaboration, epistemic openness, methodological innovation, and cross-disciplinary work across research teams, projects and fields. Instead of enforcement it privileges networking and coordination between researchers coming from different countries and epistemic-discursive contexts, diverse disciplines and interdisciplinary fields (going beyond the traditional humanities to encompass, also, the arts, the applied field of cultural heritage, and the hermeneutic social sciences), and varying levels of engagement with digital resources, methods and tools, from intense and computationally sophisticated digital humanities work to digitally-enabled practice which increasingly inhabits the mundane operations of a growing majority of scholars.

Central in this approach is the role apportioned to research communities in the human sciences, as indeed a framework based on establishing crosswalks, communication and consensus depends primarily on mobilisation of such communities. Since its inception, DARIAH had established a clear operational focus on working with communities, mostly within the activities organised around Tasks within VCC2 – *Research and education liaison*, one of four Virtual Competency Centres around which work within the initiative was organised. The objective of VCC2 has been to study and promote the use of research data and ICT methods in arts and humanities research, including those directly supported by the planned DARIAH digital infrastructure, through a range of complementary researcher-centred activities, including:

1. organising summer schools, workshops and expert meetings, and producing collaborative, consortium-wide online training materials on the methods, tools, and approaches needed to engage scholars productively with digital content, tools and methods (Task 3);
2. communicating and advocating on the added value digital data and methods can provide to scholarly work, whilst seeking to foster exchange and cooperation within scholarly communities (Task 4);
3. establishing guidelines to enable dialogue between humanities scholars planning a virtual research environment and developers who will help them realise this goal (Task 5); and last, but not least,
4. eliciting, formalising and disseminating evidence-based knowledge on the information practices and digital needs of humanities researchers across disciplinary, institutional, linguistic and methodological divides, based on trans-European empirical research, as a means of ensuring the fitness-for-purpose of planned digital infrastructures for scholarly work (Task 2).

The work of *Task 2-Understanding and expanding scholarly practice* within DARIAH had focused from the outset in contributing to the development of evidence-based, up-to-date knowledge on arts and humanities research practices across Europe, especially as regards scholarly information activities and needs, as well as the scholarly use and impact of digital technology. Coordinated by co-chairs Costis Dallas (Greece), and initially Rene van Horik (the Netherlands), later succeeded by Manfred Thaller (Germany), Task 2 proposed a work plan which sought, indirectly, to help ensure the fitness for purpose of planned DARIAH-EU tools and services for scholarly research, while also expanding the reach, effectiveness and potential of digital technology as a transformative factor for European scholarship.

The work plan, originally agreed in November 2012, included the following activities:

Develop a research methodology and manual for conducting comparative research on current and emergent scholarly information practices and needs, with a particular focus to digital information seeking, curation, management and use, user services in



archives, libraries and repositories, and scholarly communication, designed to be implemented periodically by participating DARIAH-EU national partners in different European countries and languages, and consolidated at European level for analysis and interpretation.

Perform baseline primary research ... using the above methodology, manual and research instruments, and covering a representative number of countries across Europe.

Perform a trans-European literature survey and maintain an up-to-date bibliography on scholarly information practices and needs in the arts and humanities.

Develop and maintain an up-to-date knowledge base and registry on scholarly research practices and needs, mapping systematically research processes, fields, types of information objects, methods, procedures, tools and services, and incorporating the results of the baseline primary research, the bibliography on scholarly practices, as well as an up-to-date registry on the scholarly use of particular digital research methods, tools and services in arts and humanities research projects.

The work undertaken within Task 2, and later continued under the auspices of DiMPO, was supported in kind by several institutions across Europe, and benefited also from the generous contribution in expertise and effort from more than twenty researchers from fourteen European countries. Participants organised workshops and expert forums, attended numerous teleconference meetings, and contributed actively to asynchronous online collaboration on the conceptual scope of specific activities.

DARIAH research on scholarly information practices and digital needs has been mindful of criticism by practicing scholars against the perils of technology-push in digital infrastructure specification and design. Amongst critics, anthropologist Robin Boast has argued against the viability of an *one-size-fits-all* centralised set of services, drawing attention to the danger of insulating the process of specification and implementation of digital services in research infrastructures from actual requirements of humanities research, as attested in empirically emergent scholarly practice (Boast 2009). A related issue concerns the incompatibility between *infrastructure*, which needs to be stable, reliable and well-understood, and *research* in the humanities, which is innovative, unpredictable, and exploratory (van Zundert 2012). These concerns are further exacerbated by the fact that digital technology is now accessible to a much broader and more diverse community of humanities researchers than only a few years ago. Consequently, digital infrastructures such as those encompassed within DARIAH-EU and its network of constituent organisations need to address the needs, and expand the possibilities, not just of digital humanities research, but of research that is digitally-enabled in the broader sense, as it is mediated by scholarly information seeking, behaviour and use. In addition, infrastructures need to support the effective use of existing and emerging digital research methods and tools across a diversity of disciplines and research situations. The need

to account reliably for what scholars do and need in this changing environment stems directly from such considerations.

### 0.3 Scholarly practices, digital methods, and the research process

Understanding research information practice has been an important focus of numerous studies by researchers in the information behaviour field within information science as early as the 1950s. While research interest was initially limited to information seeking – what scholars did to find information relevant to their research – it gradually expanded to encompass processes of information management, curation, collaboration, and communication (Julien and Duggan 2000; Case 2012, pp.240–3). Empirical studies on scholarly information work addressed questions of computer use, comparison between the humanities and other disciplines, access points for resource discovery, use of primary and secondary sources, and of finding aids and archival services by humanities researchers (Stone 1982; Bates, Wilde, and Siegfried 1995; Delgadillo and Lynch 1999; Tibbo 2003; Dalton and Charnigo 2004; Duff, Craig, and Cherry 2004).

Accounting for the information behaviour of humanities researchers has been a moving field, especially as tools of scholarship change radically with the advent of ICT. Questionnaire survey research conducted by the Athens-based Digital Curation Unit, Athena Research Centre in the context of Preparing DARIAH and the European Holocaust Research Infrastructure highlighted, among other findings, the persistence of use of traditional, non-digital formats to access textual archival resources and books, while audio and video, as well as journal and conference papers, are now predominantly sought in digital form; the high importance attributed to footnote hunting, query searching, query refinement and consulting finding aids to find primary sources, of collecting and managing references, as well as to storing both digital and paper copies of both published and unpublished materials; the perceived value of highlighting relevant text passages, storing notes with them, looking for interesting passages, and writing margin notes; the importance of named entities for content-based retrieval of primary and secondary sources; etc. Analysis of interviews under the same project corroborated formally a number of important intuitions, consequential on the prioritisation of specific functionalities by digital infrastructures, by attesting the widespread need of researchers to access concurrently primary data and publications; their dependence on effective linking between heterogeneous objects on the basis of their conceptual content, the pertinence of the notion of a collaborative workspace, and the importance of registers (of resources, people, services and tools), finding aids, and consultation services (Benardou, Constantopoulos, and Dallas 2013).

One particular strand of earlier information behaviour research remains important today: the abstraction of *processes* of scholarly information work, such as *chaining*, *browsing* and *extracting*, as described by Ellis in his comparative study across the sciences, social sciences, and

the humanities, (Ellis 1993), which was enriched with further processes (Meho and Tibbo 2003), and converged with the notion of *scholarly primitives* later introduced by digital humanist John Unsworth in the field of humanities computing (2000). More recently, the notion of scholarly primitives developed, in the work of information scientist Carole Palmer and co-workers, into a fully-fledged classification of twenty granular, standardized and recombinant scholarly activities falling under the bucket categories of *searching*, *collecting*, *reading*, *writing*, and *collaborating*. Of these, *browsing*, *collecting*, *re-reading*, *assembling*, *consulting* and *notetaking* were found to be particularly important in the humanities; *chaining*, *accessing*, *assessing*, *disseminating* and *networking* were seen to be equally applicable to all disciplines, while *probing* and *translating* are most common in interdisciplinary research (Palmer, Teffeau, and Pirmann 2009; Palmer 2010).

The work of the Arts and Humanities Data Service in the 2000s built on the abstraction of research *processes* by establishing the complementary notion of *computational methods*. It gave rise to the development of an extensive taxonomy of methods for the arts and humanities, documenting the context, needs and scenarios of use of each method in particular disciplines – from history, performing arts and archaeology to theatre and linguistics – across complementary contexts of digital data creation, processing and use (Hughes 2008; Reimer 2009). The AHDS methods taxonomy has been used to structure the ICT Guides database of digital arts and humanities projects in the UK (cf. Grindley 2006a; 2006b; 2007a; 2007b), and governed the information architecture of the arts-humanities.net portal, a valuable repository of information about digital humanities projects, tools, methods, expert centres, researchers, and papers hosted for several years by the Centre for e-Research (CeRch, King's College London). Both the repository and the taxonomy were taken forward further by the DH@Oxford initiative in the UK, and the Database of Research and Projects in Ireland (DRAPier, Digital Humanities Observatory). The *Digital Research Tools* (DiRT) directory originally developed under the auspices of the Bamboo project (Loesch 2013) also had created a classification of digital tools for humanities research which, implicitly, reflected an underlying categorisation of scholarly research activities. An initiative within DARIAH-DE (the German tier of the DARIAH infrastructure) drew from such earlier work in the pragmatic context of building a tagging scheme for a Zotero bibliography on 'Doing Digital Humanities' to develop an updated *Taxonomy of Digital Research Activities in the Humanities* (TaDiRAH) in collaboration with the DiRT directory (Perkins et al. 2014; Borek et al. 2016). Not unlike Ellis and Unsworth, digital humanities researchers involved in the development of methods taxonomies adopted the notion of modular, standardized procedures underlying humanities research enabled by ICT, and usable in hugely diverse contexts. One driving idea was to advocate for the development of 'a system that would span disciplines and facilitate knowledge transfer around digital methods could help prevent the re-inventing of the wheel, encourage re-use of resources and contribute to a greater awareness of the importance of digital research' (Reimer 2009).

Even a cursory examination of how researchers work with digital technology reveals that the application of specific research methods is dependent on the use of particular digital tools

and services, within distinct research processes, and contingent with particular kinds of research questions, phases of the research lifecycle, disciplinary contexts, and a wide diversity of information objects and resources. This realisation led to an inquiry that focused not on building a competing vocabulary of methods, but on establishing formal conceptual frameworks for scholarly research activity capable of articulating and expressing these interdependencies. Scholarly Research Activity Model (Benardou et al. 2010a) was a first attempt to establish a holistic formal conceptualisation of humanities research process viewed as a special kind of ‘business process’ (Bearman 1996; American Council of Learned Societies 1998), and expressed as a specialisation of the CIDOC CRM standard (ISO 21127) for cultural documentation, an event-centric ontology offering a rich and mature conceptual modelling framework for capturing, representing and associating historical information about human activity (Crofts et al. 2010). Conducted under the auspices of DARIAH VCC2 Task 2, and supported by an additional grant from the *European Holocaust Research Infrastructure (EHRI)*, the Scholarly Research Activity Model drew from mixed methods research on the scholarly practices of researchers in the DARIAH and EHRI communities, and was used to model, represent and analyse the findings of such analysis (Benardou et al. 2010b; Angelis et al. 2012; Benardou, Constantopoulos, and Dallas 2013).

Research work on scholarly information behaviour and needs, on taxonomies of digital methods and tools and on conceptual modelling of the scholarly process summarized in the previous section, are the background for the investigation on the scholarly practices, digital needs and attitudes of European researchers in the human sciences which is the focus of the present report. Cultural-historical activity theory, used in fields as diverse as developmental research, organisations, work and ergonomics (Engeström 1987, 2000), social aspects of technology and Human-Computer Interaction (Kaptelinin 1996; Kaptelinin and Nardi 2007), information behaviour research (Wilson 2005; Allen, Karanasios, and Slavova 2011), and digital curation (Dallas 2007), has been a salient theoretical framework for conceptualising this work. Activity theory’s notion of a nested hierarchy of activities, constituted by conscious actions designed to meet hierarchically structured goals, and enabled through the interaction with (conceptual or material/technological) mediating tools, finds a good fit with the event-centric conceptualisations provided by CIDOC CRM and correspond, intuitively, with the conceptualisation of the scholarly research process underlying the work presented in this report.

## 0.4 Evidence-based research on scholarly practices

The Digital Methods and Practices Observatory Working Group (DiMPO) was formed in 2015 as a natural continuation of the work within VCC2 Task 2 in DARIAH, to address the need for a systematic, broad ranging, evidence-based study of the information practices, needs and attitudes of researchers in the human sciences across Europe. Its stated objective was ‘to develop and provide an evidence-based, up-to-date, and meaningful account of the emerging information practices, needs and attitudes of arts and humanities researchers in the evolving European digital scholarly environment, for the benefit of the digital humanities research

community'. Formed by an active community of more than twenty researchers from fourteen European countries (see above, List of contributors), DiMPO agreed on a scope of work operating 'through the inception of a longitudinal mixed methods research and monitoring programme on the information practices and scholarly methods employed in digitally-enabled arts and humanities work across Europe, and through the digital dissemination, validation and enrichment of research outcomes by the scholarly community'. Its overarching vision was that of an observatory, monitoring digital humanities practices, methods and needs in Europe across countries, and in the course of time. The intended impact of the planned work was to ensure: a) the quality of the specification, planning and deployment of the DARIAH infrastructure, so that it addresses empirically validated needs and thus maximizes inception by the research community; b) the efficacy of evidence-based policy support, advocacy and outreach work; and, c) the effective dissemination of useful information on digital research methods to the arts and humanities community, contributing to transfer of knowledge and empowerment.

The DiMPO work plan was initially established with the aim of supporting the strategic priorities established by DARIAH for 2015-16, namely: a) working with all scholars in the humanities, b) integrating scholarly communities, and, c) supporting the coherent development of national roadmaps. The Working Group adopted a 'broad church' approach to its definition of who will be included in its purview, encompassing not just self-identified digital humanists, or those using sophisticated digital methods to research, but also all those who may already use, or may be interested to use or know about the use of any kind of digital resources, tools and services in their work. Also, recognising the growing interdisciplinarity of scholarly work and the hybridisation of epistemological and methodological frameworks adopted by researchers, it broadened its scope to include, apart from the traditional arts and humanities, the broader spectrum of social science disciplines such as archaeology, anthropology and geography, covering thus what has been known since the 19<sup>th</sup> century as the human sciences. Its agenda was aligned with DARIAH's express strategic priority to establish its role as 'essential in identifying the actual needs and expectations of the various fields in the arts and humanities', and worked towards defining outputs which would be useful instruments to support 'dialogue with national and European funding agencies so that they understand the various levels of engagement of scholars with the digital agenda'. Finally, apart from the need to produce knowledge on the consolidated European scale, it explicitly factored into its work plan the need to identify phenomena at the national and comparative scale.

DiMPO set out a multifocal research agenda, consisting of three interrelated components: a) mapping and analysis of statistical trends in the scholarly practices and digital needs of European researchers in the human sciences, aiming to identify phenomena of interest vis-à-vis important factors (such as disciplinary affiliation, country of residence, or years of experience in research), b) conceptual modelling of scholarly research activity and interrelated entities in the field of scholarly work, aimed to provide a framework for representing and ana-



lysing evidence related to scholarly practices and digital needs, and c) multi-case studies research, based on triangulation between situated-intensive participant observation, interviews with key actors, and documentary evidence, aiming to provide responses to the ‘how’ and ‘why’ dimensions of scholarly practice and needs in the digital environment. The first component was served by the scholarly practices and digital needs survey presented in this report. The second component was represented by the final publication of the NeDiMAH Methods Ontology, and its validation through international workshops engaging members of the digital humanities community, and further publications by members of the research team, identifying possibilities for future research (Benardou et al. 2015; Hughes, Constantopoulos, and Dallas 2016; Pertsas and Constantopoulos 2016). The third component was approached at small scale in a trial field experiment involving ethnomusicological research, supported by the Greek Network of Infrastructures for the Human Sciences (DYAS, a.k.a. DARIAH-GR), and is currently under way: a qualitative research protocol was developed with support from a small grant by DARIAH-EU by a subgroup of DiMPO members, intended to provide a framework for the inception of a European-scale research initiative involving multiple case studies in different disciplines, areas of scholarly activity and countries. A future, integrating activity, to incorporate the results of all these research activities into a knowledge base which could be amenable to multiple uses (including education and training) by the research community, has been envisaged but has not yet taken off in specific actions within DiMPO’s work.

More than twenty members participated in a DiMPO Working Group meeting on April 27, 2017, which was organised as part of the Annual DARIAH Meetings in Berlin. A further DiMPO Workshop, organised in Warsaw by the Institute of Literary Research of the Polish Academy of Sciences in May 2017, further consolidated the methods, scope and work plan of the Working Group. Participants in the Berlin meeting reaffirmed the need to develop the qualitative component of the research plan on scholarly practices, digital needs and attitudes, while developing fuller and more sophisticated, inferential and multivariate analysis of the quantitative data produced by the 2015 survey. In further developments, in 2018-19 DiMPO launched the Digital Humanities Work in Focus (DH-FOCUS) project, benefiting from a grant by DARIAH and generous support in kind by Trinity College Dublin, the Institute of Literary Research of the Polish Academy of Sciences, the Digital Curation Unit of Athena Research Centre, and the NEP4DISSENT COST Action. In several meetings held in 2018-19, DiMPO members collaborated actively to develop a research protocol and online guide to digital humanities meta-research<sup>1</sup>, aimed to help multiple case study and qualitative interviewing work on what European humanities researchers do. Considerable interest was also shown

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<sup>1</sup> The DiMPO DH-FOCUS project was coordinated by Costis Dallas, Jennifer Edmond and Maciej Maryl. For details, see Maryl, Maciej, Costis Dallas, Jennifer Edmond, Jessie Labov, Ingrida Kelpšienė, Michelle Doran, Marta Kołodziejaska, and Klaudia (footnote continued)

in producing a bibliography on scholarly practices research which would be useful to both researchers of scholarly information behaviour and reflexive, methodologically sensitive scholars in the human sciences. A consensus was also established on the need to link out to other initiatives in the study of scholarly practices and needs in the digital environment within and outside DARIAH-EU, as well as on further validation of the Working Group's achievements by the broader community of researchers within the human sciences. While demonstrating the vitality of the Working Group and the collaborative, transnational nature of the work that is taking place within DiMPO, these developments are beyond the scope of the current report.

## 0.5 Structure of the report

The chapters of this report are organised in a logical sequence aimed for transparency and ease of use. Chapter 1 presents the overall design of the research project, from scoping the questions to defining the sampling strategy, scoping the main research topics, designing the questionnaire, developing multilingual versions, recruiting respondents, cleaning and filtering the main dataset, and conducting the analysis. Chapter 2 presents and discusses the descriptive statistical results of analysing the 2,177 valid responses of researchers who reside in Europe and identify one of the human sciences as their primary discipline. Chapters 3 to 9 present a similar analysis for respondents from European countries that have yielded more than 100 valid responses, and thus provide results with reasonable accuracy with regard to situation in these countries, in the form of national profiles for Austria (Chapter 3), Finland (Chapter 4), Greece (Chapter 5), Lithuania (Chapter 6), Poland (Chapter 7), Serbia (Chapter 8), and Switzerland (Chapter 9); it has been unfortunately impossible to produce similar country profiles from France and Germany, the two countries that yielded the highest numbers of respondents in the survey. Finally, the study questionnaire is included as an Appendix.

## 0.6 Postscript

Three years elapsed since this report was originally drafted, and more than seven years since the DiMPO survey fieldwork had been completed. In the meantime, DARIAH EU has been established as the reference point for the European digital humanities community. Several surveys and numerous qualitative studies on digital humanities practice have appeared in print, yet, to our knowledge, no published study has yet addressed the questions of the current report in similar trans-European perspective. We hope that its publication will provide a useful baseline for further, timely longitudinal research on the shifting practices and needs of European digitally-enabled researchers in the human sciences.

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Grabowska. 2020. "A Case Study Protocol for Meta-Research into Digital Practices in the Humanities." *Digital Humanities Quarterly* 14 (3). <http://www.digitalhumanities.org/dhq/vol/14/3/000477/000477.html>.



# Chapter 1

## Survey scope and methodology

*Costis Dallas & Nephelie Chatzidiakou*

### 1.1 Introduction

The survey was launched online in June 2014 and was completed in March 2015 as part of a distinct project within the *Digital Methods and Practices Observatory Working Group of DARIAH-EU (DiMPO)*, led and co-ordinated by the co-authors of this chapter and editors of this report, and involving actively about two dozen participants from fourteen European countries (see above, List of participants). The process had already been initiated before DiMPO was founded, as part of the work of *Task 2- Understanding and Expanding Scholarly Practice* within *VCC2 – Research and Education* of DARIAH. The main motivation of the Scholarly Practices Survey project was to establish a baseline across different European countries and scholarly disciplines regarding the use of digital technologies to access, organise, analyse and disseminate scholarly information resources ranging from primary data to organised databases and scholarly publications.

Given pragmatic limitations, the project sought to collect reliable evidence on essential aspects of scholarly information behaviour and attitudes, rather than develop a full picture, something that would require a much longer questionnaire as well as complementary research instruments. Aspects of scholarly practice and perception of needs relevant to the capabilities of data- and content-driven digital research infrastructures such as DARIAH-EU were given priority over equally important aspects related to other considerations, such as, for instance, epistemological or ethical-political entailments of particular kinds of research, or funding, organisational and careers implications for researchers. This was in line with the context under which this investigation was conducted, namely, as part of the work of DiMPO and its mission, namely, ‘to provide evidence-based, timely and useful information and insight on the scholarly practices, needs and attitudes of European humanities researchers working in the digital environment’. It was envisaged that workers in the field of scholarly information practices, digital research infrastructures, information behaviour, and other

fields will conduct targeted investigations on particular themes or research questions, some of which may emerge as salient topics for further consideration from the baseline evidence-based view produced by this survey.

Besides, the survey was designed not as a one-off endeavour, but as the first step of a longitudinal investigation which aspires to become a reliable source of up-to-date information on scholarly research practices, needs and attitudes of European scholars in the human sciences working in the digital environment across time. Its usefulness hinges, therefore, on the ability to produce, in the medium term and as the survey and the analysis of its findings is repeated in further iterations every few years, insights on how the landscape of digital resource, methods and tools use by researchers in the human sciences changes across time.

An additional consideration regarding the work conducted within the Scholarly Practices Survey project concerns its relationship with other relevant work undertaken under the auspices of DiMPO, within DARIAH-EU and the DARIAH ecosystem, or more generally prior relevant work regarding scholarly practices and needs in the human sciences. Regarding the last aspect, work on developing the protocol for the survey followed an extensive period of prior engagement with practices-related research, in the context of relevant activities by members of the research team, such as the Europeana Cloud Research Communities Web Survey, the European Holocaust Research Infrastructure (EHRI) user requirements web survey, and the qualitative analysis of scholar interviews from the Preparing DARIAH project. This preparatory work included also an extensive study of prior research on scholarly information behaviour in the humanities and social sciences (see Chapter 1 above for a brief account), as well as additional surveys conducted by other teams, such as the Finnish Social Science Data Archive Survey and the Digital Humanities in Claremont Survey.

The work plan DiMPO inherited from Task 2 of DARIAH VCC2 included two additional components, apart from the study of statistical trends in the scholarly practices and digital needs of European researchers in the human sciences, served by the Scholarly Practices Survey project: firstly, conceptual modelling of scholarly research activity and interrelated entities in the field of scholarly work, served by the *NeDiMAH Methods Ontology (NeMO)* project, led by Panos Constantopoulos and conducted by the Digital Curation Unit under the auspices and with collaboration with the Network of Digital Methods for the Arts and Humanities (NeDiMAH) (Hughes, Constantopoulos, and Dallas 2016); and, secondly, qualitative, multi-case study research, aiming to provide responses to the ‘how’ and ‘why’ dimensions of scholarly practice and needs in the digital environment, which was trialled experimentally in small scale within the Greek Network of Infrastructures for the Human Sciences (DYAS / DARIAH-GR) initiative but did not take off as an active DiMPO project at European scale as yet, due to funding and scheduling limitations. Some work on a literature survey on scholarly practices, needs and attitudes of researchers in the human sciences within the digital environment has already started within DiMPO, and there are initial plans to develop these plans into an annotated bibliography project on the topic. In the broader context of the DARIAH ecosystem, the

DARIAH-DE initiative in Germany produced relevant results in the form, firstly of an extensive bibliography of ‘Doing digital humanities’ which, while focused on digital humanities research proper, has also harvested some of the studies on scholarly information practices, digital methods and research infrastructures, and, secondly, of a *Taxonomy of Digital Research Activities in the Humanities (TaDiRAH)* (Perkins et al. 2014; Borek et al. 2016), one version of which was also integrated within the NeDiMAH Methods Ontology (NeMO) (Benardou et al. 2016). While the Scholarly Practices Survey project, and the resulting report, draws from insights from all these other projects, it should be considered as complementary rather than in competition with them.

A final dimension of the work of the Scholarly Practices Survey project presented in this report concerns the dynamic and evolving nature of work by the international team of researchers contributing to the project.<sup>2</sup> In addition, Scholarly Practices Survey project participants have been active in authoring presentations and publications of survey results at the national level. Besides, the scope of the core work represented in the chapters of this report is limited for the most part to the presentation and analysis of descriptive statistics of the responses of survey participants to questions in the survey questionnaire, and only to some extent with inferential statistics regarding the statistical significance and strength of association between particular behavioural and attitudinal responses of survey participants, and factors such as their disciplinary affiliation, years of experience, or country of residence. It should be recognized, however, that scholarly practices and perceived needs of scholars in the digital environment are affected concurrently by multiple factors, and that researchers may be usefully understood as belonging to different profiles as regards their scholarly information behaviour, needs and attitudes. The dataset developed from the survey is amenable to further statistical analysis, which could throw light on what are the factors affecting the adoption of specific digital practices and the prioritisation of needs, as well as on the existence of differentiated groups of scholars with regard to their scholarly practices and needs in the digital environment. The research strategy envisaged is that interested members of the Scholarly Practices Survey project will be invited to collaborate in further analysis and publication of the results of the survey in professional meetings and peer-reviewed scholarly journals.

## 1.2 Questionnaire scope and structure

Based on a survey of research on scholarly practices and their implication for services and infrastructures in the digital environment, as well as prior work of the research team on the topic, a pool of themes and relevant research questions was developed, drawing, firstly, from

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<sup>2</sup> Since the time that the data processing and filtering of the results of the original survey were completed, an additional survey following the Scholarly Practices Survey project protocol was conducted in Finland (2016); a country profile report of the same format as those included in Chapters 2-3 and 5-9 was written for Finland, and is included as Chapter 4 of the current report but, for reasons of temporal homogeneity, the data were not included in the consolidated European dataset for this round of the survey. The survey was also launched in 2017 in Russia, but the results have not appeared on time to be included in the current report.

processes identified within conceptual models of digital curation (Higgins 2008; Constantopoulos and Dallas 2008; Constantopoulos et al. 2009), and secondly, the classification of research processes and primitives developed by Carole Palmer and co-workers (Palmer, Tefteau, and Pirmann 2009). Scholarly work involving digital resources, methods and infrastructures was considered an integral activity encompassing all stages of the research process, from the definition of research questions and the orientation within a literature or domain to the capture and constitution of salient evidence (data, resources), to information seeking, management, curation, dissemination and use. Infrastructures, under consideration included software applications installed at the researchers' computer, but also online services, systems and tools, including pervasive, globally accessible commercial digital infrastructures. Practices examined included both those based on digital technologies and their non-digital counterparts, to ensure meaningful comparisons between, e.g. using a digital device to consult a specific kind of scholarly resources versus the use of an analogue format for the same purpose.

Palmer et al. (2009) describe scholarly practices and information activities involved in the research process as a set of generic functions which are diffused among disciplines. Their classification works at two levels: at the lower level, they identify elementary information activities, corresponding to 'scholarly primitives' (Unsworth 2000). Most primitives are categorized in five cohesive broader groups of processes: searching, collecting, reading, writing and collaborating. These groups are, however, complemented by what Palmer et al. call 'cross-cutting primitives', i.e. those that are not classified in one of these processes, but which can occur anywhere in the implicit scholarly information lifecycle: monitoring, notetaking, translating and data practices. The design of the questionnaire was informed by this analysis, in order to account for the main information activities undertaken in the course of scholarly work and to further explore how scholars undertake such activities in the digital era. Consequently, the final set of questions which were included in the Web Survey were selected in order to cover following areas: *Use of digital methods and tools*, *Seeking research assets*, *Organising research assets*, *Annotating and curating research assets*, and finally *Collaborating and disseminating research work*.

A set of demographic questions were included in the questionnaire, including professional profile-related questions, to provide the possibility of, firstly, filtering the dataset to examine particular hypotheses related with specific groups, and, secondly, performing inferential statistical tests regarding the potential association or dependence of particular responses regarding practices, needs and attitudes on demographic attributes of respondents. Eight such socio-demographic questions were asked, concerning the age of respondents, their gender, their country of residence, their primary disciplinary affiliation, the number of years they had worked on research, and their professional affiliation and status.

The questionnaire consisted of twelve further sets of questions concerning scholarly information practices, needs and attitudes of respondents. Diverse types of questions were used: dichotomous questions, multiple choice questions, filter questions, Likert-scale questions as

well as some open questions to allow the gathering of qualitative responses on aspects that were not fully categorized at the outset of the study. Questions concerned the use of digital methods and tools in the course of scholarly work, the ways researchers look for and collect research materials, the organisation of research assets, curation processes, as well as diverse ways whereby scholars collaborate with each other and disseminate their work. The sections and specific questions included in the questionnaire correspond broadly the categorisation of scholarly processes by Palmer and co-workers (2009) (Table 1.1). The printed form of the questionnaire is included in this report as an Appendix.

Table 1.1 Survey sections and questions vis-à-vis scholarly processes in Palmer et al. (2009).

Survey section	Survey questions	Scholarly processes
Use of digital resources and tools	Use of digital methods or tools in the research process Use of a desktop or laptop PC, some mobile device or some analogue device to consult: Articles on scholarly journals or conference proceedings Books Archival holdings Images Maps Video Audio	<b>Reading</b> (Scanning, Assessing, Rereading), <b>Searching</b> (Direct searching, chaining, browsing, probing, accessing)
Seeking research assets	Use of digital methods or tools to discover, collect or create research assets Visiting historical archives, special collections, or museums Seeking information or advice from archivists, subject librarians, or collection curators Accessing primary sources outside one's country of residence Using Web search engines Using search engines of research publications Using digital archives, digital collections or data repositories Using online scholarly journals Using online library catalogues	<b>Searching</b> (Direct searching, chaining, browsing, probing, accessing)
Organising research assets	Use of digital methods or tools to organise, structure, or manage research assets Use of a standard keyword list or thesaurus to organise research assets Use of one's own keyword list to organise research assets Use of a bibliographic management application Use of a database to manage research data or sources Contents of one's database (characteristics of data, textual descriptions or commentaries, photographs or scanned images, transcripts, maps, audio recordings, video, 3D models) Use of digital archives, digital collections or data repositories	<b>Collecting</b> (Gathering, Organising)
Annotating, and curating research assets	Use of digital methods or tools to annotate, enrich or curate research assets Use of digital methods or tools to process, analyse or visualise research assets	<b>Collecting</b> (Gathering, Organising) <b>Reading</b> (Scanning, Assessing, Rereading) <b>Writing</b> (Assembling, Co-authoring, Disseminating)



Collaborating, and disseminating research work	Use of digital methods or tools to publish, disseminate or communicate about one's research Collaborating with others on a research project Communicating with others in a social media site or discussion forum Language(s) in which research is published Disseminating research through An open content portal or publication The portal or repository of one's institution One's one website or blog A scholarly community site A generic online content community A social network Use of social media sites	<b>Writing</b> (Assembling, Co-authoring, Disseminating) <b>Collaborating</b> (Coordinating, Networking, Consulting)
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### 1.3 Sampling strategy and data collection

The population of interest in the survey was researchers in the human sciences residing in Europe who use, plan to use, or have an interest to know about the application of digital resources, methods and tools, such as those connected with the DARIAH-EU infrastructure, for research purposes. This population corresponds broadly to the target group of DARIAH-EU within the research community, which is not limited to those identifying themselves as digital humanists, but extends to everyone within the humanities and humanities-informed social sciences who might be interested or might find it useful to use any of the services provided by the DARIAH-EU infrastructure.

To establish a sample of respondents that traces to the extent possible characteristics of this target population, a snowball sampling strategy was employed, using the mailing lists and other dissemination instruments in the service of DARIAH-EU national partners to disseminate information about the survey online. To maximise response rate, invitation materials and the survey questionnaire itself were distributed in English, French, German, Greek, Lithuanian, Polish, Serbian, Slovenian and Spanish. Invitation materials identified the DARIAH digital infrastructure as the originator of the survey. The survey questionnaire was actively disseminated from June 2014 to February 2015 through the central DARIAH-EU lists and online dissemination channels, as well as nationally through a variety of channels by project team members from Austria, Croatia, France, Germany, Greece, Ireland, Lithuania, Poland, Serbia, Slovenia, Spain and Switzerland.<sup>3</sup> Project team members in different countries were encouraged to disseminate the survey through whatever means they had at their disposal in their country to access the broader human sciences community; in some cases this meant disseminating the announcement for the survey on the mailing lists of DARIAH-related ini-

<sup>3</sup> The discussion below, and in the consolidated results and concluding chapter of this report, excludes the results of the Finnish study, conducted after the end of the first trans-European run of the survey in 2014-15. The national results for Finland are nevertheless presented below in Chapter 4.

tiatives and of digital humanities networks, while in other cases it meant sending the announcement to humanities scholarly societies and associations, university departments and research institutes, which were asked to relay it to their respective communities.

The adoption of a snowball sampling approach meant that it has not been possible to collect data on non-response. It is reasonable, nevertheless, to assume that respondents consisted of those who were either already aware of the European DARIAH initiative, including those that were part of national DARIAH-related communities, as well as those interested into the prospects offered by digital infrastructure initiatives, or into the application of digital resources, methods or tools in scholarly research. A limitation of this approach is that the range of potential recipients that received the questionnaire announcement was different in each country, as it depended on the dissemination channels established by different project team members in terms of respondent discipline and other profile characteristics. Also, given the online dissemination of the questionnaire, people outside Europe and outside the human sciences community who, nevertheless, were connected to dissemination channels used by the project were also made aware of the survey. As a result of these considerations, the raw dataset collected by the project, while not representative of the broader digital humanities community, can be taken to reflect the situation and views of *researchers and other interested individuals who use, plan to use, or have an interest to know about the application of digital resources, methods and tools, or who are aware and are interested in DARIAH, its affiliated national initiatives, or digital research infrastructures in general.*

The raw dataset consisted of 2,326 answers from countries across Europe. A small additional number of responses from people residing outside Europe was excluded from further analysis. The final dataset consisted of researchers who were primarily employed at a university or a research centre. The largest group of respondents reported to be 36 to 50 years old, and to be working as researchers for more than ten years. Finally, 56.5% of the respondents identified themselves as women and 43.5% as men. Sixteen countries were represented by more than 0.5% within the consolidated European dataset: Austria, Belgium, Croatia, Denmark, France, Germany, Greece, Ireland, Italy, Lithuania, Poland, Serbia, Slovenia, Spain, Switzerland and the United Kingdom. Respondents from some European countries, such as France, were over-represented in the dataset, while others, such as Italy, were under-represented, when compared to the overall population of researchers in each country and its percentage within Europe. Descriptive statistics, and simple (two-way) inferential statistics, were performed on a weighted dataset, but the results were not sufficiently different from those in the raw dataset to warrant the adoption of a weighting approach vis-à-vis the number of respondents in each country, considering the additional methodological considerations of potential bias introduced by weighting approaches. Further analysis was therefore conducted on the raw dataset, after suitable filtering.



## 1.4 Questionnaire and results translation protocol

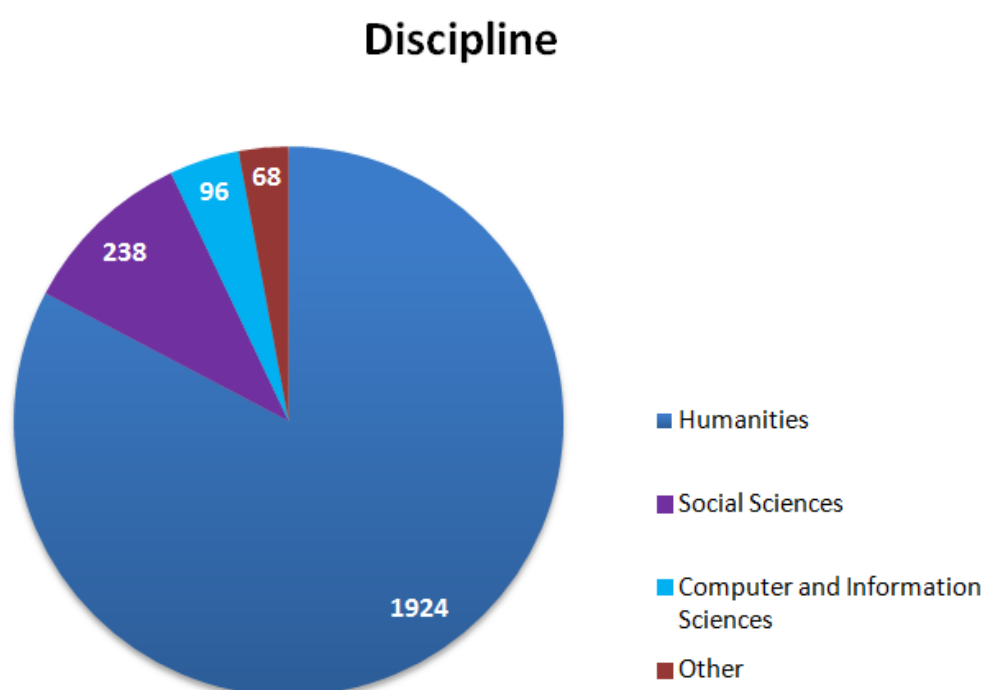
As the survey was to be distributed among several countries and was intended to be completed by researchers from different linguistic and cultural contexts, it was decided to translate the survey questionnaire in as many languages as possible. This had mainly to do with the attempt to approach more respondents and not to limit respondents from the beginning by introducing a language barrier that would exclude researchers who would not be competent in or willing to respond to a survey in English. For this reason, a multinational, multiregional, and multicultural approach was adopted (Harkness et al. 2010), employing a translation protocol that would permit us to ensure comparability and to reduce the risk of not transferring the same semantic meaning between translations.

A project manual was compiled by the project coordinator, Nephelie Chatzidiakou and was distributed to project team members in different countries, specifying a protocol to be employed in translating the survey questionnaire and providing details about the considerations relative to the multinational and multicultural contexts in which the survey would be implemented. According to the protocol, an iterative process was to be followed between the source language (SL) in which the Questionnaire was initially written (English) and the target languages (TLs). The process adopted was back-to-back translation from the SL to the TL, and then back again to the SL for comparison purposes. This process allowed us to check for semantic slippage between the two languages, while involved less effort than comparable alternative procedures.

Communication between the multinational research team involved dissemination of the questionnaire, guidelines regarding the translation process, as well as clarifications and solutions on a series of procedural issues related to the hosting and implementation of the survey, and the content of the questionnaire. The questionnaire was implemented using an installation of the LimeSurvey open source software (<http://www.limesurvey.org>). Translated questionnaires provided by project team members were incorporated in LimeSurvey, and the localized language versions disseminated to target audiences in different countries as appropriate. The progress of completion of the questionnaire was centrally monitored, and weekly updates were issued in the final stage of the process. In addition, promotional materials such as leaflets, banners and flyers were produced centrally and were made available to project team members in order to promote the dissemination of the survey. In some cases, team members produced and disseminated customized versions of such materials.

## 1.5 Data processing and final dataset

The data gathered was exported from specific LimeSurvey installations for different languages of the survey to separate SPSS files, which were then merged to form a consolidated SPSS dataset. Adjustments had to be made in cases where some questionnaires presented slight variations in coding. The dataset was further processed in order to end up with a uniform sample comprising responses from humanists and social scientists. Derivative variables were created *post hoc*. Respondents were distributed into four broader disciplinary categories, according to the primary discipline they specified: Humanities, Social Sciences, Computer and Information Sciences, and Other (Figure 1.1). To match the target population corresponding to the scope of questions and motivations of the survey, only the first two categories were included in the final consolidated dataset, as well as in each national dataset.



**Figure 1.1.** Count of responses by category of discipline in the raw European dataset (N=2,326).

The final European dataset comprises 2,177 responses from humanists and social scientists, i.e. those that represented their primary discipline as one of the human sciences. Since the survey clearly focuses to humanists, the various disciplines of the humanities were available to respondents to identify their specific field. More specifically, respondents were given the options to specify their primary discipline from a closed list of options (Figure 1.2). In a subsequent open question, respondents could further specify their more specific area of research between the following: a) anthropology or ethnology, b) archaeology, c) art, history of art, or visual studies, d) classics, e) drama, theatre, or performance studies, f) ethnic, gender and

cultural studies, g) folklore, h) history, i) language and literature, j) linguistics, k) medieval studies, l) museum studies, m) music, n) philosophy, o) theology or religious studies, and p) other.

Survey data were exported from *LimeSurvey* and converted into an *SPSS* file, checked for errors. Data related to complex questions were subjected to data transformations to render them amenable to statistical analysis. Responses from people outside Europe, or who did not identify themselves as either in the humanities or the social sciences, were excluded, and a final dataset for analysis was thus obtained. Partitions of the datasets were also obtained on the basis of the country of residence reported by participants to the survey.

## 1.6 Statistical analysis and presentation

The European dataset was analysed in its entirety to produce the consolidated results of the survey, using descriptive statistics for all questions in the survey. The same analysis was obtained for all partitioned datasets for which a country profile was to be produced as part of the current report. Descriptive statistics were used to obtain counts and ratios for nominal or ordinal variables; also, medians, quartiles, and range for those ordinal variables in which respondents were asked to provide a score, e.g., in assessment of researcher needs.

Statistical charts were generated either through *SPSS*, or, where considered preferable, through *Microsoft Excel*. As most questions reported on nominal or ordinal variables, vertical bar charts were produced as a rule. For complex ordinal questions tracing responses of participants to multiple, yet related, dimensions of practice, a pre-structured *Excel* spreadsheet was created to produce spider charts. A similar method was employed to produce box-and-whisker plots reporting on numeric scores given by participants to indicate how important they considered specific needs.

Given that the dataset was produced by purposive rather than random sampling, and to avoid misunderstandings on the analytical capability the survey claims to have, no confidence intervals, margins of error, or other measures of either reliability or accuracy typical of sample statistics were produced. An explanatory analysis of the patterns identified on the study findings, and their association with dimensions of participant identity such as disciplinary affiliation, years of experience in research, and country of residence, is relegated to further future research and publication.

# Chapter 2

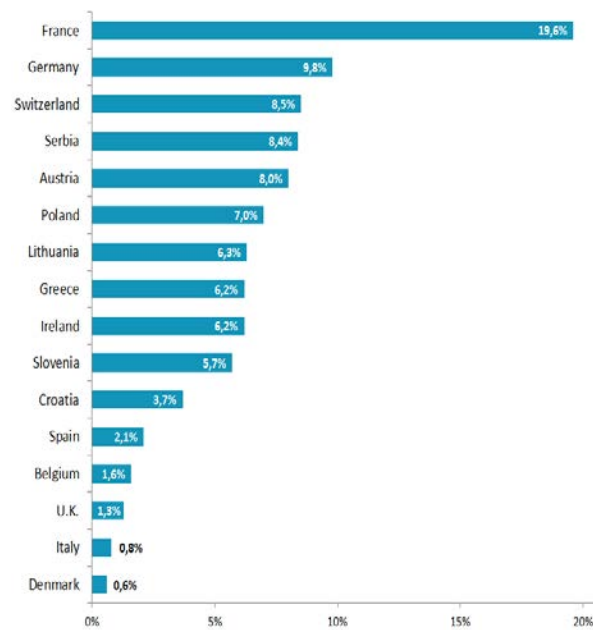
## European profile: consolidated results

*Nephelie Chatzidiakou & Costis Dallas*

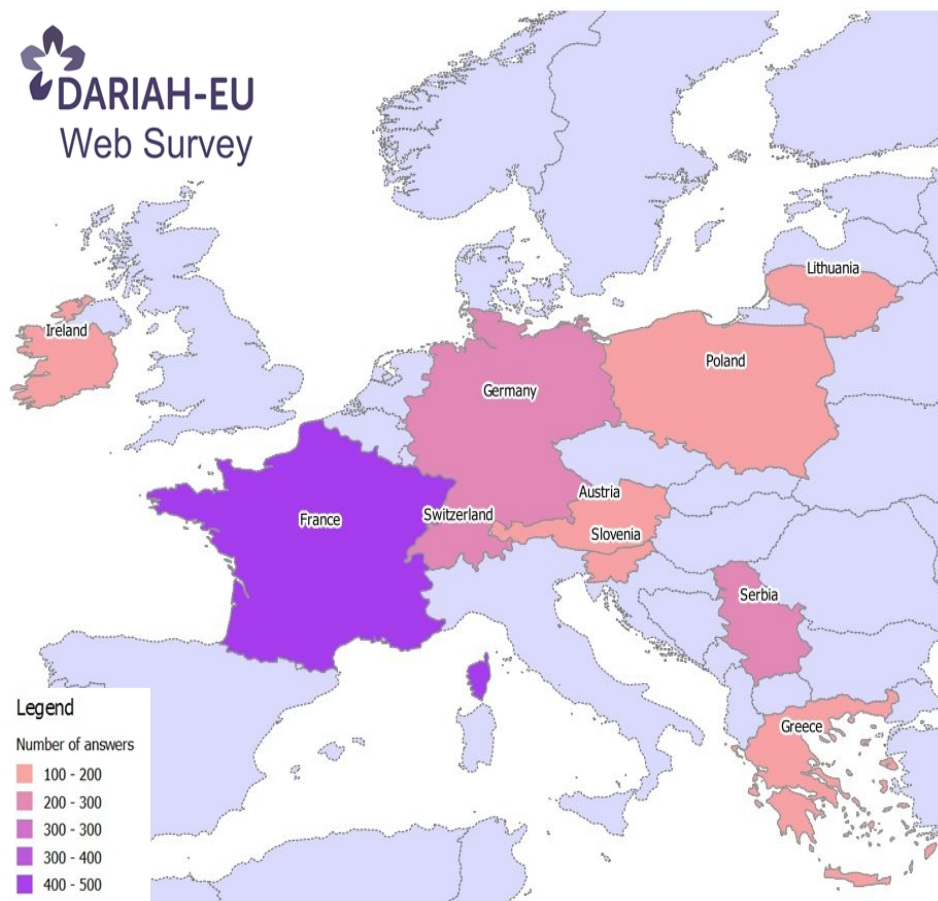
### 2.1 Introduction and respondent profile

The final consolidated dataset consists of 2,177 complete answers of respondents who reported a primary affiliation with one of the human sciences (in other words, those classified as either humanities or social sciences). Respondents working primarily in other fields, such as computer and information science, or the physical sciences, have been discarded from the final dataset and excluded from further analysis.

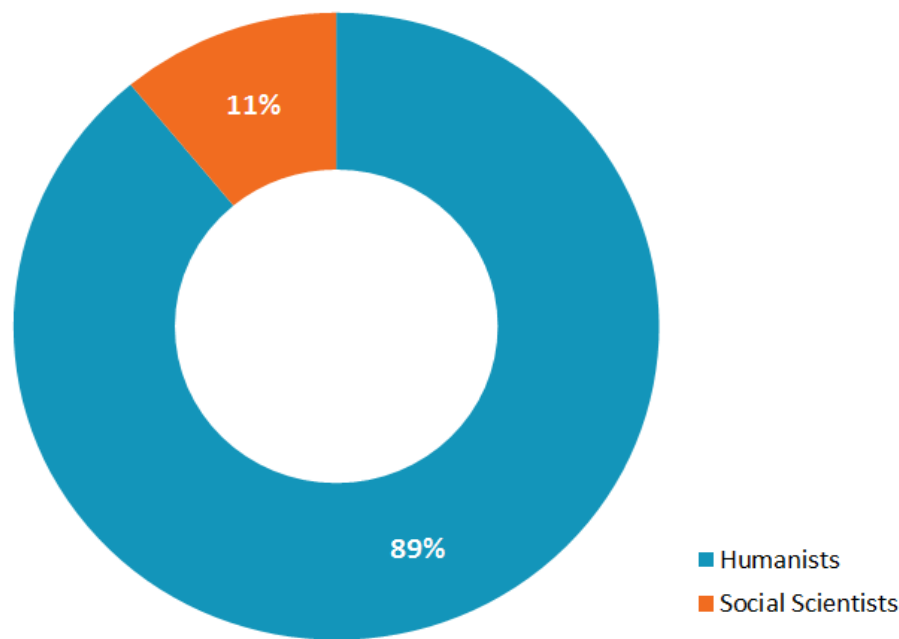
Survey participants were asked to identify their country of residence. Although almost all European countries are represented in the consolidated dataset, not all have provided enough responses to permit us to draw reliable conclusions about the practices and needs of their national community of researchers in the human sciences. The responses from all countries were considered for the analysis of the consolidated dataset as a whole, but those countries which yielded more than 100 answers allowed us also to conduct reliably further analysis, which is presented in separate country profiles in this report (see below, Chapters 3-9). The distribution of respondents from each country, as well as a map identifying the countries that gathered more than 100 answers, is presented below (Figures 2.1 and 2.2).



**Figure 2.1** List of countries with more than 0.5% of overall European responses.



**Figure 2.2** Map of countries with more than 100 responses.



**Figure 2.3** Percentage of humanists and social scientists in the consolidated European dataset (N=2,177).

### 2.1.1 Discipline

As expected by the survey design and targeting strategies employed in this study, most respondents are humanists (88.7%), while a smaller proportion (11.3%) are social scientists (Figure 2.1).

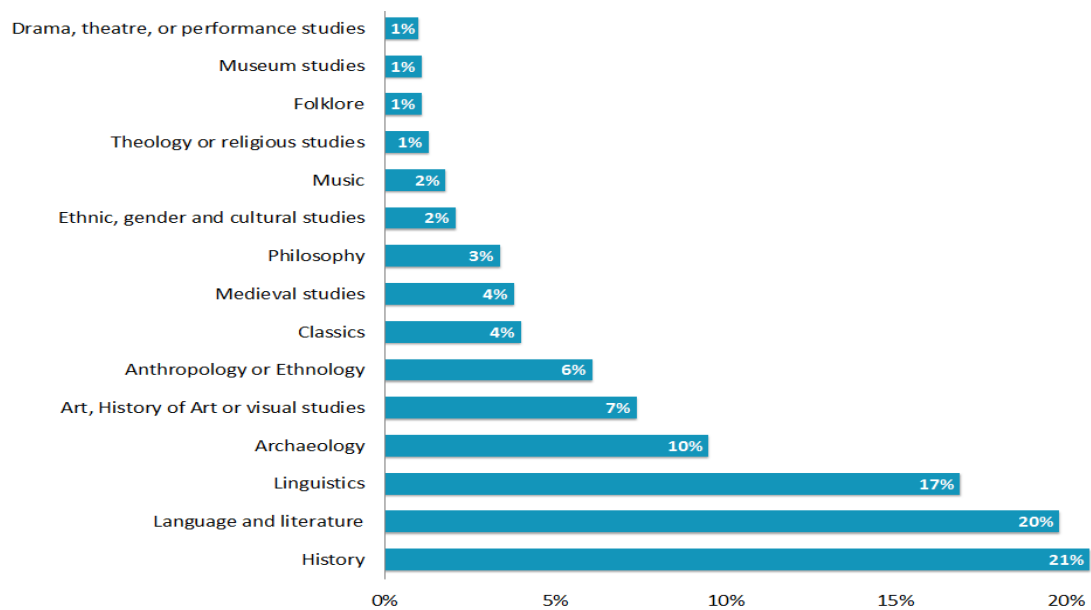
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**The largest groups of respondents were historians, literature scholars, and linguists, followed by archaeologists, art historians and visual studies scholars, and anthropologists. Other disciplines were represented by smaller numbers.**

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In more detail, the largest groups within the consolidated European dataset are historians (20.7%), researchers in the field of language and literature (18.8%), and linguists (17%). Other disciplines represented in the dataset include archaeology (9.5%), art, history of art or visual studies (7.4%), anthropology or ethnology (6.1%), classics (4%), medieval studies (3.8%), philosophy (3.4%), ethnic, gender and cultural studies (2.1%), music (1.8%), theology or religious studies (1.3%), folklore (1.1%), museum studies (1%) and drama, theatre or performance studies (1%) (Figure 2.2).

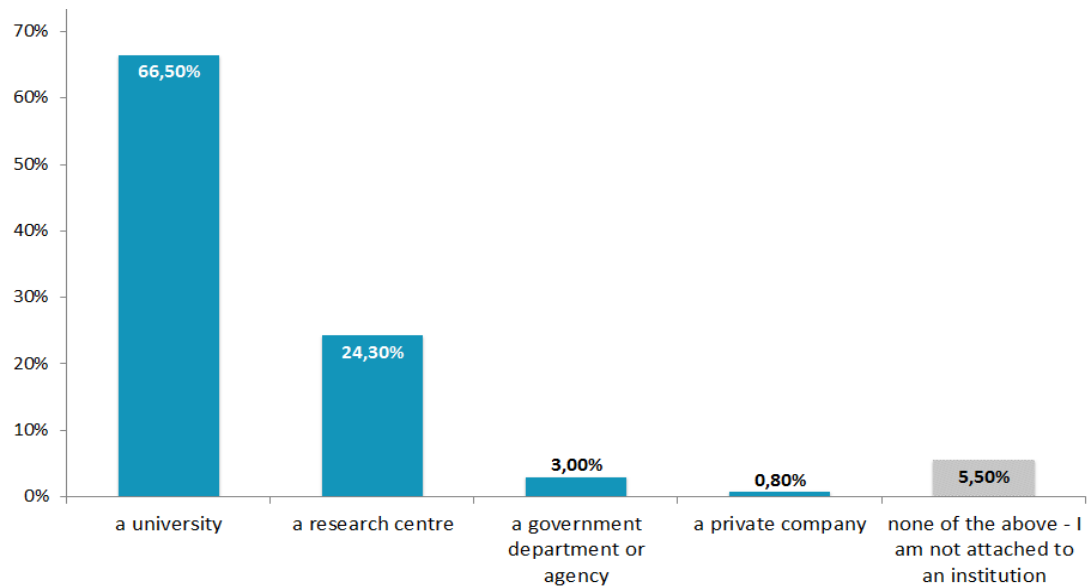




**Figure 2.4** Discipline (N=1,782).

### 2.1.2 Professional affiliation and status

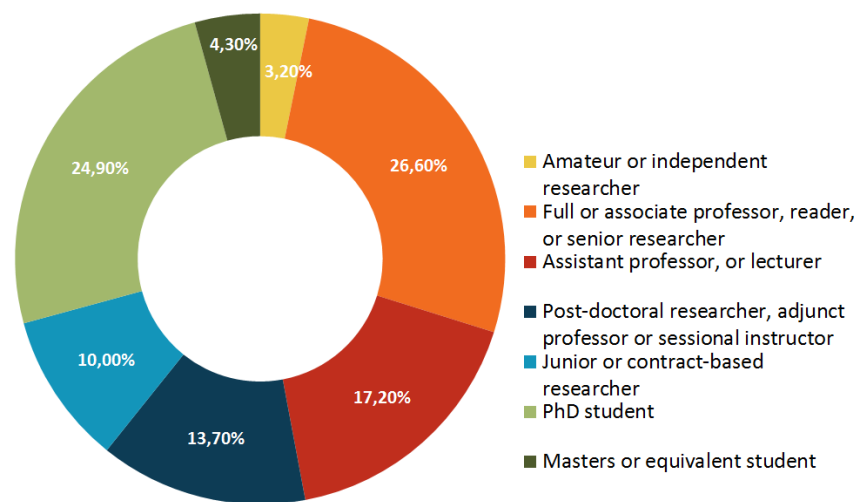
Most respondents to the survey are attached to a university (66.5%) or a research centre (24.3%), while a small percentage is attached to a government department (3%) or a private company (0.8%). Finally, 5.5% of the respondents state that they are not attached to any institution (Figure 2.5).



**Figure 2.1** Professional affiliation (N=2,018).

Regarding professional status, the largest groups of respondents state that they are full or associate professors, readers or senior researchers (26.6%), or PhD students (24.9%). Assistant professors or lecturers also represent an important percentage (17.2%). Finally, post-doctoral

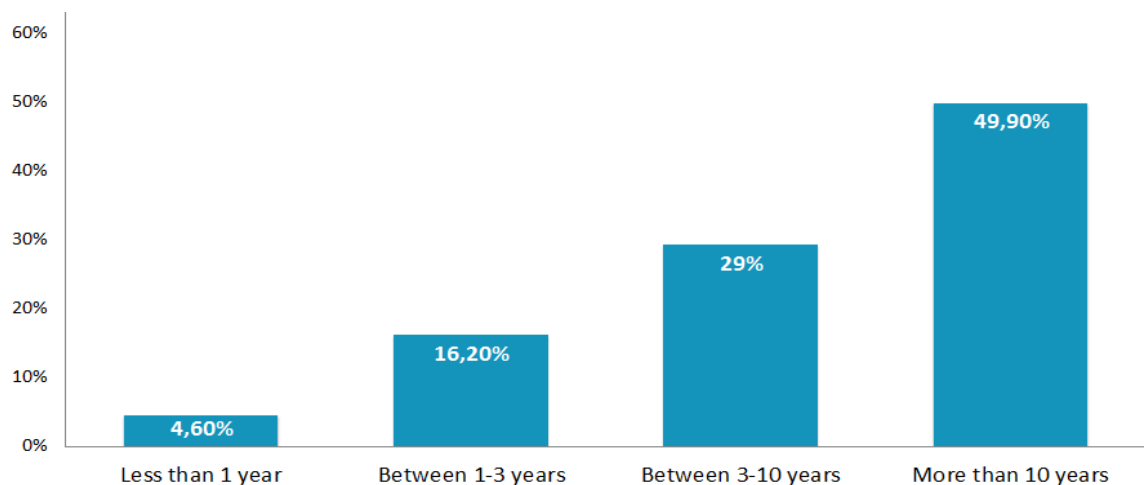
researchers (13.7%), junior or contract-based researchers (10%), master's or equivalent post-graduate degree students (4.3%), and amateur or independent researchers (3.2%) are also represented in the consolidated European dataset (Figure 2.6).



**Figure 2.2** Professional status, consolidated European dataset (N=1,931).

### 2.1.3 Years in research

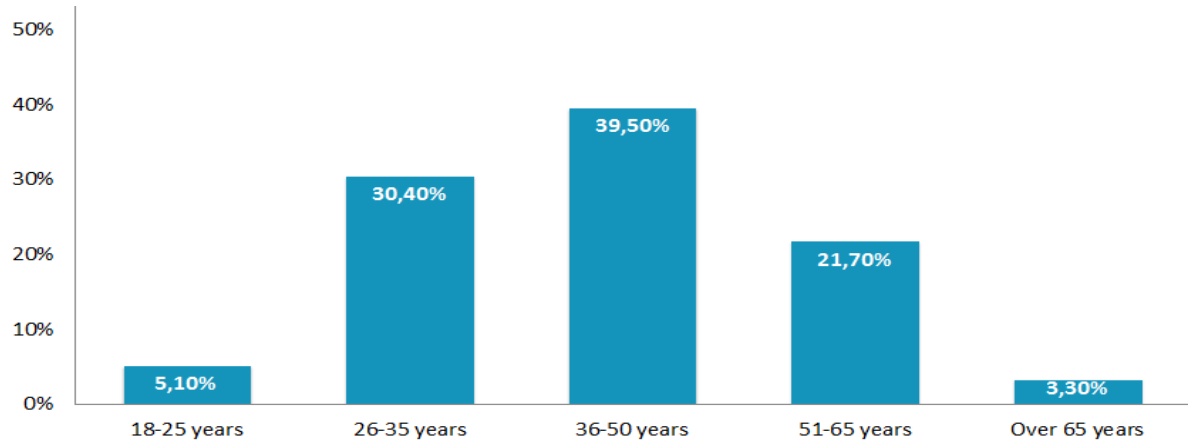
The dataset consists mainly of skilled humanists and social scientists. Half of the respondents (49.9%) identify themselves as experienced researchers working for more than 10 years in research, while 29% work as researchers between 3 and 10 years. Furthermore, 16.2% of the respondents work as researchers between 1 and 3 years, and only 4.6% work as researchers for less than a year (Figure 2.7).



**Figure 2.7** Years in research, consolidated European dataset (N=2,164).

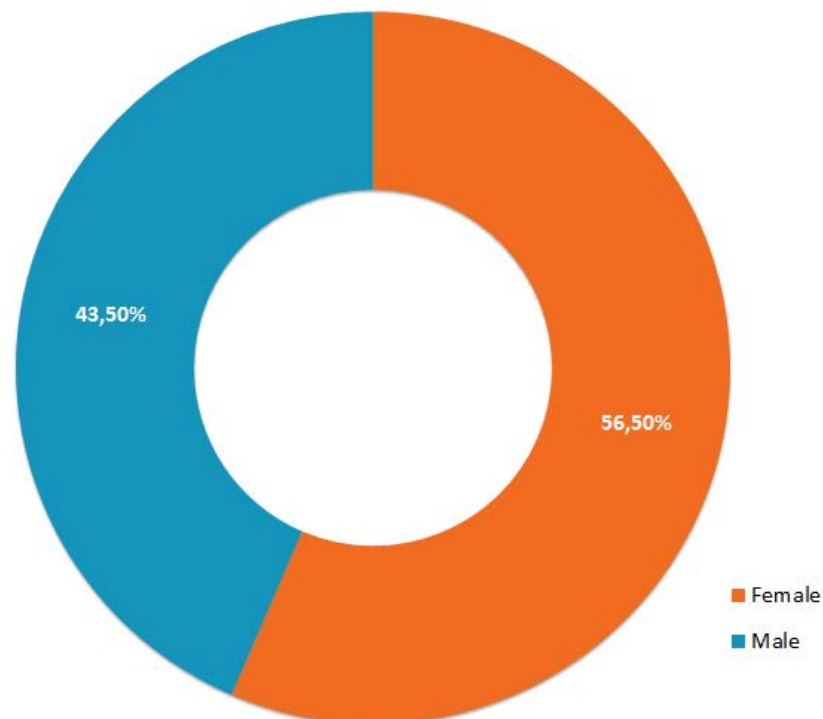
### 2.1.4 Age and gender

The largest age group of respondents are between 36 and 50 years old (39.5%). 30.4% of the respondents are 26 to 35 years old, 21.7% are between 51 and 65 years, while 5.1% of them are between 18 and 25, and 3.3% are over 66 years (Figure 2.8).



**Figure 2.8** Age of respondents, consolidated European dataset (N=2,169).

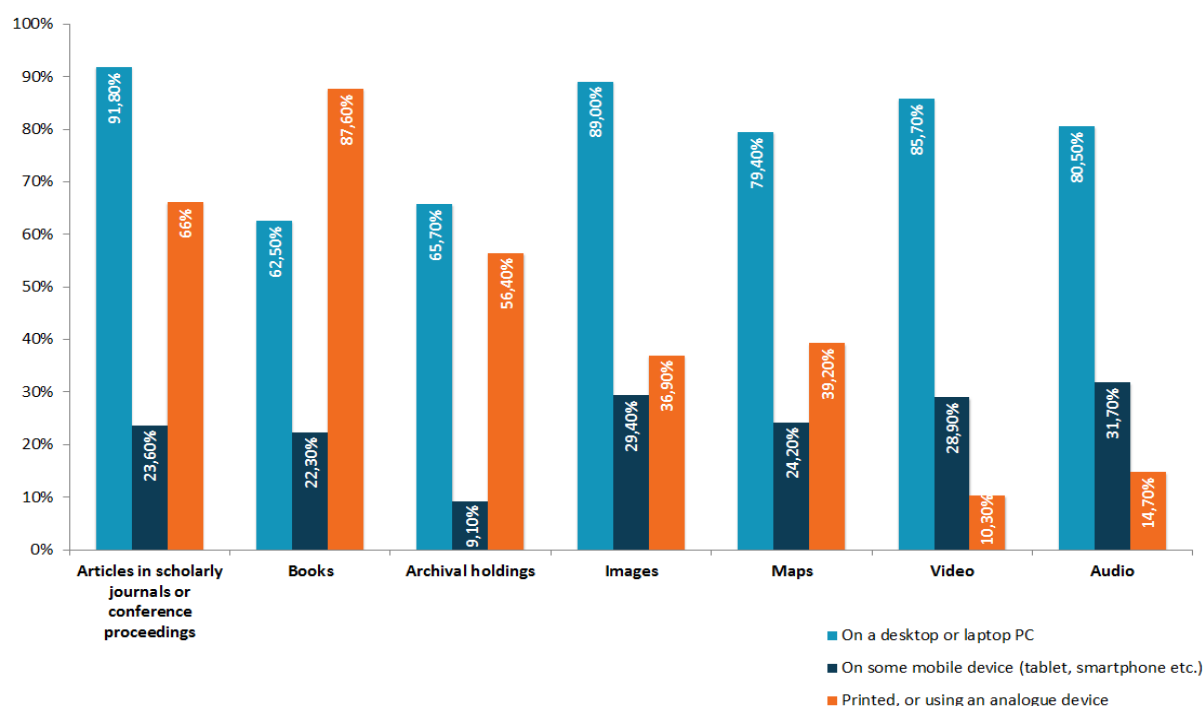
Finally, 56.5% of the respondents are in the consolidated European dataset identified themselves as female, and 43.5% as male (Figure 2.9).



**Figure 2.9.** Gender, consolidated European dataset (N=2,177).

## 2.2 Research materials and digital access

In order to assess the use of digital media and devices in the course of scholarly work and to compare it with the use of printed material or analogue devices respondents were invited to state where they consult materials such as articles in scholarly journals or conference proceedings, books, archival holdings, images, maps, video and audio. Respondents were asked if they use a desktop or laptop PC, some mobile device and/or if they use an analogue device to consult the abovementioned materials. Multiple responses were allowed (Figure 2.10).



**Figure 2.10** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research materials (N=2,177).

### 2.2.1 Articles in scholarly journals or conference proceedings

Most respondents (91.8%) stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 23.6% stated that they use a mobile device for the same purpose, while 66% stated that they use printed text or an analogue device.

### 2.2.2 Books

Books on the other hand are primarily consulted in printed or analogue form (87.6%), while 62.5% of the respondents stated that they use a desktop or laptop PC to consult books. This is the only case in which the use of printed/analogue media is greater than the use of a desktop or laptop PC. 22.3% of the respondents stated that they use some mobile device to consult books.

### 2.2.3 Archival holdings

Archival holdings are consulted primarily on a desktop or laptop PC (65.7%), while the use of printed materials or analogue devices is also important (56.4%). The use of mobile devices for consulting archival holdings is smaller than for any other kind of research asset presented in the survey, namely 9.1%.

### 2.2.4 Images

Images are consulted primarily on a desktop or laptop PC (89%), while the use of an analogue device or printed images is not very widespread (36.9%). On the other hand, as many as 29.4% of respondents report using a mobile device to consult images.

### 2.2.5 Maps

79,4 % of respondents in the consolidated European dataset stated that they use a desktop or laptop PC to consult maps. 24.2% stated that they use a mobile device for the same purpose, while 39.2% that they use printed text or analogue media.

### 2.2.6 Video

Most respondents stated that they consult video on a desktop or laptop PC (85.7%) while 28.9% stated that they use a mobile device for the same purpose. Only 10.3% of the respondents stated that they consult video using an analogue device.

### 2.2.7 Audio

Most respondents (80.5%) stated that they use a desktop or laptop PC to consult some audio related to their research. 31.7% stated that they use a mobile device for the same purpose, while 14.7% state that they use an analogue device.

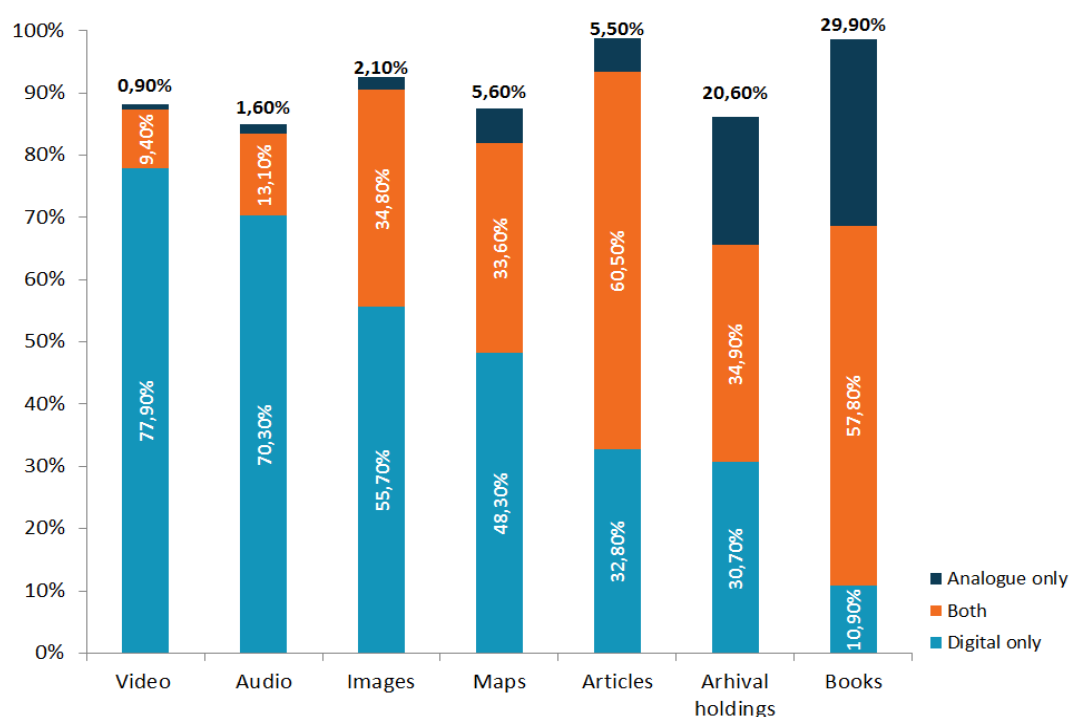
In sum, the responses to this set of questions show that the use of digital devices (mobile or not) is widespread. Except for books, all other materials are consulted primarily in digital form, especially images, maps, video and audio which present the lowest rates of non-digital use (Table 2.1).

**Table 2.1.** Digital and analogue access to resources, consolidated European dataset.

Predominantly digital access	Mixed access	Predominantly analogue access
Images	Articles in scholarly journals or conference proceedings	Books
Maps	Archival holdings	
Video		
Audio		

But to what extent do respondents use exclusively analogue, exclusively digital, or both means of access to consult research materials? To answer this question, the data for this question

was recoded into three categories: those who stated that they only use some digital device to consult research materials, those who stated that they use both digital and an analogue device, and finally those who stated that they use only an analogue device. The findings suggest that the exclusive use of a digital or an analogue device to consult research materials, or the combined use of both, depends largely on the type of materials consulted (Figure 2.21). Specifically, video, audio and images are consulted by the majority of respondents exclusively through a digital device. Articles and books, on the other hand, are consulted by the majority of respondents in both digital and analogue form, while the mode of consultation of archival holdings and maps is rather mixed – indicating, possibly, a difference in the kind of maps or archival holdings, or even in the purpose and approach to accessing them for research purposes, by those who responded differently to this question. In sum, users appear to make complex choices regarding the use of means they use, depending largely on the kind of material they have at hand but possibly also additional factors, a finding that calls for further investigation.

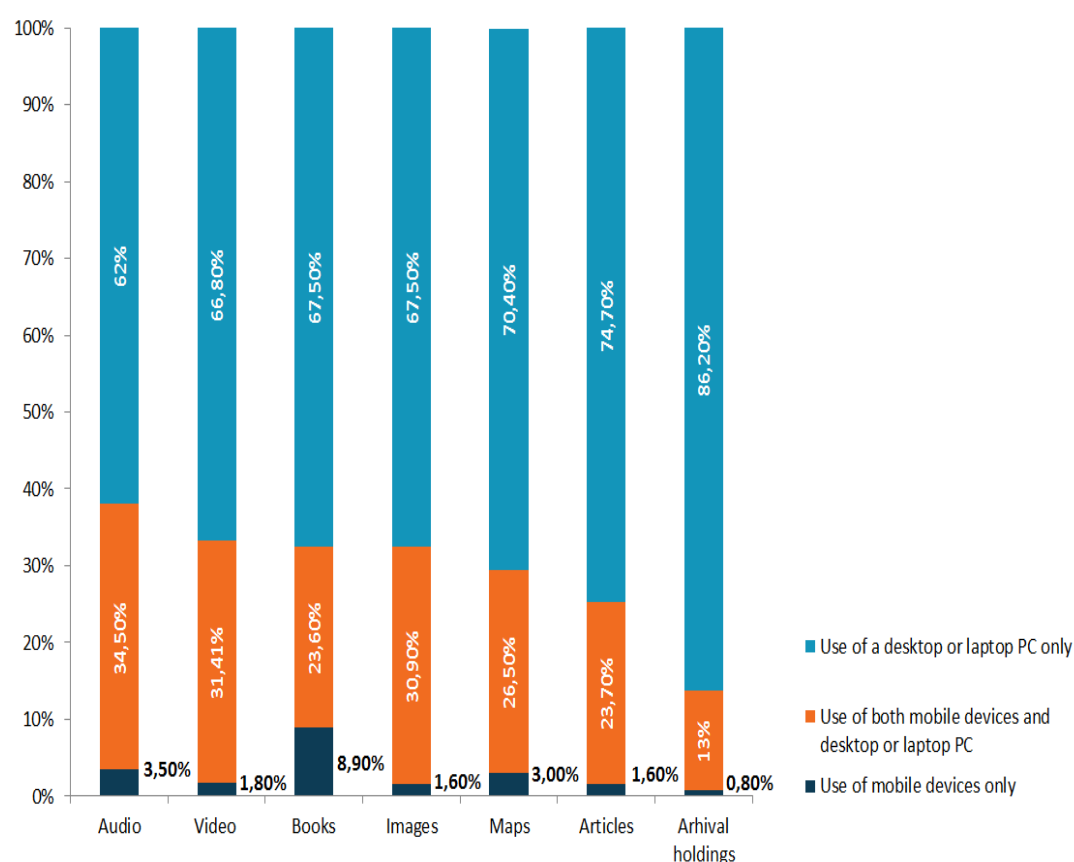


**Figure 2.11** Frequency of use of analogue, digital or both analogue and digital media to consult research materials, consolidated European dataset.

To explore further the use of different kinds of digital devices to consult research materials, respondents who stated that they use some digital device were classified into three categories for each kind of material considered: those who stated that they only use a desktop PC, those who stated that they only use a mobile device and those who stated that they use both a desktop PC and a mobile device. A comparison of the data presented in Figure 2.12 shows that for all kinds of materials most of the respondents who use some digital device use a desktop or laptop PC only. The percentage of those who combine the use of a desktop or laptop PC with



the use of some mobile device is, however, noteworthy, as up to 34.5% state that they use both kinds of digital devices to consult research materials. Finally, very few respondents state that they use only mobile devices to consult any kind of research materials; surprisingly, books appear to be consulted exclusively on a mobile device by as many as 8.9% of respondents who use some digital device for that purpose, more than double the percentage of any other kind of research materials. In conclusion, it appears that while digital access of all kinds of research materials for the vast majority of researchers occurs via a desktop or laptop PC, mobile devices such as tablets and smartphones are also used for digital access by as many as approximately one out of three researchers for images, video, or audio, and by as many as one out of four researchers for books, articles, or maps.

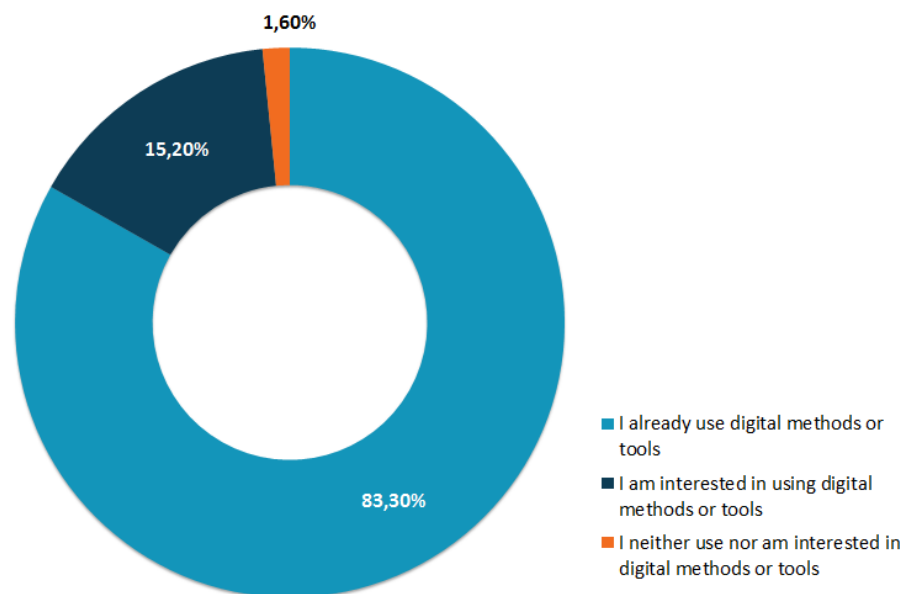


**Figure 2.12** Frequency of use of digital devices to consult research materials, consolidated European dataset.

## 2.3 Scholarly activities, methods, and tools

Virtually all respondents stated that they already use or are interested in using digital methods or tools as they conduct their research. More specifically, most respondents (83.3%) answered that they already use digital methods or tools for their research, 15.2% stated that they are interested in using digital methods or tools, while an almost negligible 1.6% said that they neither use nor are interested in using digital methods or tools (Figure 2.13). This indicates

that the dataset consists of mostly digitally enabled researchers in the humanities and social sciences, as well as of a smaller number of researchers who are interested in the use of digital methods or tools.

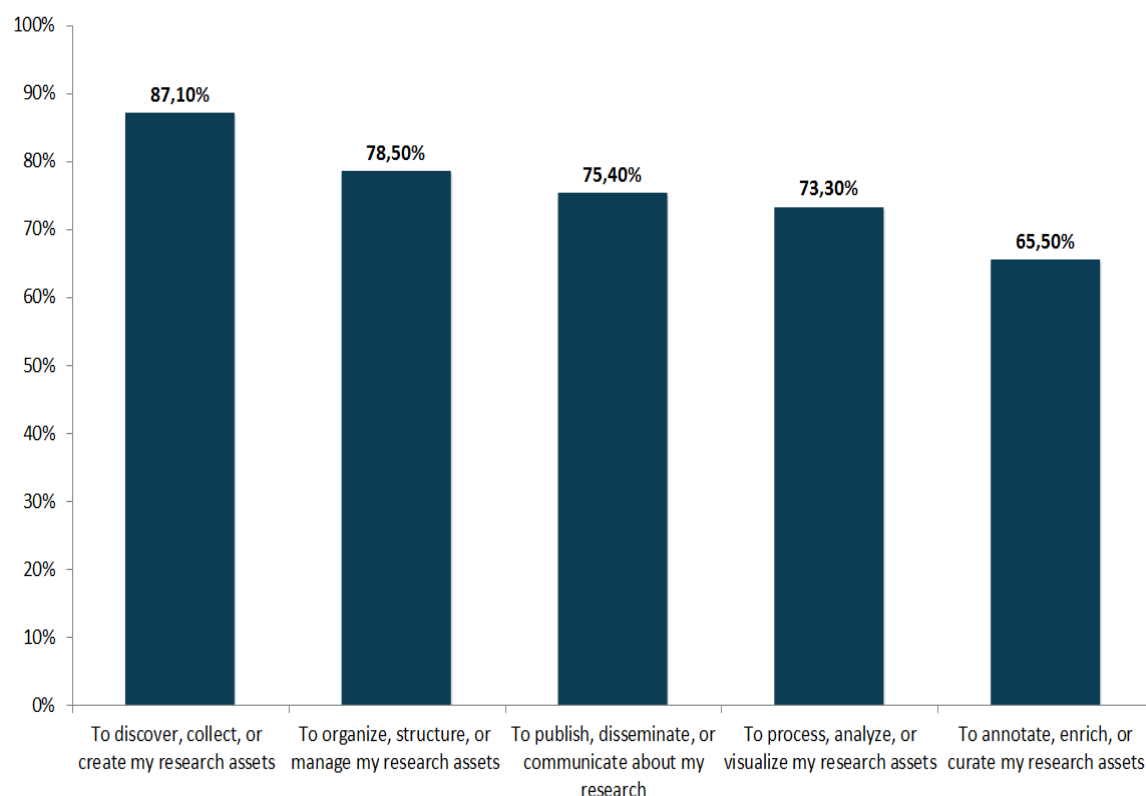


**Figure 2.13** Use of digital methods or tools, consolidated European dataset (N=2,163).

### 2.3.1 Purpose of use of digital methods or tools

Respondents who stated that they already use digital methods or tools were then asked, in a filter question, to state for what purpose they use them. Respondents were allowed to enter multiple responses among the following five purposes, corresponding to different phases of the scholarly work lifecycle: (1) to discover, collect or create research assets, (2) to organise, structure or manage research assets, (3) to annotate, enrich or curate research assets, (4) to process, analyse, or visualise research assets and (5) to publish, disseminate or communicate about their research.

The data in Figure 2.14 indicate that all proposed purposes are considered relevant and researchers who make use of digital methods or tools use them in all phases of the scholarly work lifecycle. Nevertheless, the greatest percentage of respondents, 87.1%, reported that they use digital methods and tools for discovering, collecting, or creating research assets. In order of frequency, 78.5% of the respondents state that they use digital methods or tools to organise, structure or annotate their research assets, 75.4% state that they use them to publish, disseminate or communicate about their research, 73.3% state that they use them to process, analyse or visualise research assets, and 65.5% state that they use them to annotate, enrich or curate research assets.



**Figure 2.14** Purpose of use of digital methods or tools, consolidated European dataset (N=2,176).

### 2.3.2 Specific digital methods and tools reported

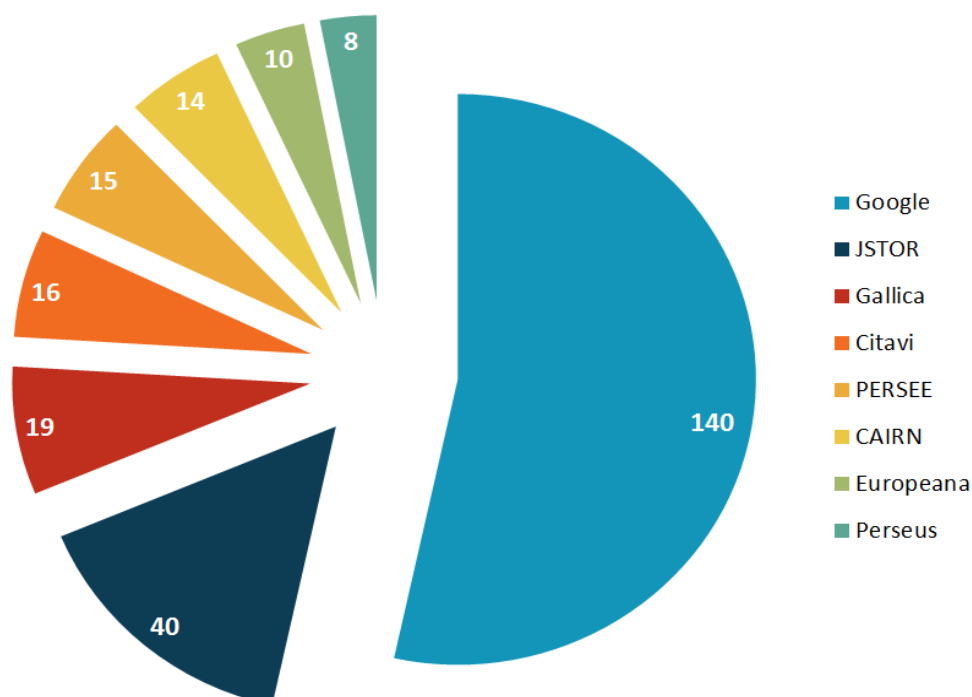
Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on how specifically respondents use, or are interested in using, digital methods or tools. Responses were gathered in the language in which the survey was disseminated in each country, and were all subsequently translated into English. Subsequently, the data was analysed using word frequency and concordance tests.

All in all, 1,543 respondents (70.78% of the European dataset) offered information on digital methods and tools they use. To assist interpretation of findings, responses were categorized firstly according to the specific function or research activity type they refer to, and secondly according to the purpose or phase of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise, structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; and, (e) to publish, disseminate or communicate about research. The presentation of results follows this classification.

## I use online digital libraries to find new articles and books, and to access articles, books, and image archives...

### 2.3.2.1 To discover, collect or create research assets

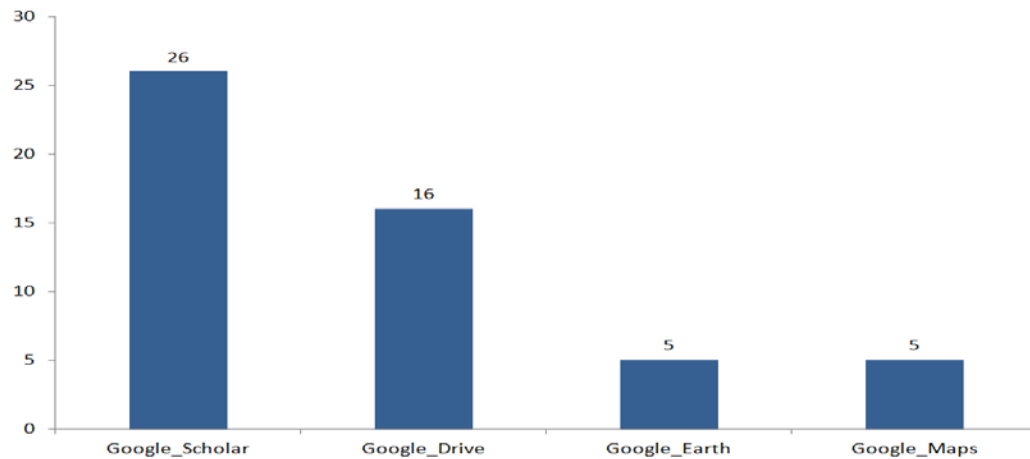
Respondents mention various online services they use to discover, collect, or create research materials. Services reported more than five times include 'Google', which we assume to mean the *Google* search engine (140 responses, or 9.07% of those who offered information on digital methods and tools they use), as well as diverse research-oriented digital libraries of primary and secondary sources, namely, *JSTOR* (40 times), *Gallica* (19), *Persée* (15), *Cairn* (14), *Europeana* (10) and *Perseus* (8), and the citation management/source organisation software *Citavi* (16) (Figure 2.15).



**Figure 2.15** Spontaneous references to services or tools for discovering, collecting or creating research assets, consolidated European dataset.

We can safely assume that the 9.1% of respondents mentioning *Google* is a gross under-estimation of those who actually use the popular search engine: indeed, it would not be surprising if respondents assumed that the question concerns other than the routine use of such a ubiquitous tool. The same explanation may account for the very occasional mention of applications such as *Microsoft Word*, or the *Chrome* and *Firefox* browsers which, on the contrary, we may assume are part of the routinised and thus invisible toolbox of almost all researchers. We

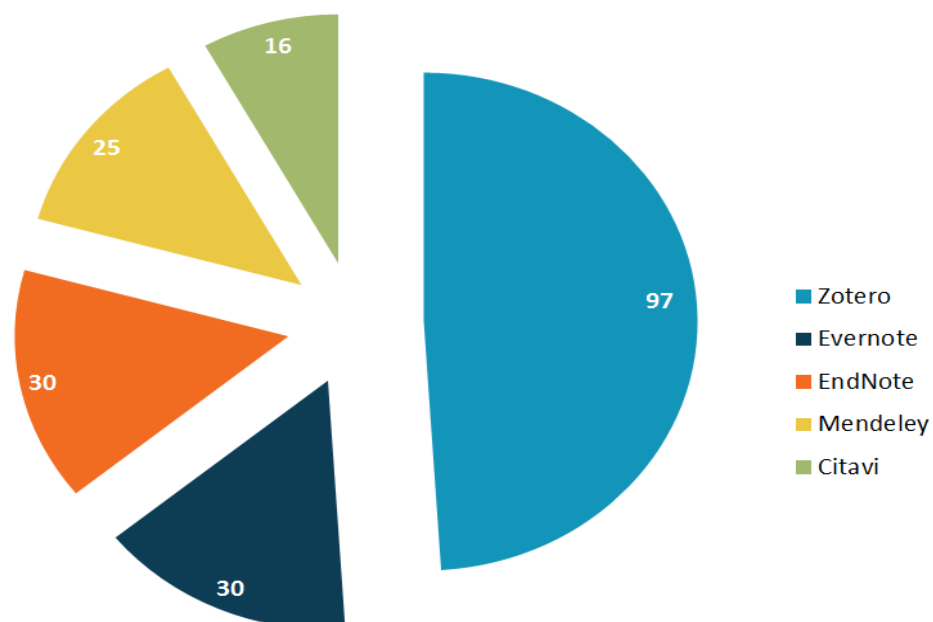
therefore report counts rather than percentages as part of the presentation of results in this open question, as the latter could be misleading. Nevertheless, apart from *Google*, respondents mentioned repeatedly other services in the Google ecosystem, i.e., *Google Scholar* (26 mentions), *Google Drive* (16), *Google Earth* (5), and *Google Maps* (5) (Figure 2.16).



**Figure 2.16** Spontaneous references to Google services, consolidated European dataset.

### 2.3.2.2 To organise, structure or manage research assets

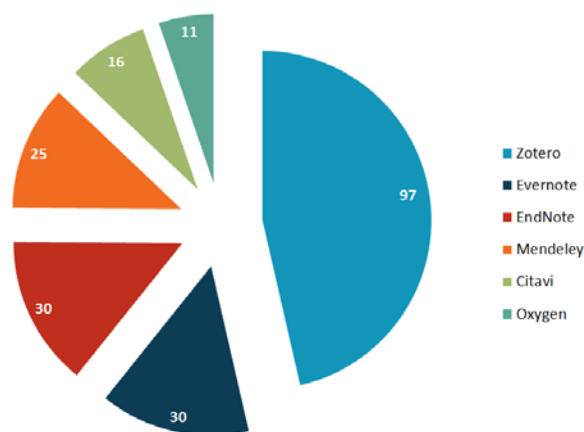
Various services and tools used for organising, structuring, and managing research assets are also mentioned spontaneously by respondents. Of them, *Zotero* is most frequently mentioned (97 times), followed by *Evernote* (30) and *EndNote* (30), *Mendeley* (25), and *Citavi* (16) (Figure 2.17).



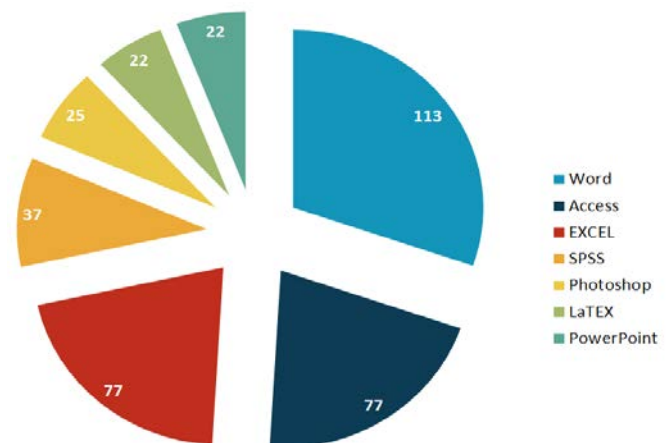
**Figure 2.17** Spontaneous references to services or tools for organising, structuring, or managing research assets, consolidated European dataset.

### 2.3.2.3 To annotate, enrich or curate research assets

Services mentioned by respondents, such as *Zotero* (97 mentions), *Evernote* (30) and *EndNote* (30), *Mendeley* (25), *Citavi* (16), and the *Oxygen XML* editor (11) may be used to annotate, enrich and curate research assets (Figure 2.18).



**Figure 2.18** Spontaneous references to services or tools for annotating, enriching or curating research assets, consolidated European dataset.



**Figure 2.19** Spontaneous references to services or tools for processing, analysing or visualising research assets, consolidated European dataset.

### 2.3.2.4 To process, analyse, or visualise research assets

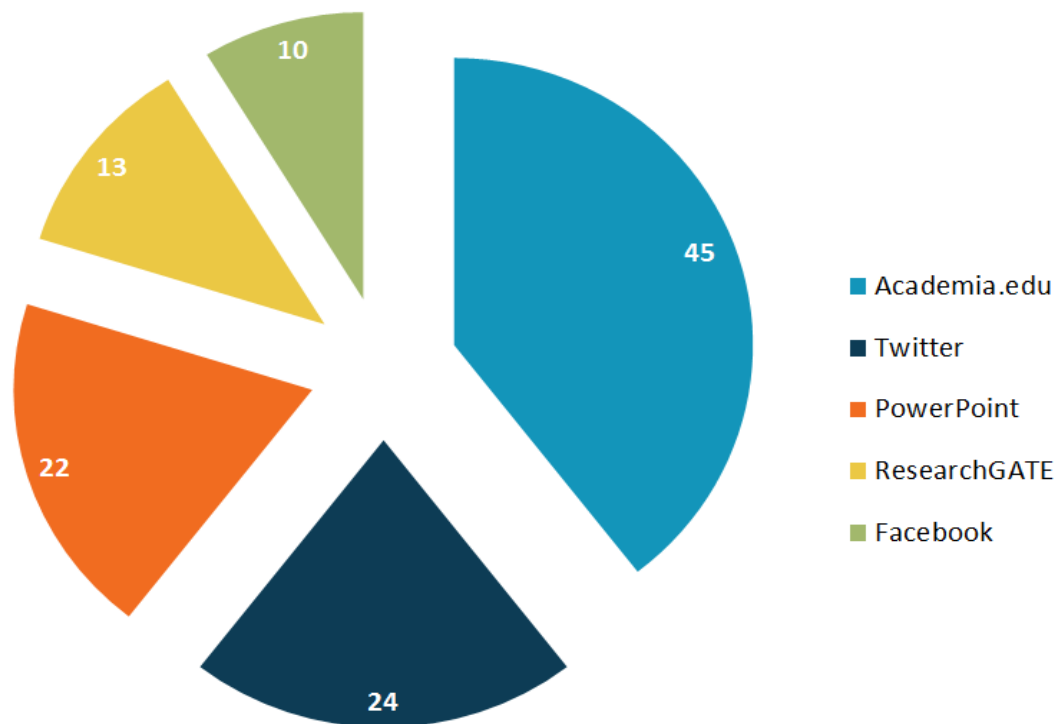
Among software used to process, analyse or visualise research assets, respondents mention frequently office suites used to generate text documents, presentations, worksheets, databases, etc. The term ‘word’ (‘word processor’, ‘word processing’, ‘MS Word’) is most commonly used to identify this kind of activity (113 times), as well as the use of specific software. On respondent suggested: ‘I guess Word doesn’t count...’, a fact indicating not just how widespread and taken-for-granted the use of this kind of software is, but also how unreliable these data are to draw conclusions about the frequency of use for tools mentioned. Apart from *Microsoft Word*, the applications mentioned more frequently are also components of *Microsoft Office*: more specifically, *Microsoft Excel* and *Access* are each mentioned 77 times by survey respondents. *IBM Statistical Package for the Social Sciences (SPSS)* is also often mentioned comparatively often (37 mentions), indicating use of statistical analysis tools by researchers who responded to the survey. Other software applications mentioned by name relatively often include *Photoshop* (25 mentions), *LaTeX* (25) and *Microsoft PowerPoint* (22) (Figure 2.19).



### 2.3.2.5 To publish, disseminate, or communicate one's research

Respondents also mention that they use particular social networking websites for scholarly purposes. Of those, *Academia* is the one mentioned most frequently, followed by *Twitter*, *Facebook*, and *ResearchGate*. *Microsoft PowerPoint* was also mentioned as an application to publish and disseminate research (Figure 2.20).

All in all, the answers to this open question reveal that many of the digitally enabled humanists who participated in the survey mention using in the course of their research both specialized software, tools, and services, as well as generic technologies. It is noteworthy that the most commonly used word in answers to this question is 'database', mentioned 415 times *in toto*. Respondents also mention that they use for their research technologies such as *GIS* (78 occurrences), *XML* (51), *OCR* (19), and *TEI* (28). The term 'blog' is also frequently mentioned (44 times), as many respondents state that they maintain a personal research blog to discuss and disseminate their work.



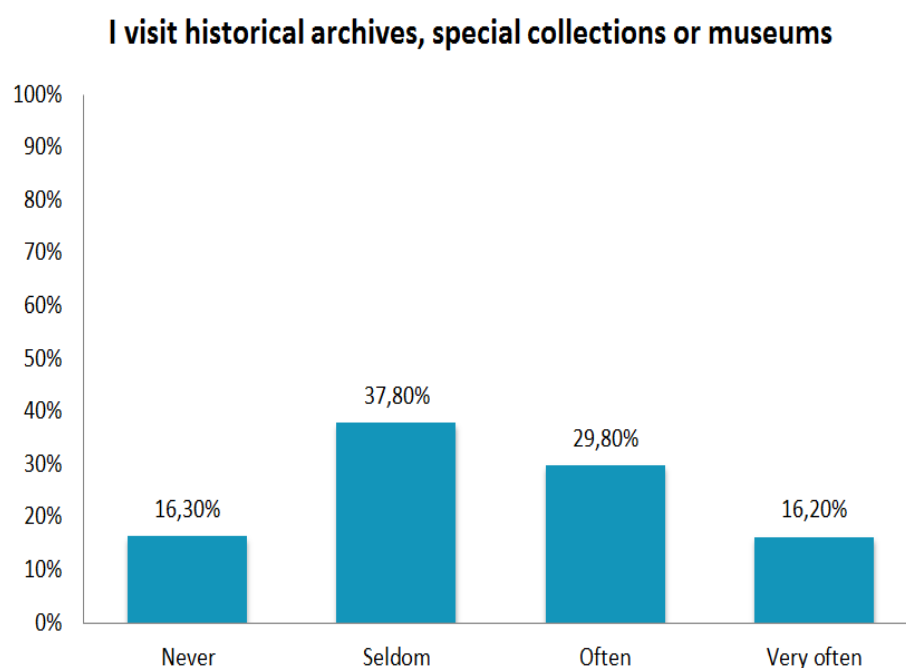
**Figure 2.20** Spontaneous references to services or tools for publishing, disseminating or communicating about research assets, consolidated European dataset.

### 2.3.3 Selected scholarly activities in focus

Respondents were asked if they engage in specific activities considered to be of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organise research assets, (e) using their own keyword list or thesaurus to organise research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or discussion forum. This section summarizes answers to these questions by respondents in the consolidated European dataset.

#### 2.3.3.1 Visiting historical archives, special collections, or museums

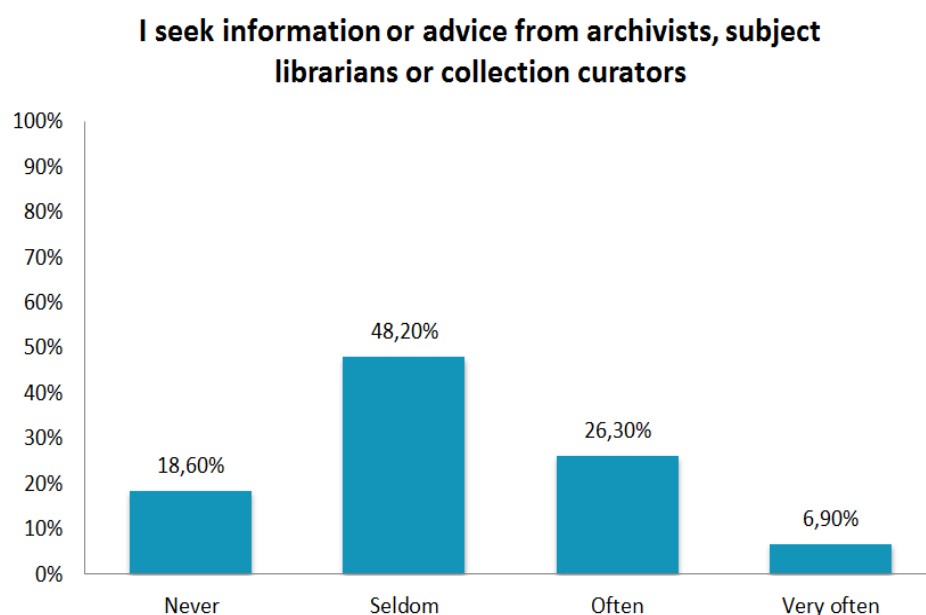
16.3% of the respondents stated that they never visit historical archives, special collections, or museums, 37.8% stated that they seldom visit them, 29.8% stated that they visit them often and 16.2% stated that they visit them very often (Figure 2.21).



**Figure 2.21** Scholarly activities - Frequency of visiting historical archives, special collections, or museums, consolidated European dataset (N=2,144).

#### 2.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

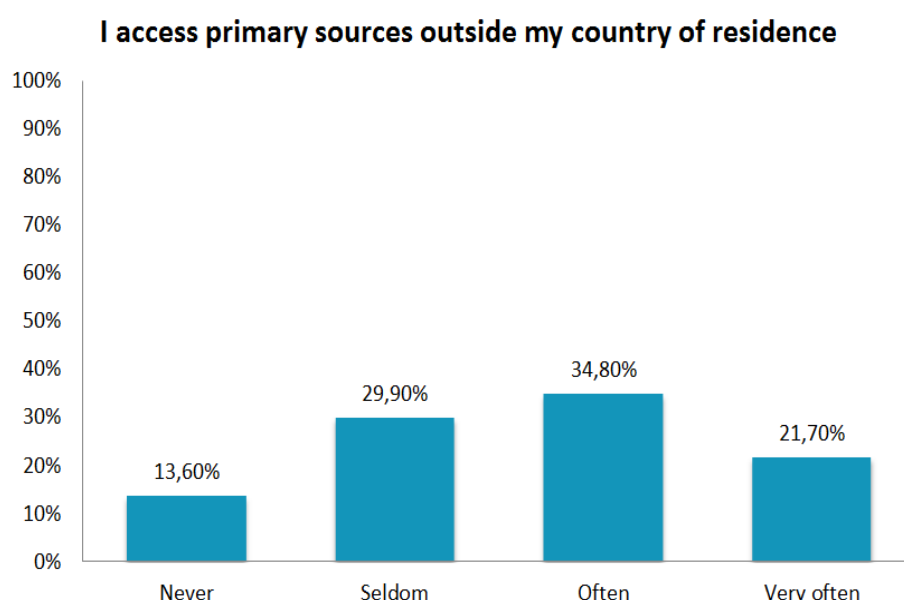
18.6% of the respondents stated that they never seek information or advice from archivists, subject librarians, or collection curators, 48.2% stated that they seldom seek advice, 26.3% stated that they often seek advice and 6.9% stated that they very often seek information or advice from archivists, subject librarians, or collection curators (Figure 2.22).



**Figure 2.22** Scholarly activities - Frequency of seeking information from archivists, subject librarians, or collection curators, consolidated European dataset (N=2,138).

### 2.3.3.3 Accessing primary sources outside one's country of residence

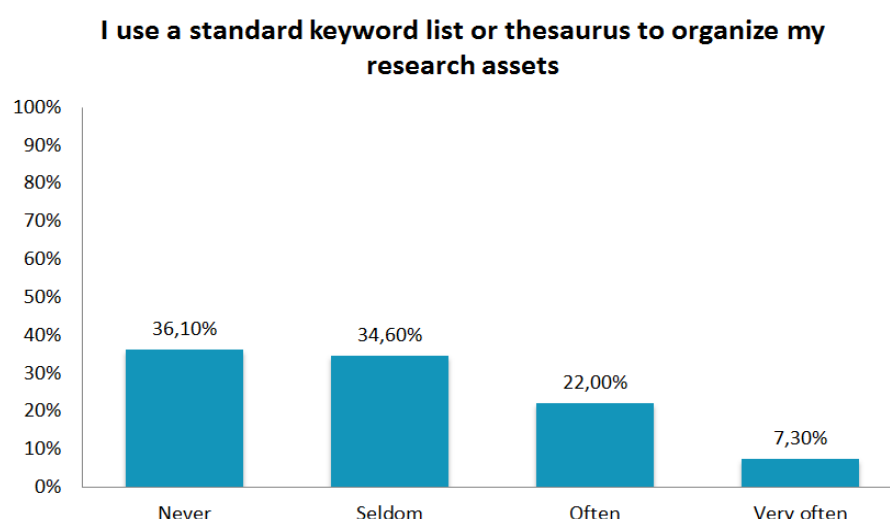
13.6% of the respondents stated that they never access primary sources outside their country of residence, 29.9% stated that they seldom access primary sources outside their country of residence, 34.8% stated that they often access primary sources outside their country of residence and 21.7% stated that they very often access primary sources outside their country of residence (Figure 2.23).



**Figure 2.23** Scholarly activities – Frequency of accessing primary sources outside one's country of residence, consolidated European dataset (N=2,136).

### 2.3.3.4 Using a standard keyword list or thesaurus to organise research assets

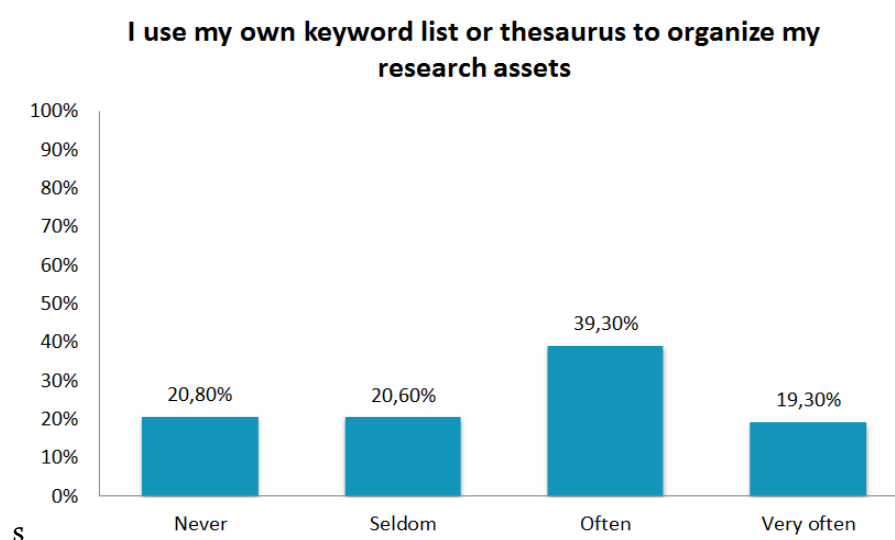
36.1% of all respondents state that they never use a standard keyword list or thesaurus to organise research assets, 34.6% state that they seldom use a standard keyword list or thesaurus, 22% state that they often use a standard keyword list or thesaurus and 7.3% state that they very often use a standard keyword list or thesaurus to organise research assets (Figure 2.24).



**Figure 2.24** Scholarly activities - Frequency of using a standard keyword list or thesaurus to organise research assets, consolidated European dataset (N=2,112).

### 2.3.3.5 Using one's own keyword list or thesaurus to organise research assets

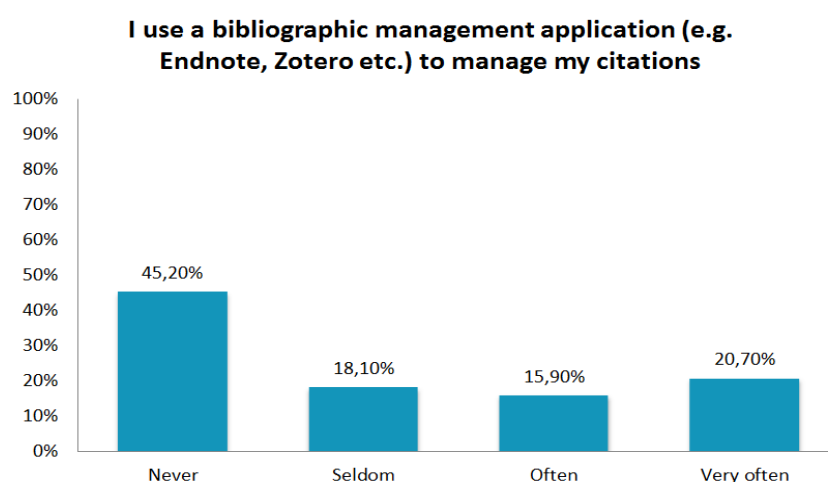
20.8% of all respondents stated that they never use their own keyword list or thesaurus to organise research assets, 20.6% that they seldom use their own keyword list or thesaurus, 39.3% that they often use their own keyword list or thesaurus and 19.3% stated that they very often use their own keyword list or thesaurus to organise research assets (Figure 2.25).



**Figure 2.25** Scholarly activities - Frequency of using one's own keyword list or thesaurus to organise research assets, consolidated European dataset (N=2,108).

### 2.3.3.6 Using a bibliographic management application to manage citations

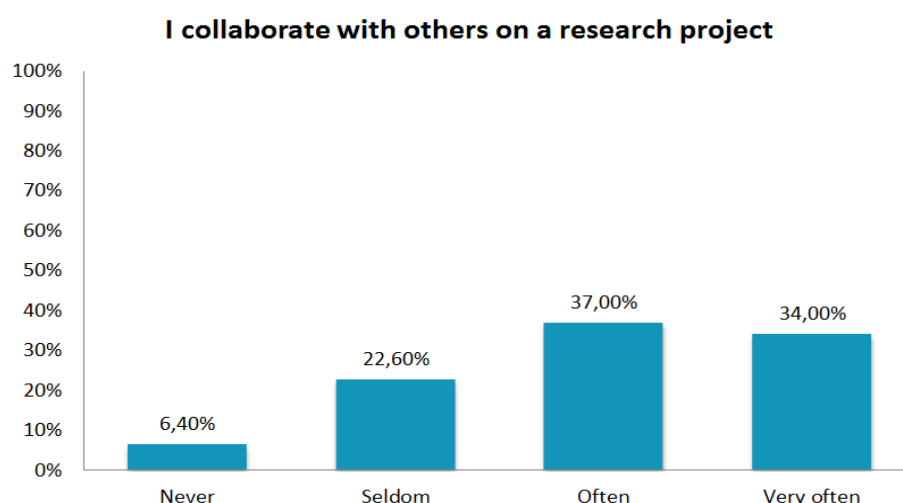
45.2% of the respondents stated that they never use a bibliographic management application (such as Endnote or Zotero) to manage their citations, 18.1% stated that they seldom such an application, 15.9% stated that they often use such an application and 20.7% stated that they use very often a bibliographic management application to manage their citations (Figure 2.26).



**Figure 2.26** Scholarly activities - Frequency of use of bibliographic management applications to manage citations, consolidated European dataset (N=2,116).

### 2.3.3.7 Collaborating with others on a research project

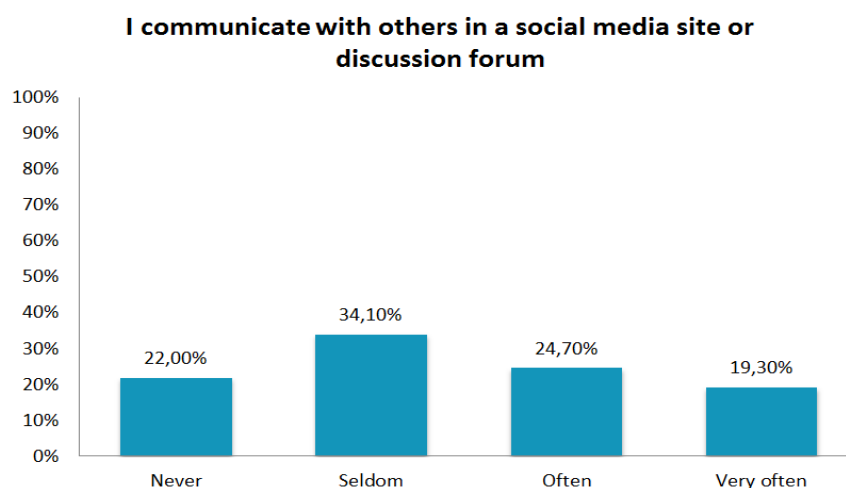
6.4% of the respondents stated that they never collaborate with others on a research project, 22.6% stated that they seldom collaborate with others, 37% stated that they often collaborate with others and 34% stated that they use collaborate with others very often (Figure 2.27).



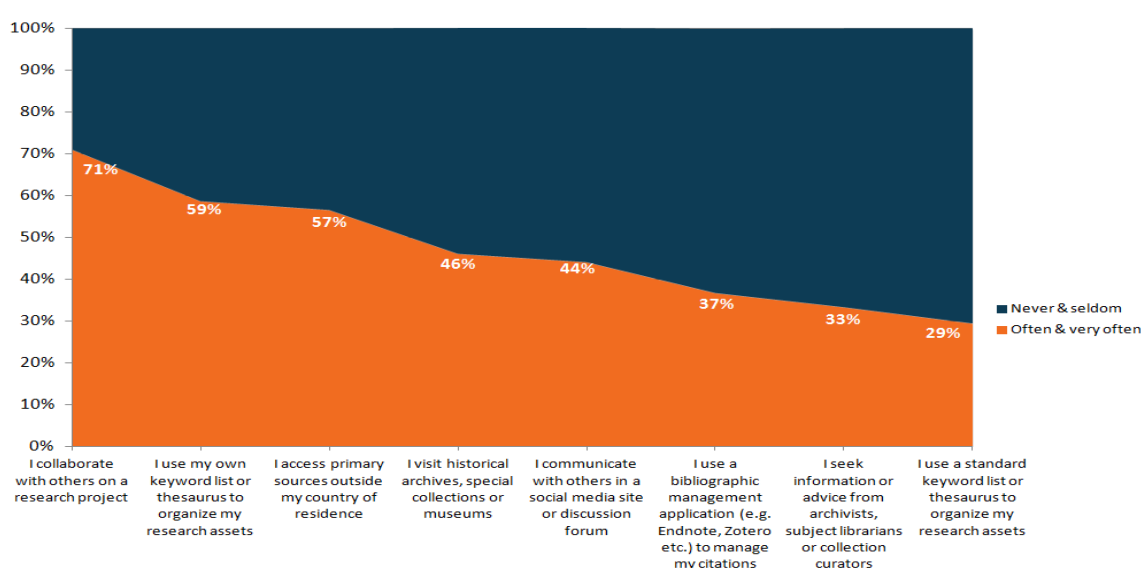
**Figure 2.27** Scholarly activities - Frequency of collaborating with others on a research project, consolidated European dataset (N=2,135).

### 2.3.3.8 Communicating with others in a social media site or discussion forum

22% of the respondents stated that they never communicate with others in a social media site or discussion forum, 34.1% stated that they seldom communicate with others in a social media site or discussion forum, 24.7% stated that they often communicate with others in a social media site or discussion forum and 19.3% stated that they communicate with others in a social media site or discussion forum very often (Figure 2.28).



**Figure 2.28** Scholarly activities - Frequency of communicating with others in a social media site or discussion forum, consolidated European dataset (N=2122).



**Figure 2.29** Selected scholarly practices in focus (multiple measurements), consolidated European dataset.

A comparative account of which of these communication activities are more common may be obtained by combining the counts of respondents who report engaging in them often or very often, and contrasting them with the counts of those who report engaging in them either seldom or never (Figure 2.29). All in all, collaboration with others on a research project seems to

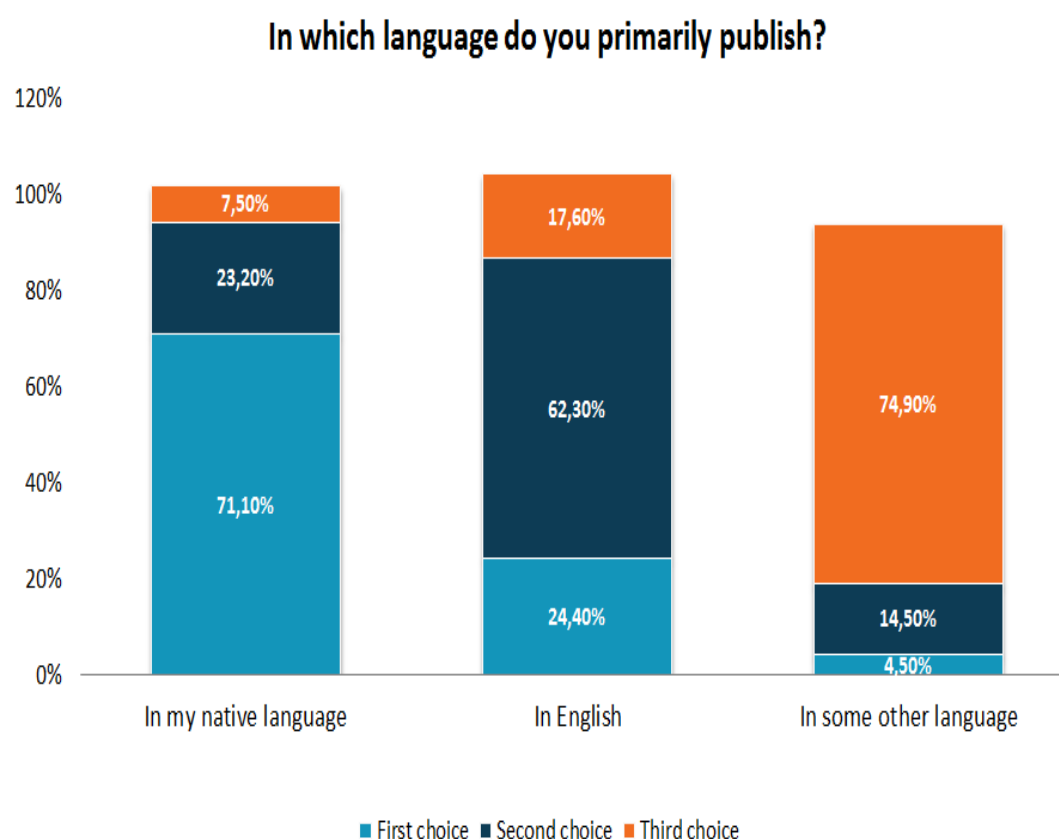


be the most popular activity measured thus, as 71% of the respondents stated that they collaborate often or very often with others. More than half of the respondents stated that they use of one's own keyword list or thesaurus (59%) and the access to primary sources outside one's own country of residence (57%) often or very often. The rest of the activities considered here are less common on the same count. Especially the use of a standard keyword list or thesaurus to organise research materials seems to half as common (29%) as using their own keyword list or thesaurus.

## 2.4 Publication and dissemination of research results

### 2.4.1 Publishing language

Regarding the language they use in order to publish their work, 71.1% of the respondents stated that they primarily publish in their native language, while 23.2% stated that they primarily publish in English. Finally, a meagre 7.5% stated that they primarily publish in some other language (Figure 2.30).

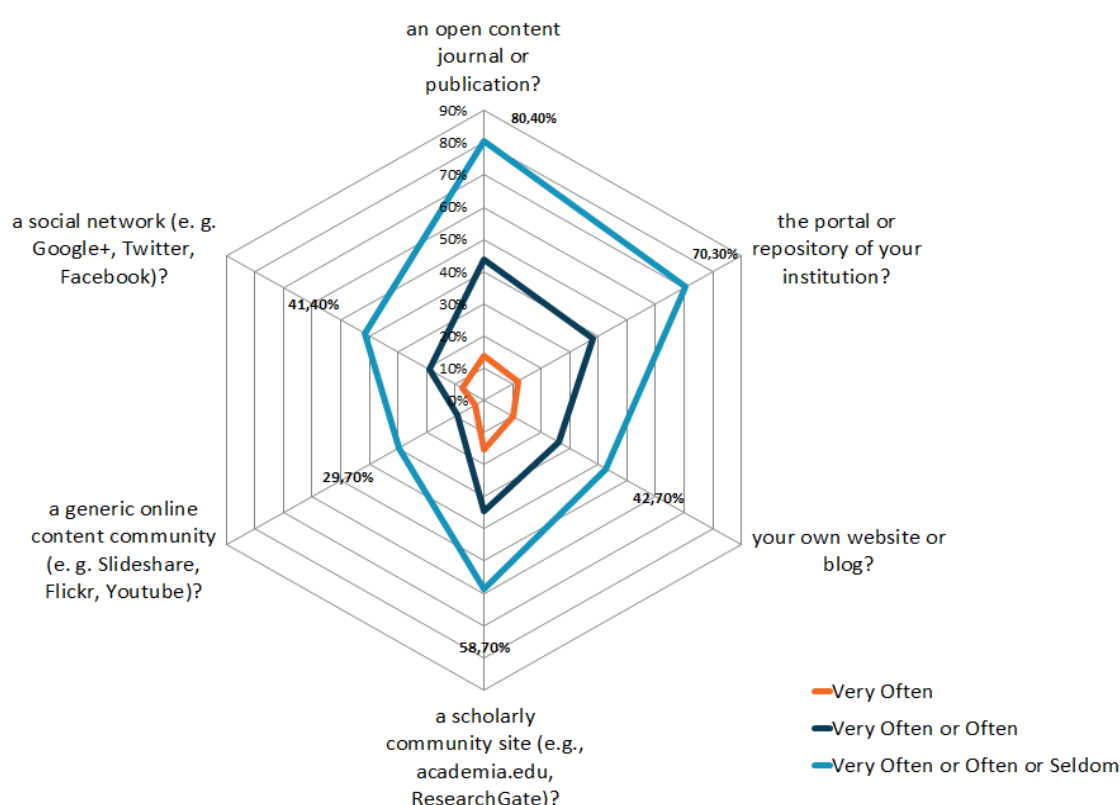


**Figure 2.30** Publishing language, consolidated European dataset (N=1,773).

### 2.4.2 New channels of dissemination of scholarly work

Common dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications), indicated by a statement that is used either very

often or often, seems to be performed more frequently through an open content journal or publication (more than 40% of respondents), followed closely by the portal or repository of the researcher's institution (around 40%), or a scholarly content community site such as *academia.edu* and *ResearchGate* (around 35%). Regular dissemination is performed by fewer survey respondents through their own web site or blog (less than 30%), through a social network (around 20%), or through a generic online content community (around 10%). Nevertheless, the majority of respondents indicate that they have used at least seldom an open journal or publication (80.4%), the portal or repository of their institution (70.3%), or a scholarly content community site such as *academia.edu* and *ResearchGate* (58.7%) to disseminate their work (Figure 2.31).



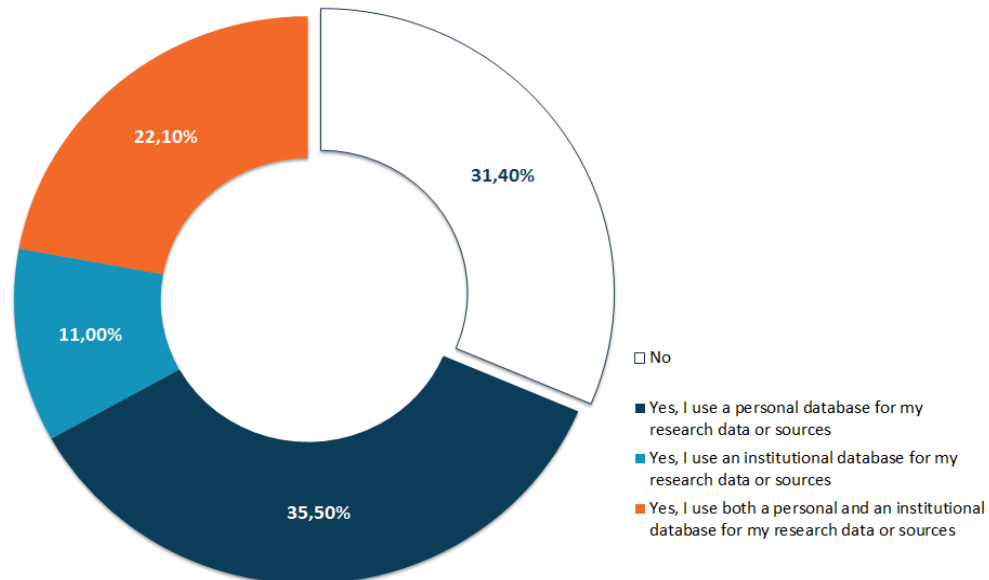
**Figure 2.31** New channels of dissemination of scholarly work, consolidated European dataset (N=2,132).

## 2.5 Software and services

### 2.5.1 Database use

The majority of the respondents state that they use a personal database to manage their research data or sources: of these, 35.5% of the respondents state that they use exclusively a personal database, while an additional 22.1% state that they use both an institutional and a personal database. In addition, 11% of the respondents state that they use exclusively an institutional database to manage their research data or sources; in other words, almost one out of

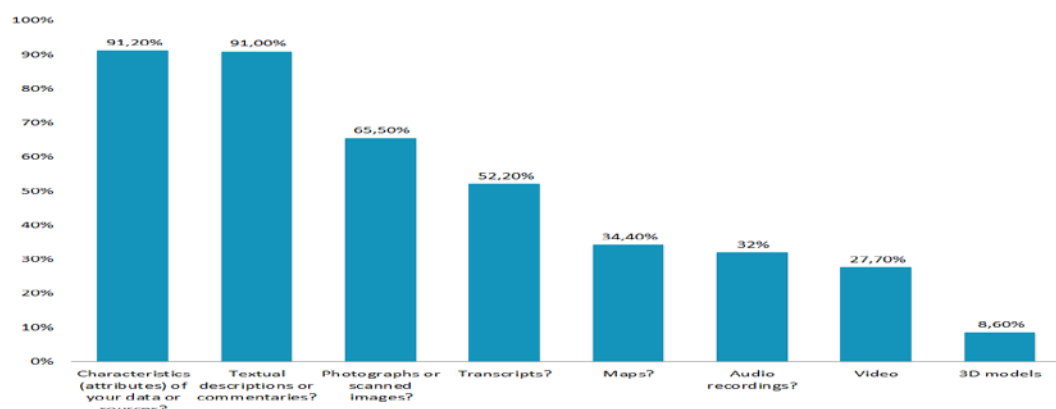
three respondents (31.1%) suggest that they use an institutional database for their research data or sources. On the other hand, 31.4% of the respondents state that they do not use a database at all (Figure 2.32). All in all, more than two out of three respondents make use of a database for their research, either institutional, or personal, or both.



**Figure 2.33** Use of databases, consolidated European dataset (N=2,163).

#### 2.5.1.1.1 Database content scope

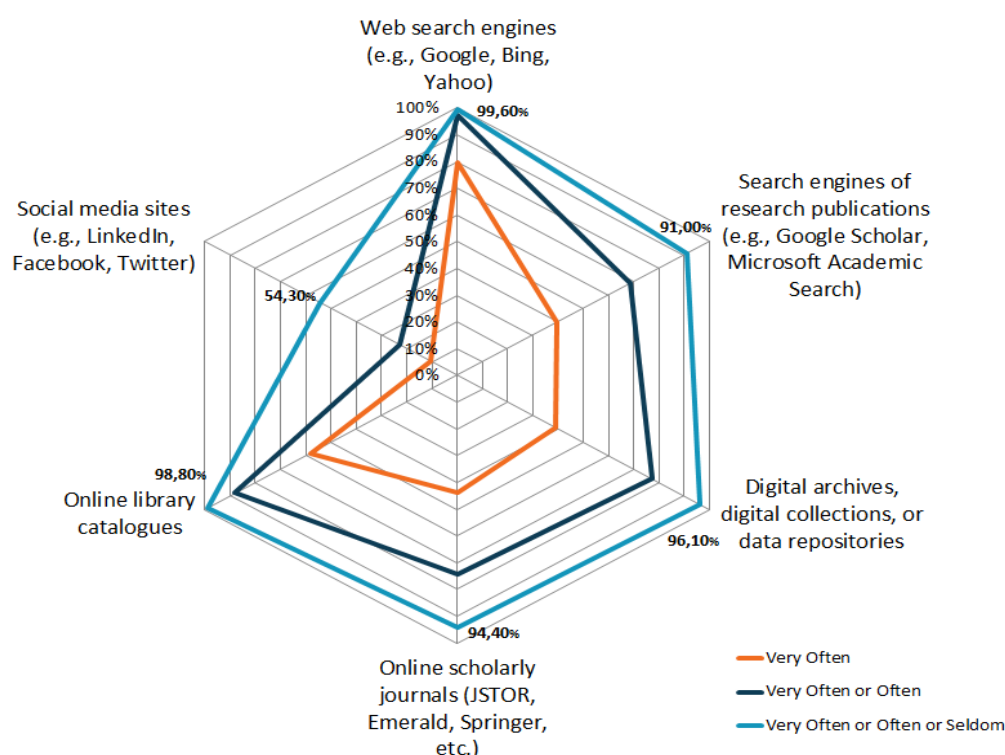
Respondents who stated that they use a database were asked to indicate what kind of content is contained in their database, by selecting those that apply from the following options: (a) characteristics (attributes) of data or sources, (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models. Respondents stated that their databases mainly contain characteristics or attributes of their data or sources (91.2%) and textual descriptions or commentaries (91%). Databases are also used to keep and manage photographs or scanned images (65.5%), and transcripts (52.2%), while databases are used to a lesser extent for maps (34.4%), audio recordings (32%), video (27.2%), and 3D models (8.6%) (Figure 2.34).



**Figure 2.34** Database content (N= 1,452).

### 2.5.2 Online services to access research assets

Respondents were asked to specify how often they use services such as web search engines, search engines of research publications, digital archives, digital collections, or data repositories, online scholarly journals, online library catalogues, and social media sites in the course of scholarly work (Figure 2.35).

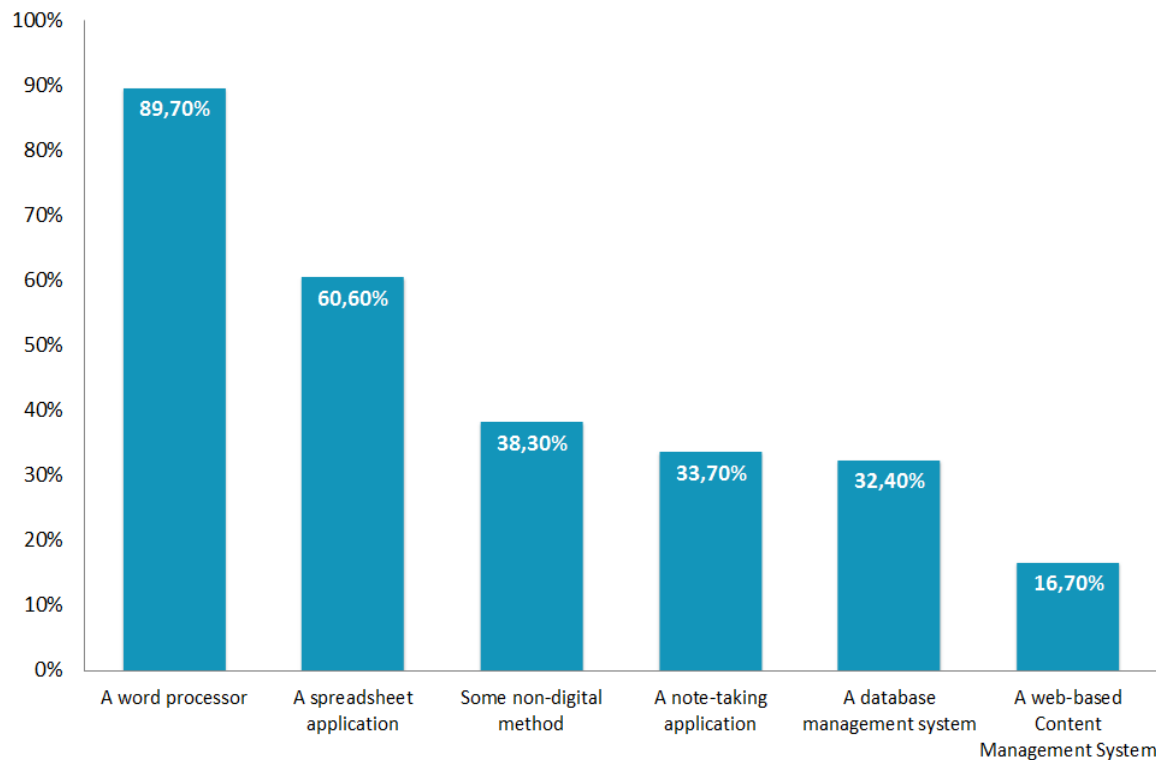
**Figure 2.35** Frequency of use of services, consolidated European dataset (N=1,452).

Regular use of web search engines (indicated by an 'often' or 'very often' response) was predictably reported by almost all survey respondents. About 90% report regular use of online library catalogues, 78% of digital archives, digital collections or data repositories, 75% of online scholarly journals, 60% of search engines of research publications (such as Google Scholars), while only about 25% report regular use of social media sites (e.g., LinkedIn, Facebook, Twitter) for research purposes. Nevertheless, more than half of the respondents report that they use social media sites at least seldom, while all remaining services are used to some extent by the great majority of respondents.

### 2.5.3 Research asset management applications

Respondents were also invited to state if they use a series of applications, namely a word processor, a spreadsheet application, a database management system, a web-based content management system, a note-taking application, and some non-digital method. Most researchers

responded that they use a word processor to store and manage their research assets (89.7%) and spreadsheet applications (60.6%). 38.3% replied that they use some non-digital method, 33.7% that they use a note-taking application, 32.4% that they use a database management system, and 16.7% stated that they use a web-based content management system (Figure 2.36).

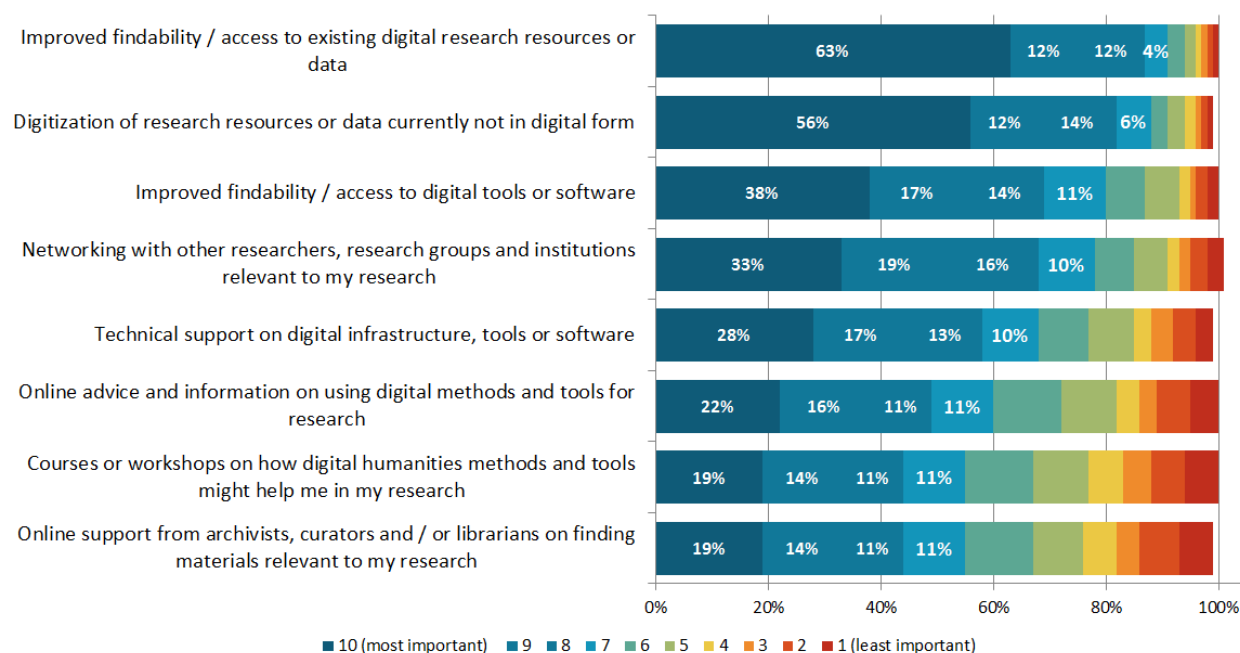


**Figure 2.36** Use of applications to store or manage research assets, , consolidated European dataset (N=2,176).

## 2.6 Assessment of researcher needs

Finally, respondents were asked to rate the importance of a series of statements regarding their needs in a scale from 1 to 10, where 1 is the least important and 10 is the most important. They consider all these needs to be important for their research, as shown in Figure 3.26, as they all have an average score (mean) exceeding 7, and the most common score (mode) is 10 for all of them. Nevertheless, there are also differences in the rating that allow us to categorise them by degree of importance assigned to them by respondents. The improved findability and access to existing digital research resources or data and the digitisation of research resources or data that are not currently in digital form seem to be the most important needs, according to respondents. Access to digital tools or software is also considered to be important by most respondents. Networking with other researchers and the existence of technical support on digital infrastructure tools or software are also considered to be important issues, followed by the existence of online advice and information on using digital methods and tools for research, online support from archivists, curators and/or librarians and courses

or workshops on how digital humanities methods and tools might help in one's research (Figure 2.37).



**Figure 2.37** Importance of needs (N=2,077).

Respondents who had previously stated that they already use or they are interested in using digital methods and tools tend to rate similarly the abovementioned statements, while on the other hand and probably unsurprisingly respondents who had stated that they neither use nor are interested in using digital methods and tools tend to attribute smaller scores to all needs proposed in this assessment question.

## 2.7 Conclusions

Results offer strong evidence of wide-ranging use of both digital resources and digital services or tools amongst European researchers in the human sciences who responded to this survey. This digital turn encompasses various activities related to all steps of the research lifecycle, although digitally-enabled research seems to be more established during some specific phases of the research lifecycle, specifically related to discovering, collecting, or creating research assets, organising, structuring or managing research assets, and publishing, disseminating or communicating about one's research.

The findings of this study suggest that humanists tend to use various means, digital and non-digital, to consult resources for their research. They also use varied approaches to consult the same kind of resources, and often combine digital and non-digital access. Most kinds of resources are primarily consulted using some digital device, except for books which are primarily consulted in printed or analogue form. The findings suggest that some researchers tend to use only digital or only an analogue device to consult specific research materials, while most of them make use of both means. In any case it seems that the choice between analogue



or digital access depends largely on the kind of material consulted. Another issue emerging from the findings of this survey is related to the use of mobile devices, such as tablets and smartphones. Although used to a lesser extent than desktop or laptop PCs, mobile devices are also used to consult all kinds of resources, and especially images, video and audio files. Our findings suggest that about 20%-30% of the respondents make use of mobile devices in the course of their research, generally in combination with other means for accessing research materials. In fact, respondents appear to be making complex choices regarding how they access research materials, depending largely on the kind of materials at hand. This indicates a mixed approach to the use of digital and an analogue device to consult research materials.

As mentioned above, survey results suggest that digitally enabled research is present in all steps of the scholarly research lifecycle, as more than 65% of all respondents state that they use digital methods or tools to perform all relevant activities. Nevertheless, the fact that digital methods or tools are less frequently used for annotating, enriching or curating research assets and for processing, analysing or visualising research assets compared to the other activities indicates that digital services and tools are used more frequently for 'instrumental' rather than purely 'scholarly' activities. Thus the use of digital methods and tools is more intense for the purpose of discovering, collecting, or creating research assets while on the other extreme activities such as annotation, enrichment or curation of research assets are less frequently the purpose of use of digital methods and tools.

In the course of their research, scholars seem to perform some activities more intensively than others. The findings suggest that researchers frequently perform activities such as accessing primary sources outside their country of residence, using their own keyword list or thesaurus to organise research assets and collaborating with others on their research project. On the other hand, they less frequently perform activities such as using a standard keyword list or thesaurus to organise research assets or using a bibliographic management application. An interesting finding regarding the use of keyword lists or thesauri is that respondents largely prefer the use of their own keyword list or thesaurus over a standard one.

The finding of the survey documents the importance of the use of one's native language in publishing and disseminating research work. Most researchers state that they primarily publish in their native language (71.1%), while almost a quarter of them (24.4%) state that they publish their work primarily in English no matter what their native language is. Regarding the channel of dissemination, they disseminate their scholarly work more frequently through an open content journal or publication, the portal or repository of their institution and a commercial scholarly content community site. On the other hand, they seem to make limited use of social networks and generic online content communities for the dissemination of their research.

Another interesting finding of this research is related to the use of databases made by scholars who responded to the survey. Two out of three respondents make use of a database for managing research data and sources, while one third make no use of a database at all. Most of the



former use a personal database, but many use both a personal and an institutional database. Almost all databases (more than 90%) used by respondents contain formatted data attributes, and digitised sources, as well as textual descriptions or commentaries. Moreover, more than half databases contain photographs or scanned images and transcripts.

Regarding the use of digital services, the data suggest that web search engines is by far the most frequently used service, while online library catalogues are also very frequently used. Digital archives, digital collections or data repositories, online scholarly journals and search engines of research publications are used in a lesser extent, while the use of social media sites is very limited for research purposes. As to the use of digital applications, as expected the use of a word processor is widespread amongst scholars in the human sciences. Furthermore, the majority of the respondents also make use of a spreadsheet application. On the other hand, the data suggest that only one third of the respondents use a notetaking application or a database management system and even fewer make use of a web-based content management system (CMS).

Finally, regarding the importance assigned to the proposed list of needs, the findings suggest that respondents to this survey consider all the proposed needs as important. This being said, the results document mainly a need for 'more' and 'more accessible' digital assets, as the needs which gathered the major scores are related to the improved findability and access to existing digital research resources or data and to the need of digitisation of research resources or data which are currently not in digital form. This finding stresses the importance of the availability of digital resources over other needs which are nevertheless also considered to be important, such as access to digital tools or software, networking with others, technical support, online advice and support, courses, etc.



# Chapter 3

## Country profile: Austria

*Gerlinde Schneider & Walter Scholger*

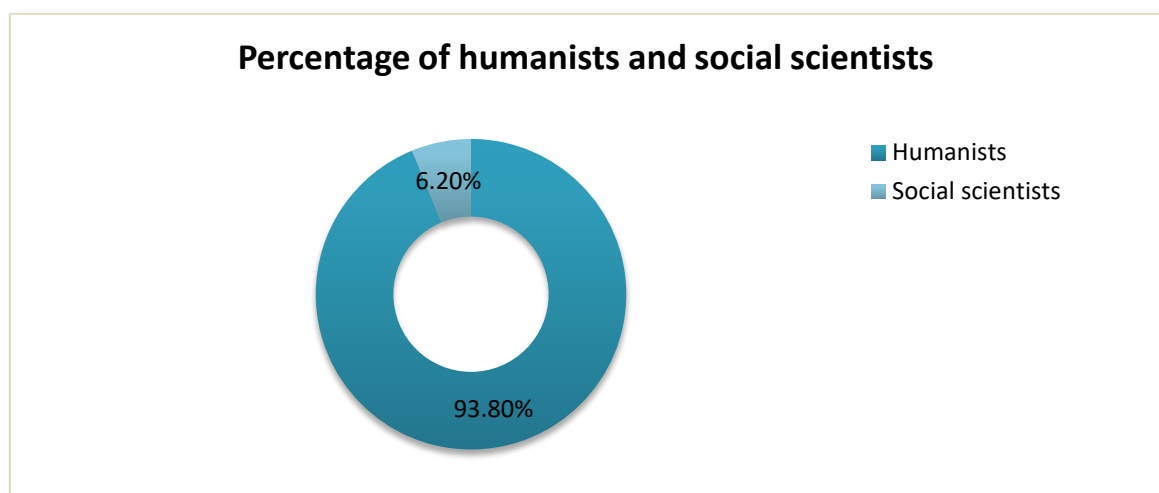
### 3.1 Introduction and respondent profile

The Austrian dataset consists of 162 complete responses, comprising answers from researchers working in the human sciences who reside in Austria.

The dataset is categorised according to features such as discipline, professional affiliation and status as well as years in research, age, and gender.

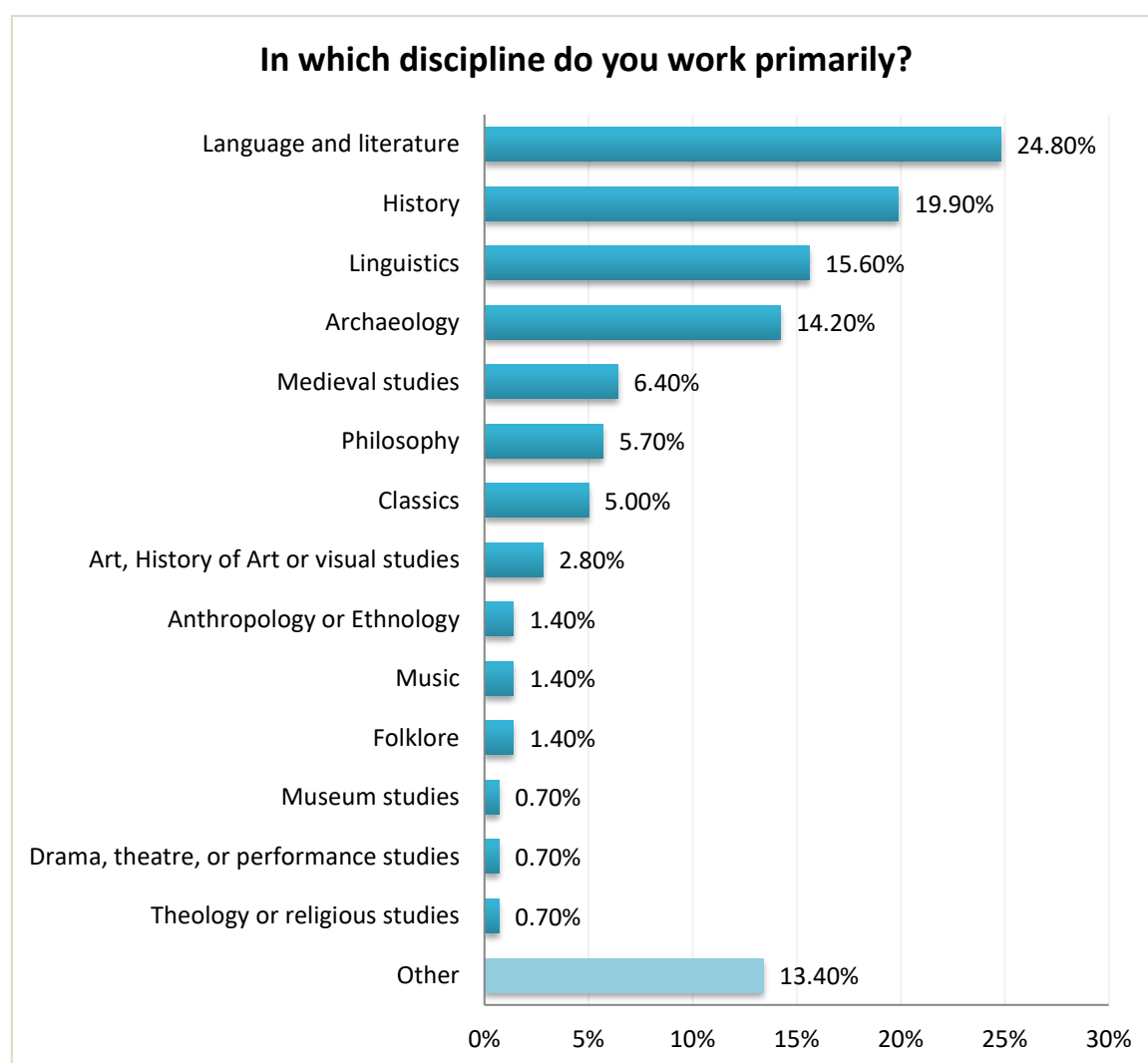
#### 3.1.1 Disciplines

As the survey, in its design and dissemination strategies, was primarily directed at researchers in the humanities, most respondents (93.8%) were, as expected, humanists, whilst only a small percentage (6.2%) represents social scientists (Figure 3.1).



**Figure 3.1** Percentages of humanists and social scientists, Austrian dataset (N=162).

Researchers considering language and literature as their primary field of work represent 24.8% of respondents, and consequently amount to the largest group in the dataset. Considering that 15.6% of respondents are primarily involved with linguistics, language-related research fields are overrepresented at 40.4% of the dataset altogether. The second largest group (34.1%) belongs to the broader field of historical studies, with history representing 19.9% of the sample, and archaeology 14.2%. Other disciplines adequately represented in the dataset (7%-5%) are medieval studies, philosophy, and classics. Also art (respectively history of art or visual studies), folklore, music, anthropology or ethnology, drama, theatre or performance studies, museum studies, theology or religious studies – as well as didactics and education, and translation studies which were mentioned in an open question in the category ‘other’ – are represented in the dataset (Figure 3.2).

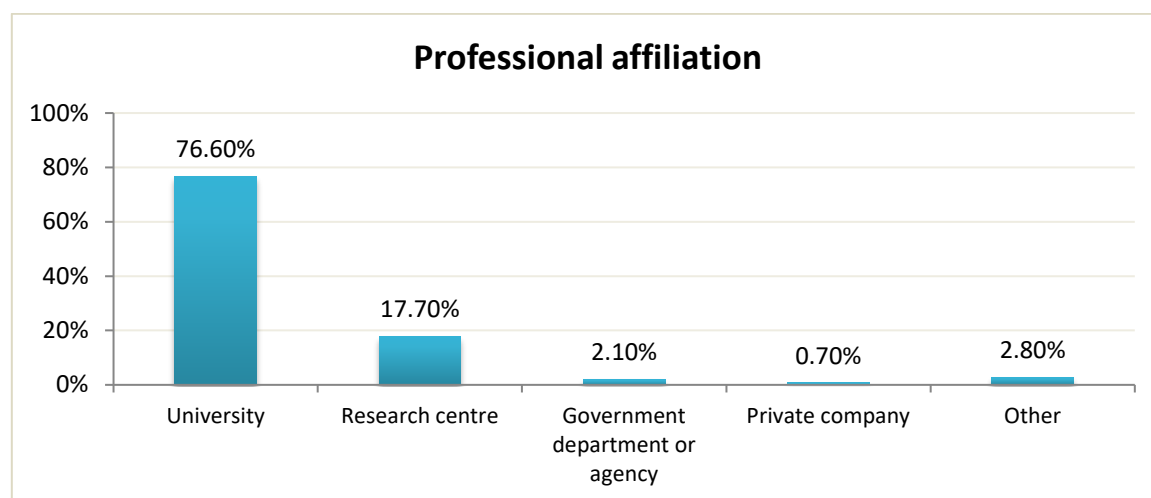


**Figure 3.2** Disciplines, Austrian dataset (N=161).

### 3.1.2 Professional affiliation and status

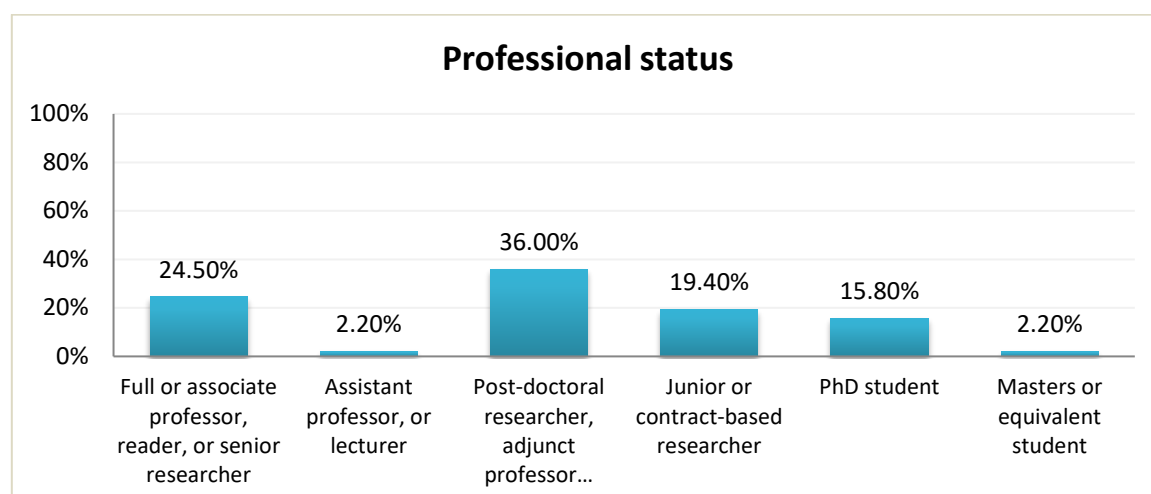
A majority of respondents are attached to a university (76.6%), while 17.7% are affiliated to a research centre. Very few researchers in the Austrian dataset reported being attached to a

government department or agency (2.1%), or a private company (0.7%). A 2.8% of the respondents state that they are not attached to any institution (Figure 3.3).



**Figure 3.3** Professional affiliation, Austrian dataset (N=161).

Regarding their professional status, a large group of respondents are post-doctoral researchers, adjunct professors or sessional instructors (36%), while full or associate professors, readers or senior researchers also represent a notable percentage (24.5%). Junior or contract-based researchers (19.4%) and PhD students (15.8%) are also represented in the Austrian dataset. Finally, assistant professors or lecturers and students on the master level each occupy a small proportion (2.2%) (Figure 3.4).

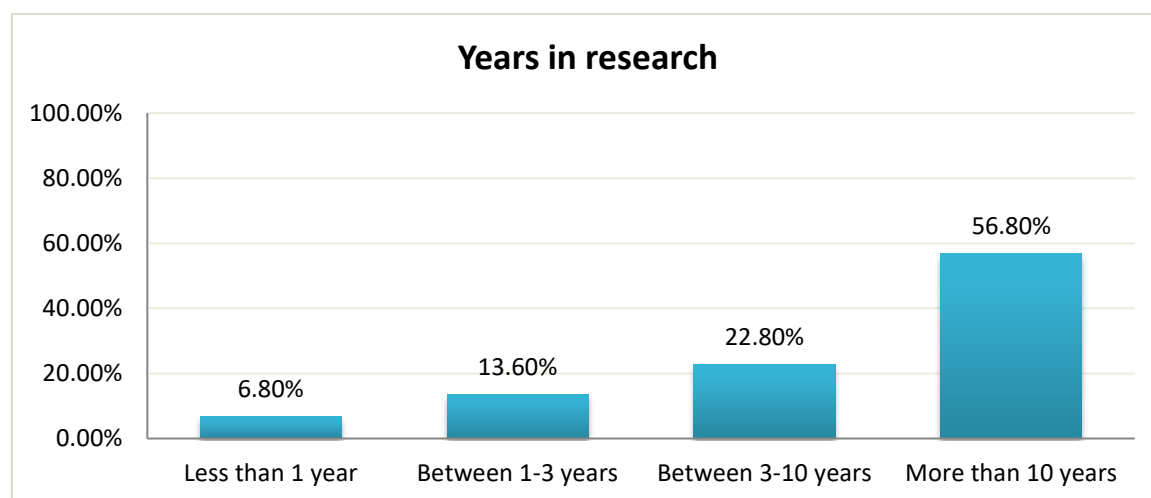


**Figure 3.4** Professional status, Austrian dataset (N=159).

### 3.1.3 Years in research

The majority of respondents from Austria (56.8%) are experienced researchers, having been in research for more than 10 years, while 22.8% have been working as researchers between 3 and 10 years. 13.6% of the respondents are on an early stage in their careers with experience

in research between 1 and 3 years. Only 6.8% of the respondents have been in research for less than one year (Figure 3.5).

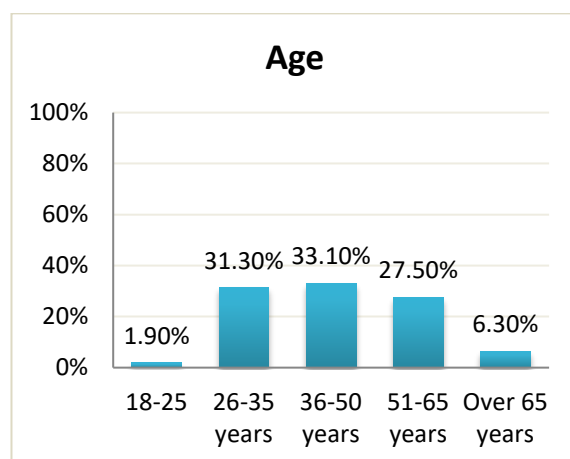


**Figure 3.5** Years in research, Austrian dataset (N=162).

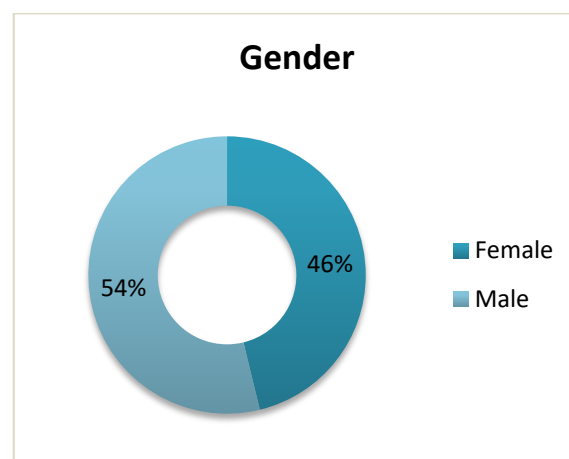
### 3.1.4 Age and gender

As far as age is concerned, there is an almost balanced distribution amongst respondents between 26-35 years, between 36-50 years, and between 51-65 years (each around 30%). Only 6.3% are older than 65 years and 1.9% are between 18 and 25 (Figure 3.6).

In addition, 53.8% of the respondents identify as male, and 46.2% as female (Figure 3.7).



**Figure 3.6** Age, Austrian dataset (N=160).



**Figure 3.7** Gender, Austrian dataset (N=158).

## 3.2 Research materials and digital access

To investigate how researchers consult materials relevant for their research, such as (a) articles in scholarly journals or conference proceedings, (b) books, (c) archival holdings, (d) images, (e) maps, (f) video and (g) audio, respondents were asked which means they use to access

such materials. Respondents could choose between the usage of digital devices such as a desktop or laptop PC, or a mobile device, to obtain those materials, and/or if they use print or some analogue device for this purpose. Multiple answers were allowed.

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**Respondents from Austria consult books as well as scholarly articles and conference proceedings more often in printed form than on a digital device.**

---

### 3.2.1 Articles in scholarly journals or conference proceedings

84% of respondents from Austria stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 21% reported that they use a mobile device for the same purpose, while 87.7% stated that they use printed or other an analogue device.

### 3.2.2 Books

93.8% report they use printed or other analogue devices to consult books. 54.3% of respondents stated they use a desktop or laptop PC to consult books, with 17.3% using some kind of mobile device for the same purpose.

### 3.2.3 Archival holdings

72.8% of respondents stated that they use a desktop or laptop PC to consult archival holdings. 61.1% use printed resources or other analogue devices for that purpose, while only 8.6% stated that they use a mobile device to access archival holdings.

### 3.2.4 Images

90.7% of respondents stated that they use a desktop or laptop PC to consult images, and 53.1% use printed resources or other analogue devices. 26.5% stated that they use a mobile device for the same purpose.

### 3.2.5 Maps

79.6% of respondents stated that they use a desktop or laptop PC to consult maps. 54.9% use printed resources or other analogue devices, while 19.1% stated that they use a mobile device for the same purpose.

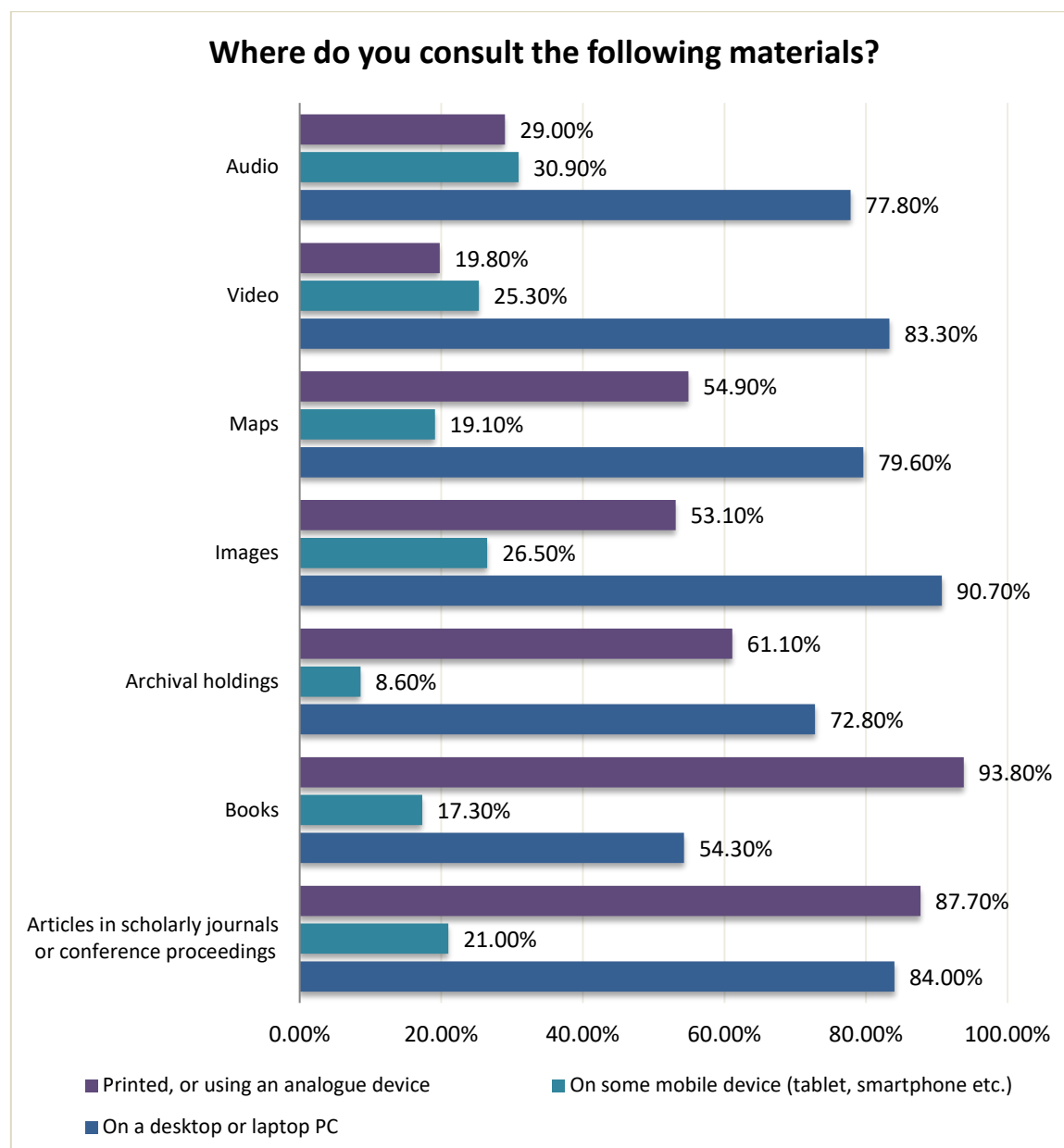
### 3.2.6 Video

83.3% of respondents stated that they use a desktop or laptop PC to consult video resources, 25.3% stated that they use a mobile device for the same purpose, while 19.8% use analogue devices.



### 3.2.7 Audio

77.8% of respondents stated that they use a desktop or laptop PC to consult audio related to their research, 30.9% stated that they use a mobile device for the same purpose, while 29% use analogue devices.



**Figure 3.8** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research materials, Austrian dataset (N=162).

Figure 3.8 illustrates the use of printed and analogue media compared to the use of digital media, which is divided into mobile devices such as tablets or smartphones and desktop or laptop PCs. It is noticeable that researchers in Austria consult materials that were published as a rule in print such as books (93.8%) as well as scholarly articles and conference proceedings (87.7%) more often in printed form than on a digital device. Only 54.3% consult books on a PC.

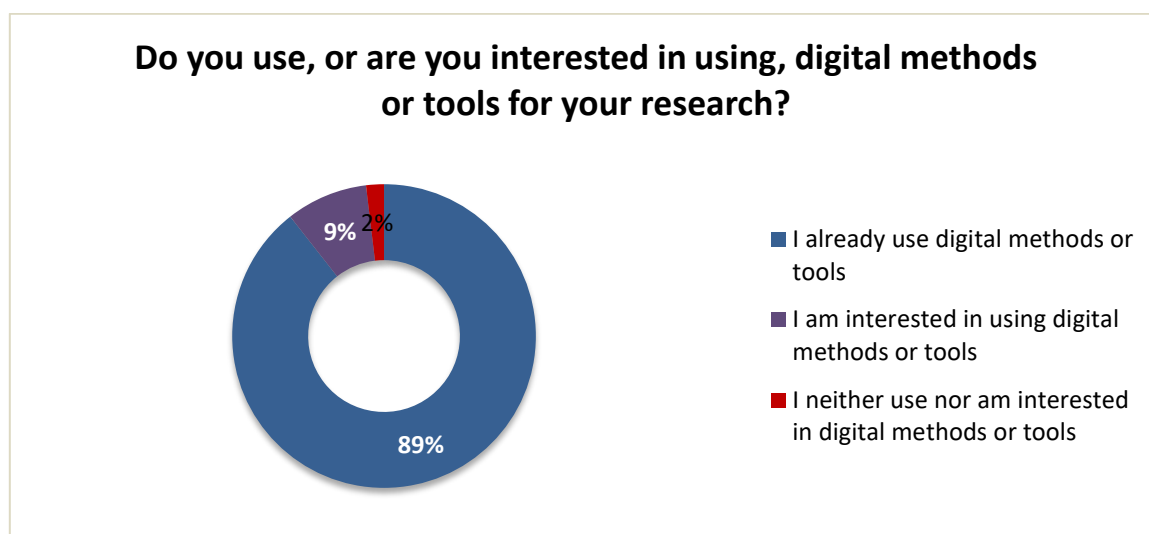
Other materials, namely audio, video, images, maps, and also archival holdings, are more often accessed via digital devices than printed media or an analogue device. Images are accessed by more than 90% of the respondents via some digital device. Still, mobile devices are not as widely used as desktop and laptop computers for research purposes. Only 19.10% access maps on a mobile device and only 8.6% access archival holdings on mobile devices, such as smartphones or tablets. Nevertheless, it is comparatively common to use a mobile device to consult audio (30.9%), images (26.5%), or video (25.3%).

### 3.3 Scholarly activities, methods, and tools

Respondents were asked whether they use or are interested in using digital methods or tools for their research. A significant majority of respondents from Austria (89.4%) stated that they

**A significant majority of respondents from Austria already use digital methods or tools for their research.**

already use digital methods or tools to aid their research. 8.7% of the respondents say that they are interested in using digital methods or tools, while only a small percentage of 1.9% state that they neither use nor are interested in using digital methods or tools (Figure 3.9).



**Figure 3.9** Use of digital methods or tools, Austrian dataset (N=161).

#### 3.3.1 Purpose of use of digital methods or tools

Respondents who indicated that they already use digital methods or tools were asked in a follow-up question about the purpose of such use. Five answers were available and multiple responses were possible. The answers received indicate that all five purposes proposed were relevant to respondents from Austria. More specifically, 88% of the respondents stated that they use digital methods or tools to (a) discover, collect or create their research assets. About 74% stated that they respectively (b) organise, structure or manage their research assets, (c)

process, analyse, or visualise their research assets, and (d) publish, disseminate or communicate their research using digital methods. 60.1% of the respondents use digital methods to (e) annotate, enrich or curate their research assets, the least common purpose reported by respondents from Austria (Figure 3.10).



**Figure 3.10** Purpose of use of digital methods or tools, Austrian dataset (N=158).

### 3.3.2 Specific digital methods and tools reported

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on the specific way respondents use, or are interested in using, digital methods or tools.

To assist interpretation of findings, responses were categorized firstly according to the particular functionality or research activity they refer to, and secondly according to the aspect of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; or, (e) to publish, disseminate or communicate about research. Since respondents identified both activities and examples of applications, their specific responses within each category were further classified accordingly, and examples of applications were matched with activities they support. The findings presented below do not account for the frequency of a specific answer, since it is the qualitative dimension of uses, activities, and services or tools used that is showcased in this section.

#### 3.3.2.1 To discover, collect or create research assets

In order to discover and collect research assets, respondents state that they consult international as well as national digital repositories, library catalogues and archives. They also employ general-purpose portals such as *Europeana*, *Google Books* or institutional archives, as well as subject-specific portals such as *Matricula*, *vd17*, and *ARTstor*. Language resources such as

text corpora, like the *DDD Referenzkorpus*, or online dictionaries also serve as a means for data discovery and collection. Respondents also use computer-based image recognition in this context, alongside more general practices such as web search or accessing blogs.

For the creation of research assets respondents name methods such as audio and video recording when it comes to the capturing of time-based media and OCR or transcribing to produce digital texts. Computer graphics methods such as *CAD* or 3D documentation are also used by respondents to create digital assets (Table 3.1).

**Table 3.1** Discovering, collecting, or creating research assets, Austrian dataset.

Discover, collect, create research assets	
Activity	Examples mentioned
Accessing digital repositories, library catalogues and digital archives	<b>International:</b> Europeana, Google Books, ARTstor, JSTOR, national libraries, university repositories <b>German speaking:</b> vd17, vd18, Matricula
Accessing blogs	-
Accessing text corpora	DDD Referenzkorpus
Image recognition	-
Online dictionaries	-
Web search	-
Audio recording	-
Computer-aided design (CAD)	-
3D documentation	-
Optical character recognition (OCR)	-
Transcribing	Transcriptions
Use of graphics software	Inkscape
Video recording	-

### 3.3.2.2 To organise, structure or manage research assets

In order to organise structure or manage research assets, respondents name a variety of applications, services and tools. Databases are widely used for this purpose, while the database management systems explicitly named are the proprietary relational solutions *MS Access* and *Filemaker* as well as the XML-database *eXistDB*. The use of bibliographic software such as *Zotero* or *Citavi* to manage bibliographic data and references is mentioned several times. To manage data in research, easy to use applications such as word processing, spreadsheets or note taking software are used, as well as sophisticated virtual research environments and repositories (Table 3.2).

**Table 3.2** Organising, structuring or managing research assets, Austrian dataset.

Organise, structure or manage research assets	
Activity	Examples mentioned
Image management	-
Use of bibliographic software, reference management	Zotero, Citavi, Sente, ReferenceME
Use of databases	eXist, MS Access, Filemaker
Use of note taking software	Evernote

Use of repositories	Gams
Use of spreadsheet applications	MS Excel
Use of virtual research environments	TextGrid
Word processing, Text editing	MS Word, txt, Notepad++

### 3.3.2.3 To annotate, enrich or curate research assets

In order to annotate, enrich or curate research assets respondents state that they use established metadata standards such as *Dublin Core* or *IPTC* and controlled vocabularies such as *Iconclass*. Researchers perform image annotation and video annotation as well as text annotation using domain specific annotation tools such as *ELAN*. When it comes to scholarly editing and text encoding, respondents name *XML* and *TEI* as the formats in use (Table 3.3).

**Table 3.3** Annotating, enriching or curating research assets, Austrian dataset.

Annotate, enrich or curate research assets	
Activity	Examples mentioned
Image annotation	-
Scholarly editing	-
Text annotation	-
Text encoding	XML, TEI
Use of controlled vocabularies	Iconclass
Use of metadata standards	Dublin Core, TEI, IPTC, MIDAS, VRA-Panels
Use of semantic web technologies	-
Video annotation	ELAN

### 3.3.2.4 To process, analyse, or visualise research assets

Respondents from Austria identified a variety of activities, tools and services they use to process, analyse or visualise a wide range of research assets, including audio-visual and textual data, geodata, and language data. They mentioned methods such as content analysis, palaeographic analysis, statistical analysis, as well as qualitative research, network analysis, text mining, and programming. Table 3.4 shows a list of activities, as well as related software tools mentioned.

**Table 3.4** Processing, analysing or visualising research assets, Austrian dataset.

Process, analyse, or visualise research assets	
Activity	Examples mentioned
3D documentation and analysis	-
Analysis of qualitative research contents (e.g. interviews)	MAXQDA
Audio analysis	-
Audio processing	Melodyne
Audiovisual processing (e.g. digital editing and cutting)	-
Content analysis	-

Corpus linguistics	-
Geovisualisation	GIS, ArcGIS
Image processing	Photoshop, iPhoto
Natural language processing	-
Network analysis	Gephi, Discourse Network Analyser, Visione, NodeXL
Paleographic analysis	-
Programming	XSLT, Eclipse
Scholarly editing	-
Speech analysis, signal processing	Praat, Amadeus
Statistical analysis	SPSS, R
Text mining	eAqua
Use of spreadsheet software	-
Video analysis	-
Word processing, Text editing	MS Word, txt, Notepad++

### 3.3.2.5 To publish, disseminate or communicate one's research

To publish, disseminate or communicate their research, respondents state that they use tools such as *MS PowerPoint* or *Prezi* for presentation, and blended learning techniques for teaching. Desktop publishing using publishing tools such as *LaTeX* is named as well as the online publication of research findings. Engagement with social media as a means for disseminating research is mentioned as a response to this question by one respondent (Table 3.5).

**Table 3.5** Publishing, disseminating or communicating about research assets, Austrian dataset.

Publish, disseminate or communicate about research	
Activity	Examples mentioned
Desktop publishing	LaTeX
Online publishing	-
Presenting	MS PowerPoint, Prezi
Teaching	Blended learning
Using social media	-

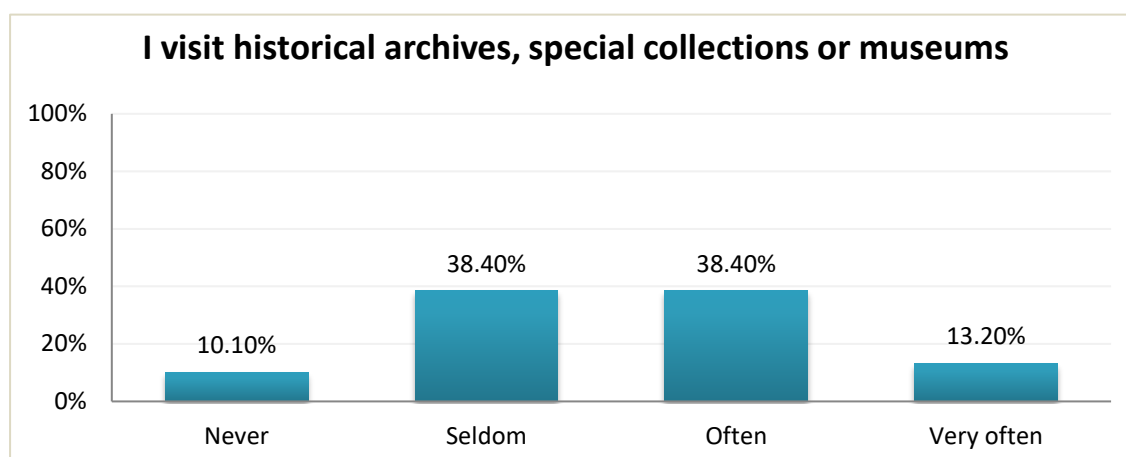
### 3.3.3 Selected scholarly activities in focus

Respondents were asked if they engage in specific activities of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organise research assets, (e) using their own keyword list or thesaurus to organise research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or

discussion forum. This section summarizes the answers of respondents from Austria to these questions.

### 3.3.3.1 Visiting historical archives, special collections, or museums

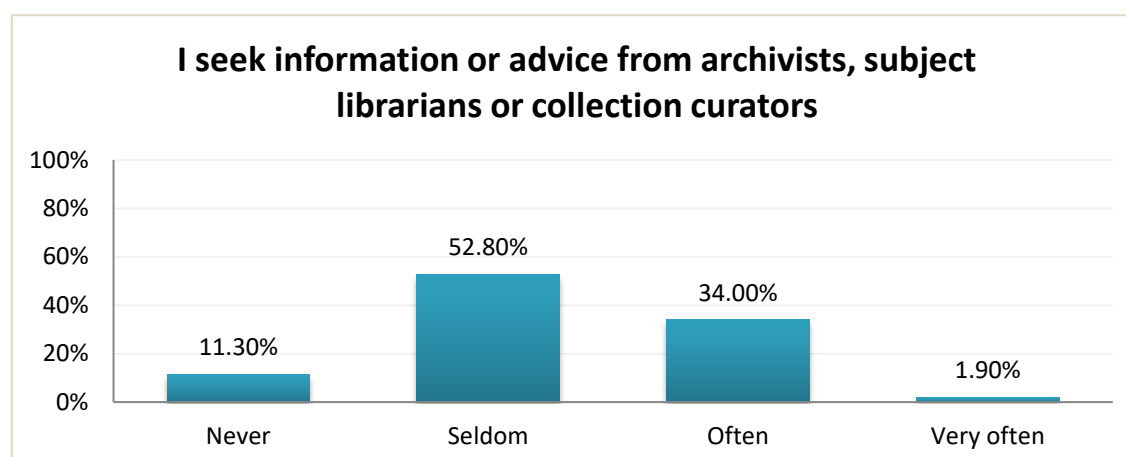
38.4% of the respondents state that they visit historical archives, special collections, or museums often, 38.4% state that they visit them rarely, 13.2% state that they visit them very often while 10.1% report they never visit historical archives, special collections, or museums (Figure 3.11).



**Figure 3.11** Frequency of visiting historical archives, special collections, or museums, Austrian dataset (N=159).

### 3.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

52.8% of the respondents state that they seldom seek information or advice from archivists, subject librarians, or collection curators, with 34% stating that they often seek information from subject librarians, or collection curators. 11.3% state that they never seek information at the said institutions and a small percentage of 1.9% reporting that they seek such information very often (Figure 3.12).

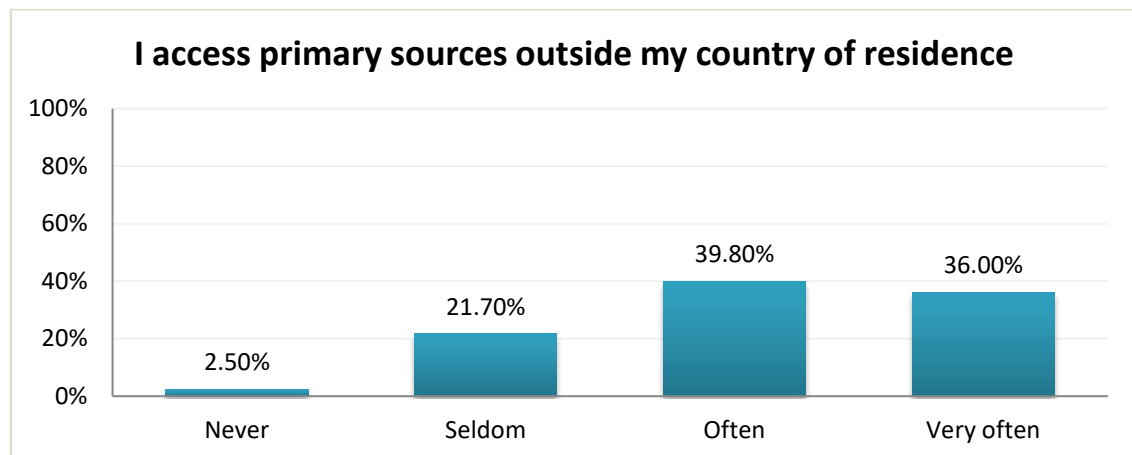


**Figure 3.12** Frequency of seeking information from archivists, subject librarians, or collection curators, Austrian dataset (N=159).



### 3.3.3.3 Accessing primary sources outside one's country of residence

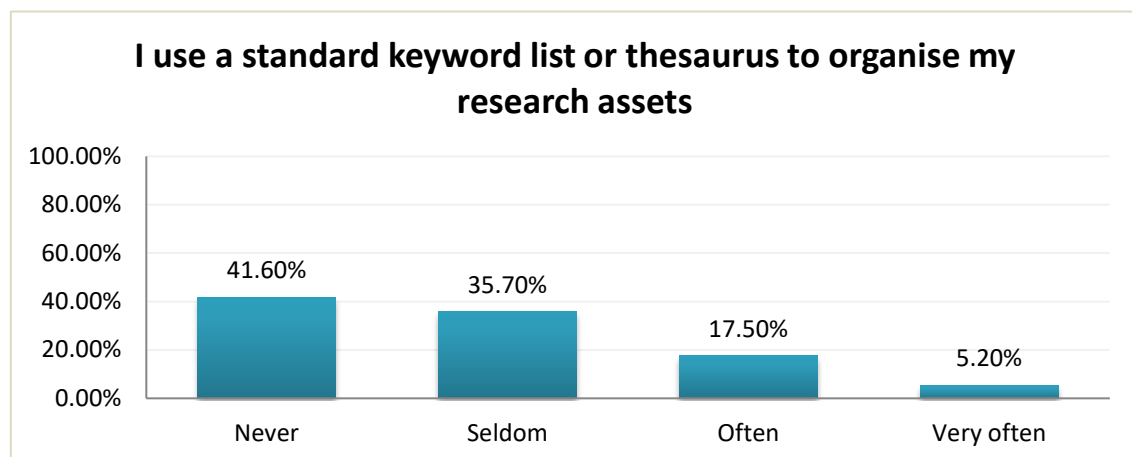
39.8% of respondents from Austria state that they access primary sources outside their country of residence often and 36% very often. 21.7% say that they rarely access primary sources abroad. Only 2.5% state that they never access primary sources outside their country of residence (Figure 3.13).



**Figure 3.13** Frequency of accessing primary sources outside one's country of residence, Austrian dataset (N=161).

### 3.3.3.4 Using a standard keyword list or thesaurus to organise research assets

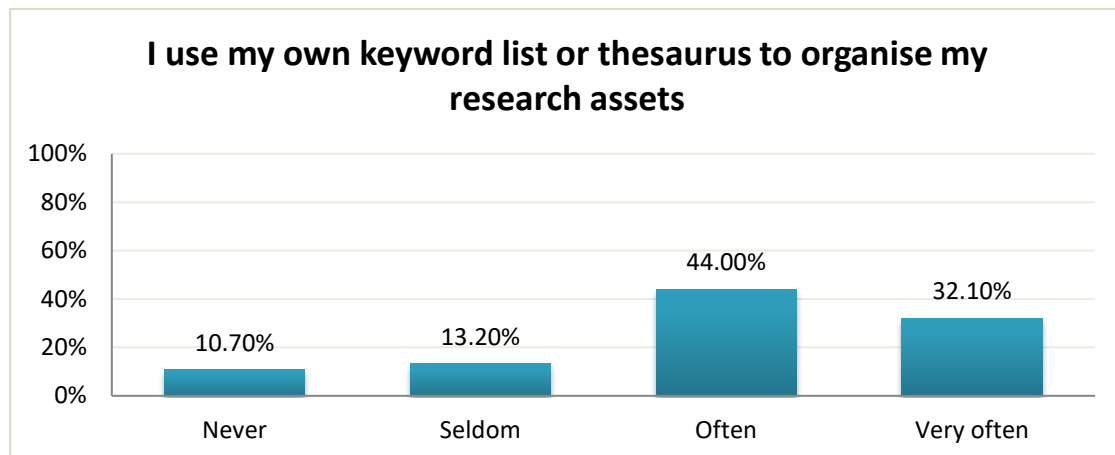
Using a standard keyword list or thesaurus to organise research assets seems to be an activity that most respondents never (41.6%) or rarely (35.7%) perform. On the other hand, 17.5% of the respondents state that they often use a standard keyword list or thesaurus, with 5.2% doing so very often (Figure 3.14).



**Figure 3.14** Frequency of using a standard keyword list or thesaurus to organise research assets, Austrian dataset (N=154).

### 3.3.3.5 Using one's own keyword list or thesaurus to organise research assets

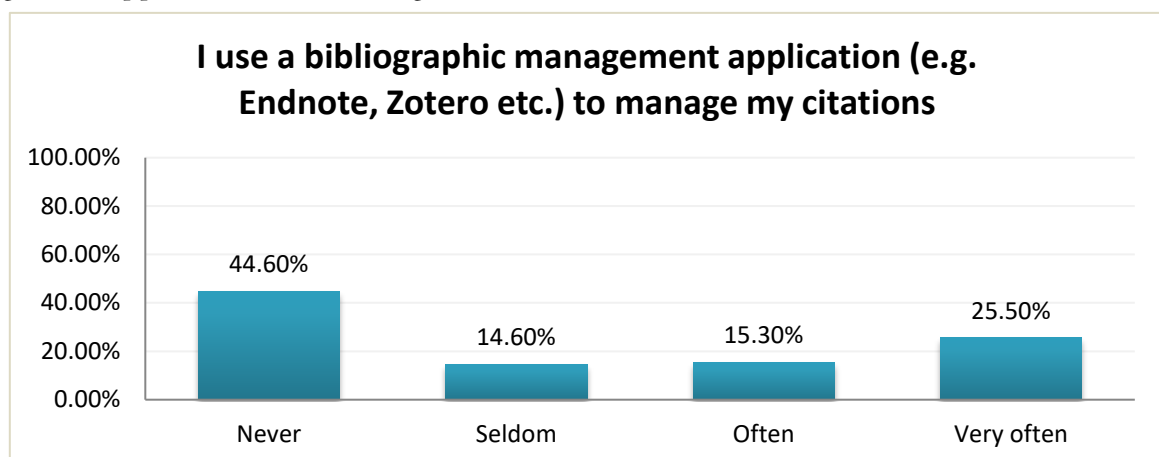
The response to these statement variants is very much in contrast to the answers of the previous question. 44% of the respondents state that they often use their own keyword list or thesaurus to organise research assets with 32.1% declaring that they very often do so. 13.2% state that they seldom use their own keyword list or thesaurus to organise research assets, while 10.7% state that they never do (Figure 3.15).



**Figure 3.15** Frequency of using one's own keyword list or thesaurus to organise research assets, Austrian dataset (N=159).

### 3.3.3.6 Using a bibliographic management application to manage citations

44.6% of the respondents state that they never use a bibliographic management application to manage citations. 25.5% respond that they use a bibliographic management application to manage citations very often, with 15.3% using them often and 14.6% using bibliographic management applications seldom (Figure 3.16).

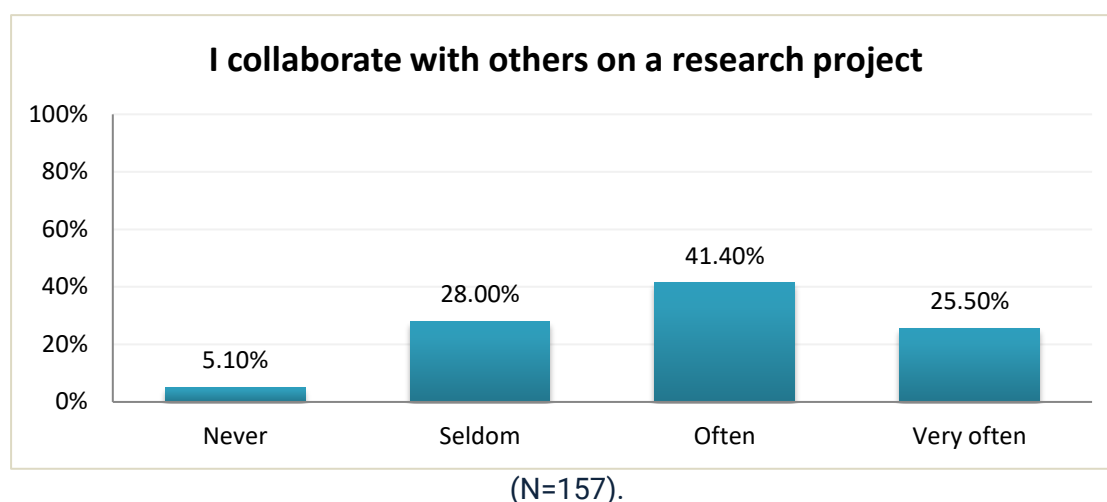


**Figure 3.16** Frequency of use of bibliographic management applications to manage citations, Austrian dataset (N=157).

### 3.3.3.7 Collaborating with others on a research project

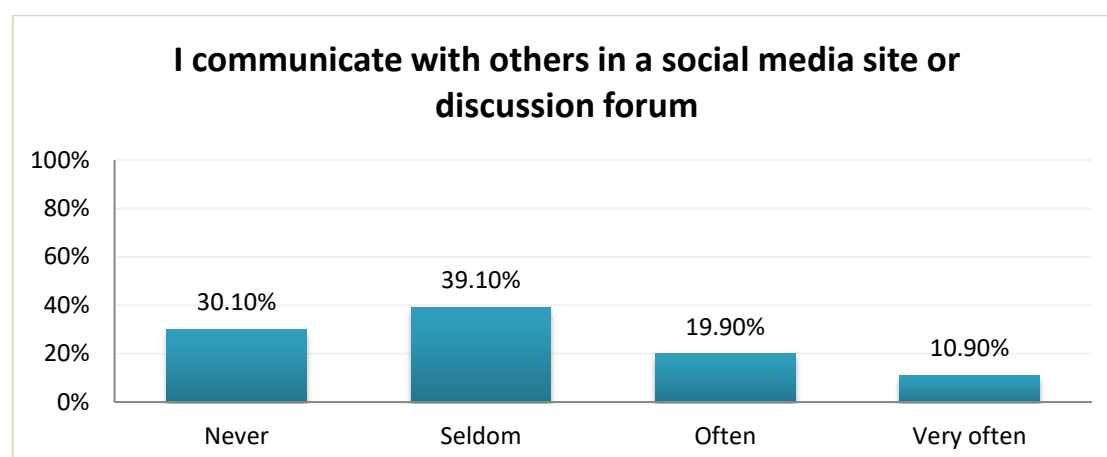
The majority of the respondents (66.90%) state that they often (41.4%) or very often (25.5%) collaborate on a research project. Opposed to that, 28% state that they seldom collaborate with others on a research project. Only 5.1% declare to never collaborate (Figure 3.17).

**Figure 3.17** Frequency of collaborating with others on a research project, Austrian dataset



### 3.3.3.8 Communicating with others in a social media site or discussion forum

39.1% of the respondents state that they hardly communicate with others in a social media sites or discussion fora, and 30.1% state that they never do. 19.9% state that they often use a social media site or discussion forum for research communication, with only 10.9% reporting to communicate with others via social media and fora very often (Figure 3.18).

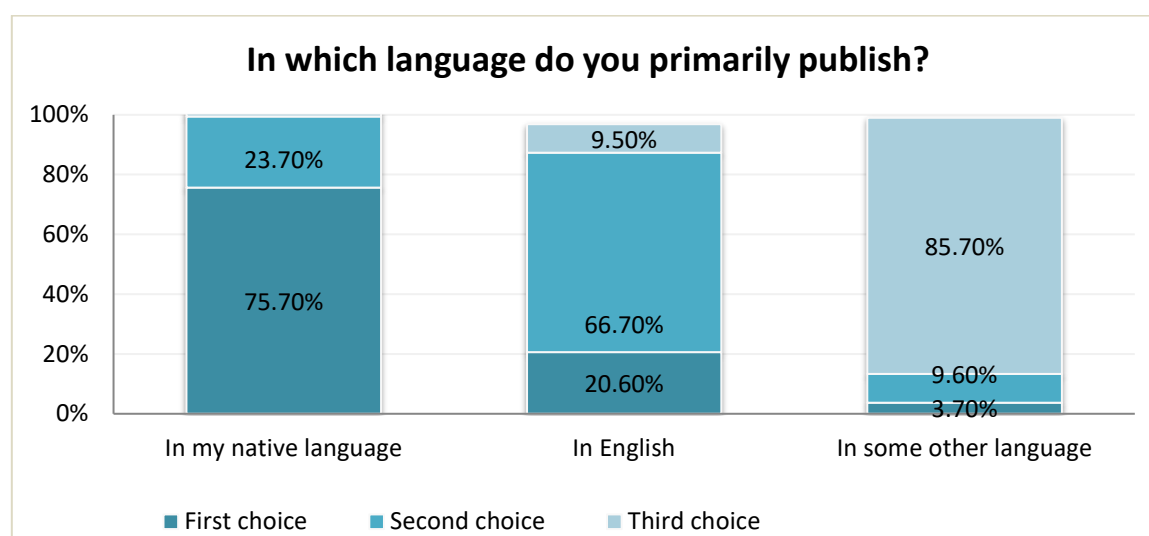


**Figure 3.18** Frequency of communicating with others in a social media site or discussion forum, Austrian dataset (N=156).

## 3.4 Publication and dissemination of research results

### 3.4.1 Publishing language

To find out about the preferred publishing language of researchers in Austria, respondents had to rate on a scale from 1 to 3 if their first, second and third choice is to publish in their native language, in English or in some other language. 75.7% of respondents from Austria stated that they primarily choose to publish in their native language, while 20.6% choose English and 3.7% primarily publish in another language. The second choice for publishing is clearly English with an acceptance rate of 66.7% (Figure 3.19).



**Figure 3.19** Publishing language, Austrian dataset (N=136).

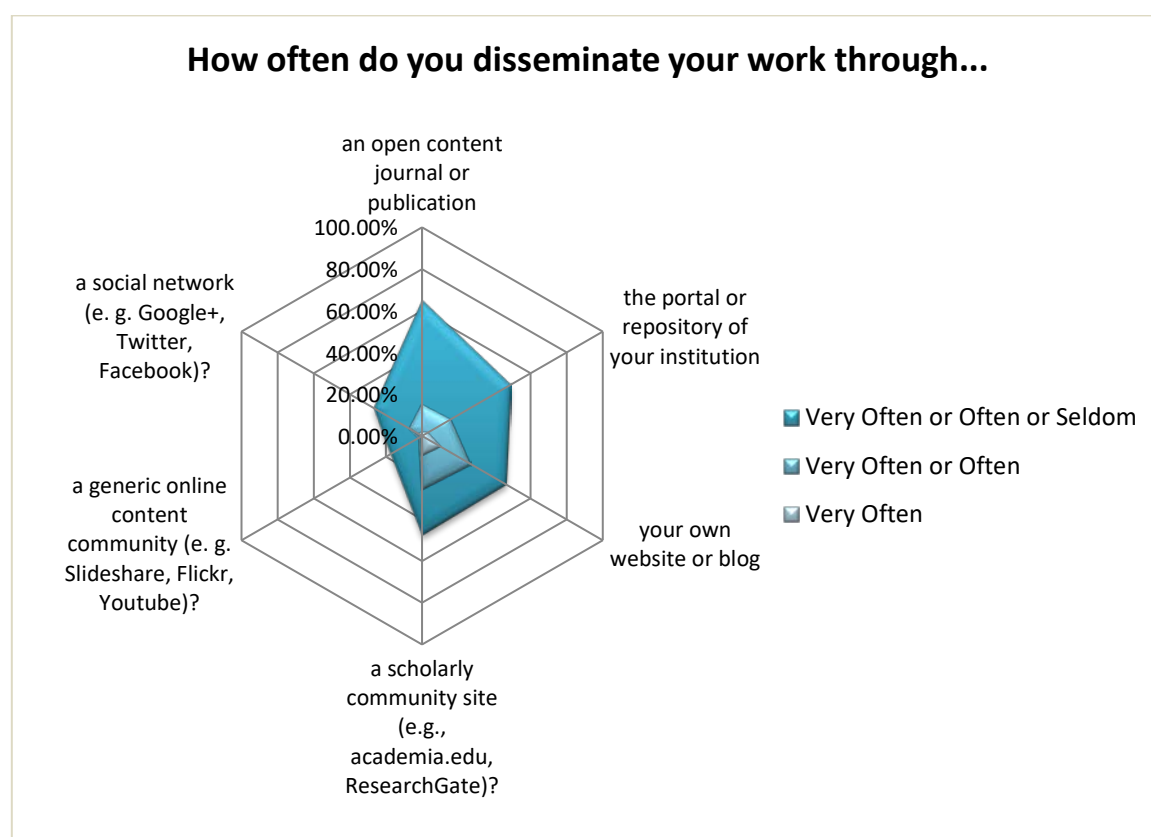
### 3.4.2 New channels of dissemination of scholarly work

Concerning the dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications), open content journals or publications are used often or very often only by 14.9% of responding researchers. Still, 49.7% report that they use open access rarely, while 35% never use such media.

Still, commercial scholarly content community sites such as (a) *Academia* or *ResearchGate*, as well as (b) personal websites or blogs, are each used very often by around 10% and often by one out four researchers. An additional 20% use this method of dissemination infrequently, which means that nearly half of the respondents use such channels to at least some extent (47.4% for scholarly community sites, and 46.2% for personal websites or blogs). Nearly one half (48.7%) use institutional portals or repositories for the dissemination of their scholarly work very often, often or infrequently, while 32.7% use the repositories and portals of their university infrequently. 12.8% use repositories and portals often and 3.2% use them very often.

26.7% use some kind of social network such as *Twitter* or *Facebook* to disseminate their work, with only 7% using social networks often or very often. Even less researchers use a generic

online content community such as *Flickr* or *YouTube* for that purpose, with 17.2% overall usage, while 1.9% use such communities very often or often (Figure 3.20).

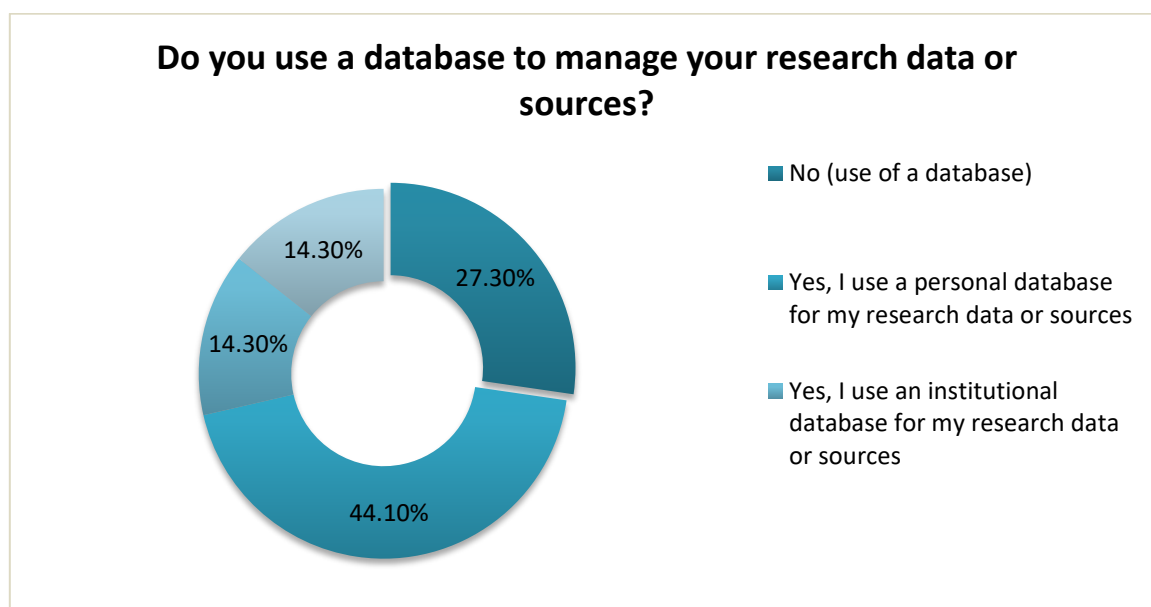


**Figure 3.20** New channels of dissemination of scholarly work, Austrian dataset (N=157)

## 3.5 Software and services

### 3.5.1 Database use

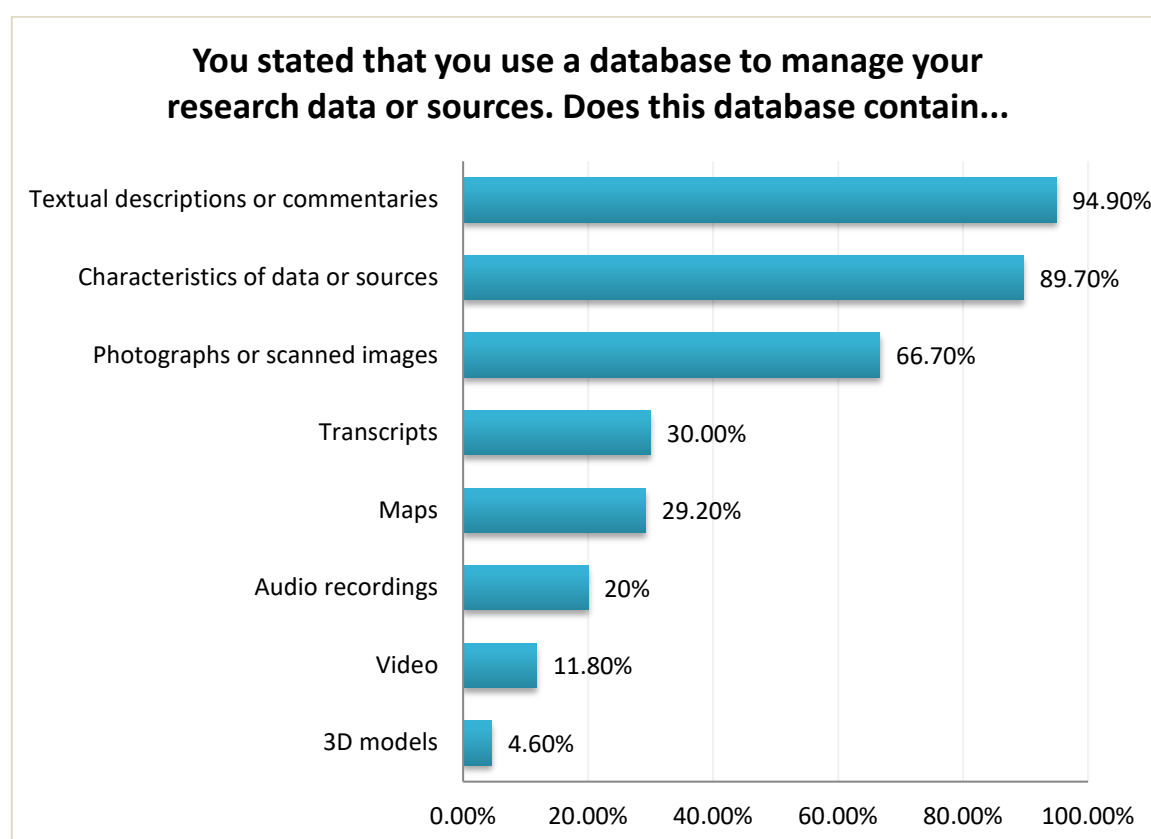
Almost three quarters of the responding researchers from Austria (72.7%) use a database to manage their research data or sources, while 27.3% state that they don't use a database. The largest group are those that use only a personal database (44.1% of the total sample), In contrast, 14.3% use only an institutional database. Finally, 14.3% use both a personal and an institutional database to store their data and sources (Figure 3.21).



**Figure 3.21** Use of database, Austrian dataset (N=161).

### 3.5.2 Database content scope

Respondents from Austria who stated that they are using a database were asked to indicate what kind of content is contained in their database, by selecting those that apply from the following options: (a) characteristics (attributes) of data or sources, (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models. Multiple answers were allowed. According to the responses, nine of out ten respondents from Austria who use databases used them to store textual descriptions or commentaries (94.4%) and characteristics of data or sources (89.7%), while more than two out of three respondents also store photographs or scanned images (66.7%). One third of the respondents stated that their databases contain transcripts (30%) and maps (29.2%) respectively. As the answers indicate, time-based media is underrepresented in the respondents' databases: 20% report to store audio recordings and only 11.80% store video content. Only a small percentage of the respondents have 3D models in their databases (4.6%) (Figure 3.22).



**Figure 3.22** Database contents, Austrian dataset (N=117).

### 3.5.3 Online services

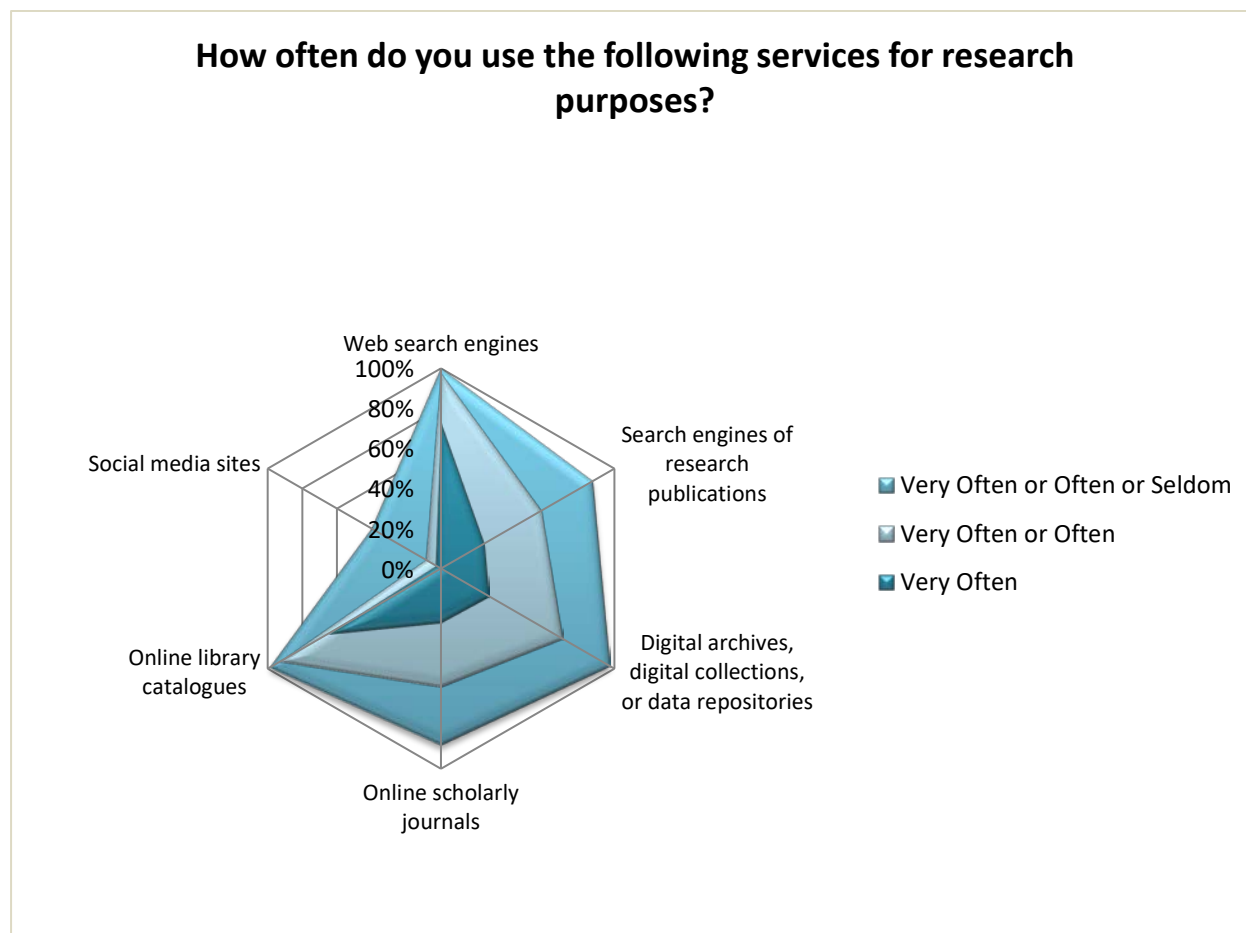
The answers to the question investigating the frequency of the usage of specific digital services for research purposes indicate that almost all respondents use some kind of service for research purposes. Web search engines especially are remarkably popular, with 97.5% of the respondents using them very often or often and only 2.5% using them rarely.

**Digital services, except for social media sites, are widely used by the respondents in the course of their research; with web search engines and online library catalogues being used by nearly all respondents.**

The use of online library catalogues stands out with an overall usage of 98.8% of the respondents, with 92.6% using them very often or often. This is followed by the usage of digital archives, digital collections or data repositories, which are used very often or often by 70% and rarely by 27.5% (97.5% in total). Online scholarly journals, for instance provided by *JSTOR* or the publishing houses, are used by 88.2% of the responding researchers, with 59% using them very often or often, almost at the same level with the consulting of search engines of research publications such as *Google Scholar* or *Microsoft Academic Search*, which are used by 87.5% of the



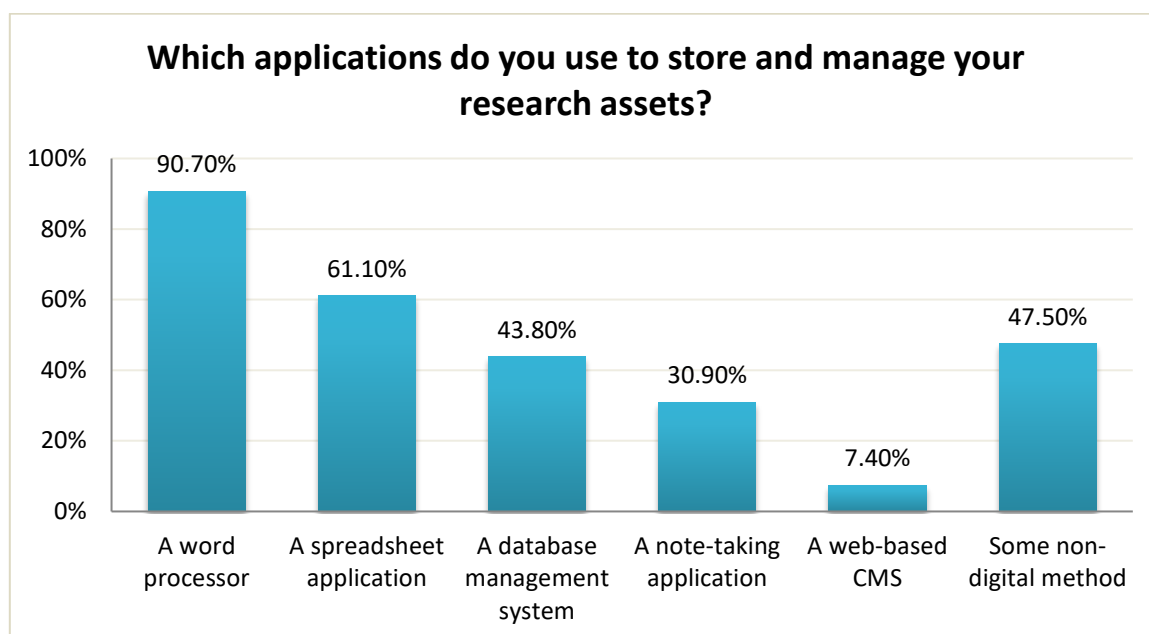
researchers, with 58% using them very often or often. However, social media sites such as *LinkedIn* or *Twitter* are not used with such a considerable frequency, with only 8.7% of the sample using them very often or often for research purposes and one third rarely using them (Figure 3.23).



**Figure 3.23** Frequency of use of services, Austrian dataset (N=161).

### 3.5.4 Research asset management applications

For the storage and management of research assets, using a word processor such as Microsoft Word is the most common approach amongst respondents (90.7%). Approximately six out of 10 respondents (61.1%) stated they use a spreadsheet application for that purpose, 43.8% use a database management system and 30.9% use a note-taking application such as Evernote or OneNote. The usage of web-based content management systems (CMS) for asset storage and management is considerably low (7.4%). However, nearly half of the responding researchers (47.5%) report using some non-digital method for storing and managing their research sources and data (Figure 3.24).



**Figure 3.24** Use of applications to store or manage research assets, Austrian dataset (N=162).

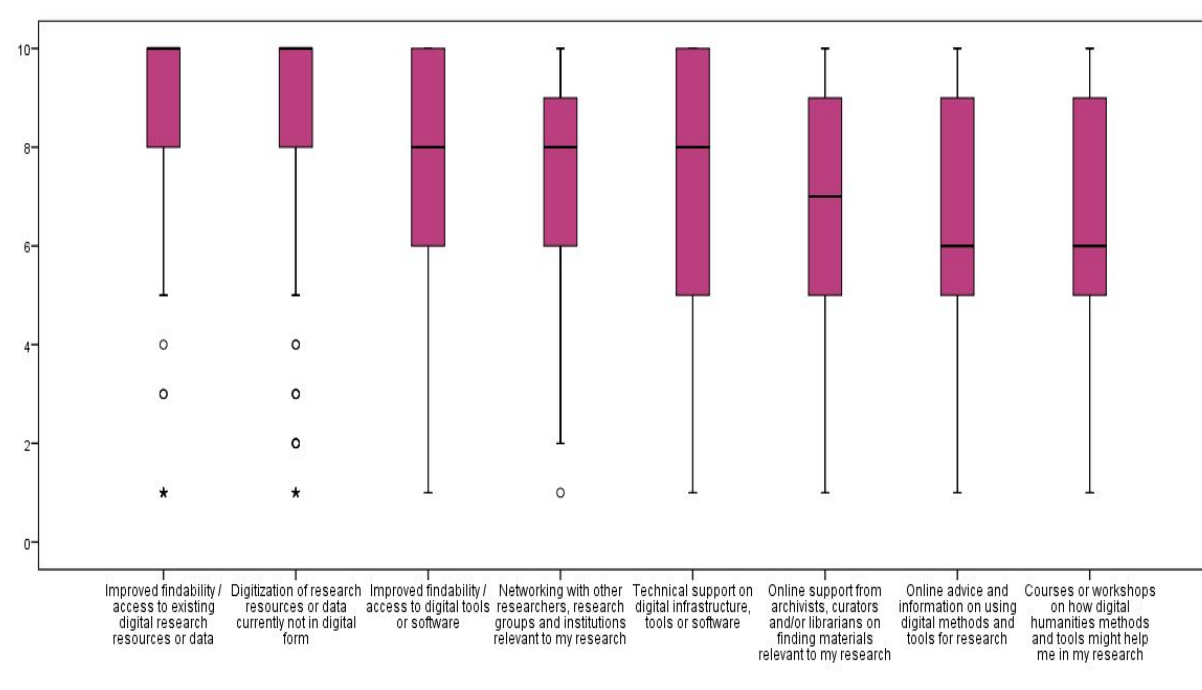
### 3.6 Assessment of researcher needs

Finally, survey participants were asked to rate the importance of a series of statements regarding their needs in research on a scale from 1 to 10, where 1 corresponds to least important and 10 to most important. As illustrated in Figure 3.25, all available statements identifying different needs were awarded a score of 5 or higher by over 75% of the respondents.

**Respondents rated improved findability and access to digital resources and data as well as digitisation of research resources as most important for their research.**

Nevertheless, differences exist: (a) improved findability/access to existing digital research resources or data, and (b) digitisation of research resources or data currently not in a digital form are ranked as very important (with a score of 8 or higher) by more than three quarters of the researchers. This is followed by (c) improved findability/access to digital tools or software, which is ranked 8 or higher by more than half of the respondents. However, (d) technical support on digital infrastructure, tools, and software, is ranked with a score of 8 or higher by half of the respondents with more than one quarter assigning a score of 10. (e) Networking with other researchers, research groups and institutions is also ranked 8 or higher by half of the respondents, while (f) online support from archivists, curators and/or librarians on research relevant finding materials is assigned a score of 7 or higher by half. (g) Online advice and information on using digital methods and tools for research, and (h) courses or workshops on how digital humanities methods and tools might help the respondents in their

research, are assigned a score of 6 or higher by half of the respondents, which indicates they also have certain relevance for researchers from Austria who responded to the survey (Figure 3.25 and 3.26).



**Figure 3.25** Importance of needs – box and whisker plot, Austrian dataset (N=160).

## 3.7 Conclusions

89% of respondents from Austria stated that they were already using digital methods or tools for their research (9% do not, but state that they are interested to do so). This high percentage reflects the survey's dissemination strategy which included the distribution on relevant DH mailing lists and conferences as well as via institutional mailing lists. In addition, the topic of the survey of course especially attracted researchers and practitioners who are interested in digital practices and tools. All in all, a vast majority of survey respondents has experience with the use of digital methods and tools and includes them in their research.

As regards the practices of respondents related to consulting research materials, there is a significant difference between books and other materials. Most researchers (almost 94%) stated that they consult books through physical print copies, while a much smaller proportion indicated that they use some digital device for that purpose. In contrast, audio and video materials, images, and also maps are accessed mainly in digital form, whereas it is not very common to consult such materials using an analogue device. Less than one third uses audio and video in an analogue form. Regarding archival holdings and articles in scholarly journals or conference proceedings, researchers stated that they use both analogue and digital access in similar proportion. In sum, materials providing written text are still consulted to a large extent also in analogue/printed form.

All in all, the responses indicate that researchers in Austria at the moment more often rely on personal structures or external services concerning the dissemination of their scholarly work as well as the management of their research assets. More than one out of four researchers use their own website or blog or a commercial scholarly content community site like *Academia* or *ResearchGate* for dissemination and publication of their work very often or often, while only about one out of six uses open content journals or institutional portals or repositories.

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### Common web search engines, online library catalogues and digital archives are widely used by researchers.

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Digital services, except for social media sites, are widely used by the respondents in the course of their research. Common web search engines are services all researchers use, followed by the use of online library catalogues and digital archives, collections and repositories. Research specific search engines such as *Google Scholar* and scholarly online journals also play a role in the respondent's research activities. This insight demonstrates that respondents from Austria are generally well-aware of these services. The fact that many respondents use these services very often or often indicates that they consider them useful for their work and are accustomed in their usage. Regarding the storage and management of research data, most respondents (more than 90%) indicated that they use simple, widely available office software, especially word processors, while using spreadsheet applications is also quite common. We can conclude that researchers from Austria who responded to this survey use applications which they are familiar with, such as general office software. Nevertheless, many still use analogue methods extensively.

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### Digitisation of research resources or data currently not in digital form is considered of major importance.

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Researchers from Austria who responded to the survey rate improved findability of digital research resources or data, and advanced access to such data as most important for their research. Digitisation of research resources or data currently not in digital form is also considered of major importance. Additionally, improved findability and access to digital tools or software, as well as technical support on digital infrastructure, tools or software was ranked high. Finally, academic exchange and networking was also considered relevant by many respondents from Austria.



# Chapter 4

## Country profile: Finland

*Inés Matres*

### 4.1 Introduction and respondent profile

This chapter is based in 239 complete responses to a questionnaire distributed by the University of Helsinki in October 2016. Students and researchers in eight universities and several cultural heritage organisations in Finland were invited to have a say in digital research practices and needs for digital infrastructures.

The method used was snowballing via email distributed by research administrators of humanities and social science faculties in the eight universities offering doctoral programmes in Finland. Additionally, the survey was distributed to two universities of arts and two computer science departments in Helsinki, calling on researchers collaborating with humanities projects. Finally, museums and research libraries were invited to participate using sectorial mailing-lists.

The purpose of this questionnaire was twofold. Firstly, it responds to the European initiative launched by the Digital Methods and Practices Observatory Working Group of DARIAH-EU (DiMPO). As data collection took place in Finland almost a year later than the collection of other datasets, the Finnish data is not included in the cumulative report (chapter 2). Secondly, the survey distributed by DiMPO was used as core for an extended survey to inform the recently formed Helsinki Centre for digital humanities (HELDIG)<sup>4</sup>. In the recent years this centre has developed as a platform for addressing the challenges of digitalisation, based on multi- and interdisciplinary research. From the extended survey, some questions are here included as they might point at future research on digital scholarly practices.

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<sup>4</sup> HELDIG homepage: <https://www.helsinki.fi/en/researchgroups/helsinki-digital-humanities/> (accessed 12.12.2016)

The questionnaire and this chapter are structured following the research data LifeCycle identified in digital humanities (Puhl et.al 2015: 43) . In accordance with this LifeCycle, respondents reported on use and interest to use digital methods and tools to: find, capture, organise, enrich, analyse, visualise, disseminate and store their research assets and outcomes. To complete this information, respondents defined their research field and interests, their experience and current position, affiliation and were asked to assess their current needs.

### 4.1.1 Disciplines

In Finland, this questionnaire was targeted at arts and humanities but was open as well to researchers from other disciplines, if they thought their research was related to the humanities. Based on the Faculty structure of the University of Helsinki, responses were first organised in broad disciplines as displayed in Figure 4.1.

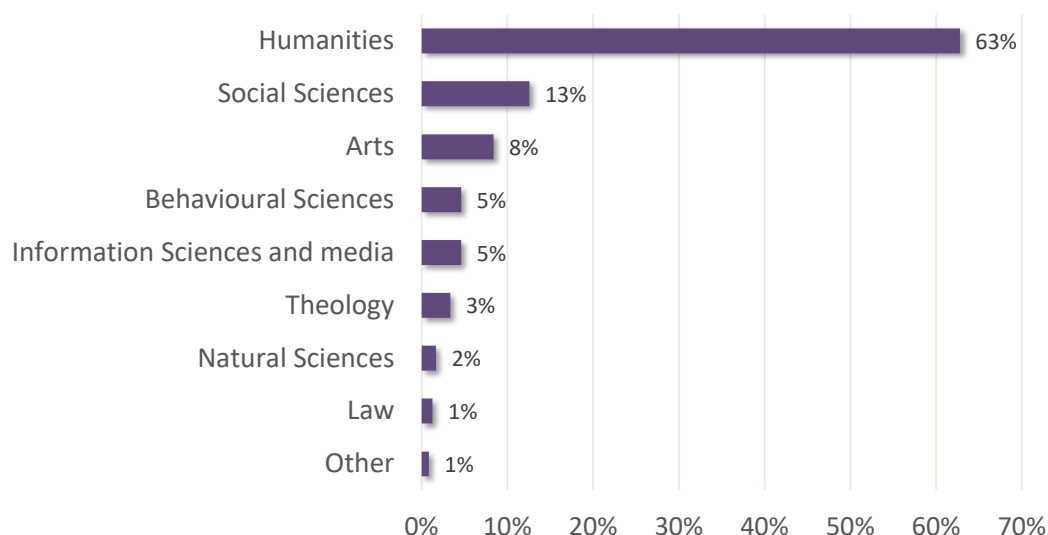


Figure 4.1 Broad discipline, Finnish dataset (N=239).

Respondents in arts and humanities (including theology) account for 74.5% of respondents. This document therefore reports on digital practice in the humanities rather than any other scientific discipline. However, an important percentage of respondents (36%) fluctuate between disciplines, therefore all responses are included in this report.

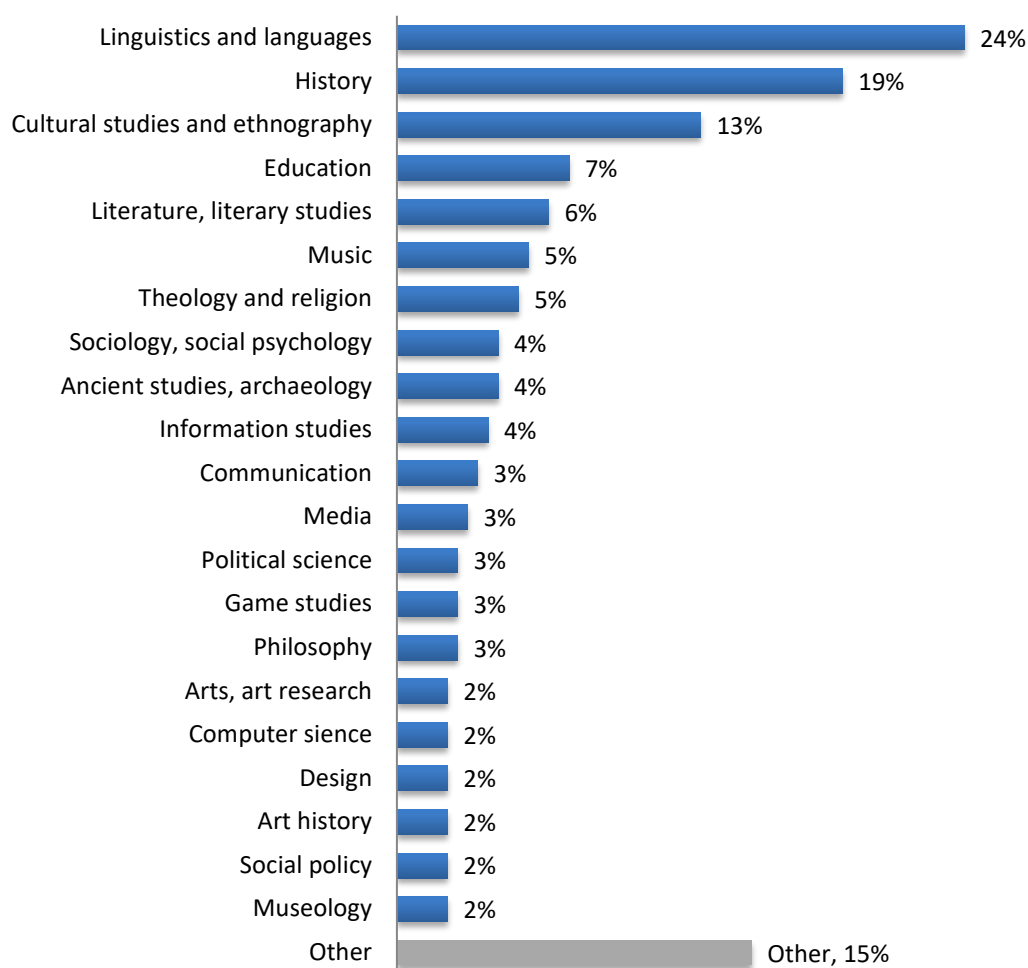
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**36% of respondents from Finland have interdisciplinary interests. Inside the humanities linguistics, history and ethnography are more often mentioned, while outside the humanities media studies and education.**

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To identify the specific discipline or field of research, respondents answered in free text. Figure 4.2 represents responses after the data was carefully analysed, that is, the numbers should be taken as approximation, as some respondents identify with several fields.



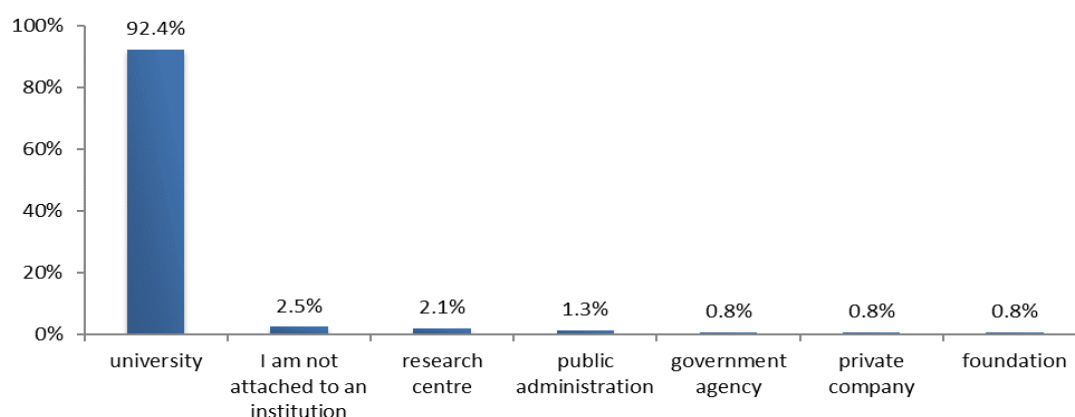
**Figure 4.2** Specific disciplines, Finnish dataset (N= 237).

23.4% of respondents from the arts and humanities mention research interests in more than one discipline within the humanities, sixteen respondents (6.6%) mentioned interests in disciplines within and outside the traditional humanities. Combination with linguistics, history, ethnography, education and media studies were the most common alternatives among respondents from the humanities. Looking at respondents outside humanities, 14 of them (5.8%), mentioned research interests in more than one field or discipline. Here, information science and linguistics were mentioned above others.

#### 4.1.2 Professional affiliation and status

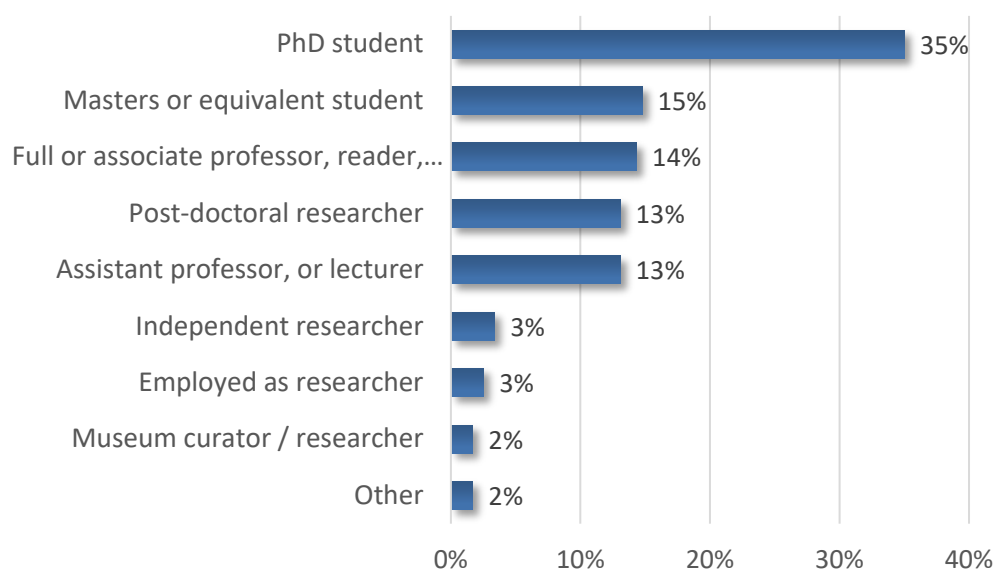
Most respondents undertake research in a University as indicated in Figure 4.3. The questionnaire was sent via email to researchers (master and doctoral students) in eight Universities in Finland as well as research personnel in three of these Universities in total. It was then

distributed to museums, academic libraries and archive sector. This sector is however much less represented among survey respondents.



**Figure 4.3** Professional affiliation, Finnish dataset (N= 237).

Regarding their status, the largest group of respondents were doctoral students (35%). They were followed by a similar number of (a) master students, (b) professors or senior researchers, (c) postdocs or assistant researchers, and (d) lecturers (each group between 13-15%). The remaining 9.3% of respondents undertake research independently or are otherwise employed as displayed in Figure 4.4.

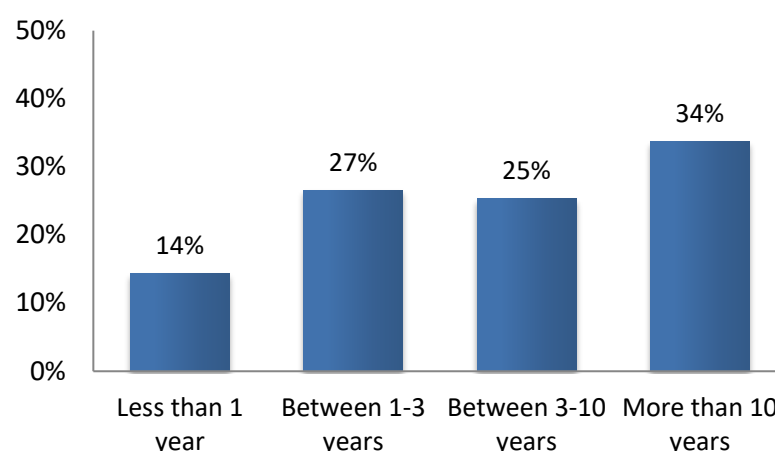


**Figure 4.4** Professional status, Finnish dataset (N= 237).

### 4.1.3 Years in research

In this section the trajectories in research of respondents, their age and gender are analysed. Here it is interesting to compare age-groups with overall trajectory and to identify possible gender gaps in research disciplines.

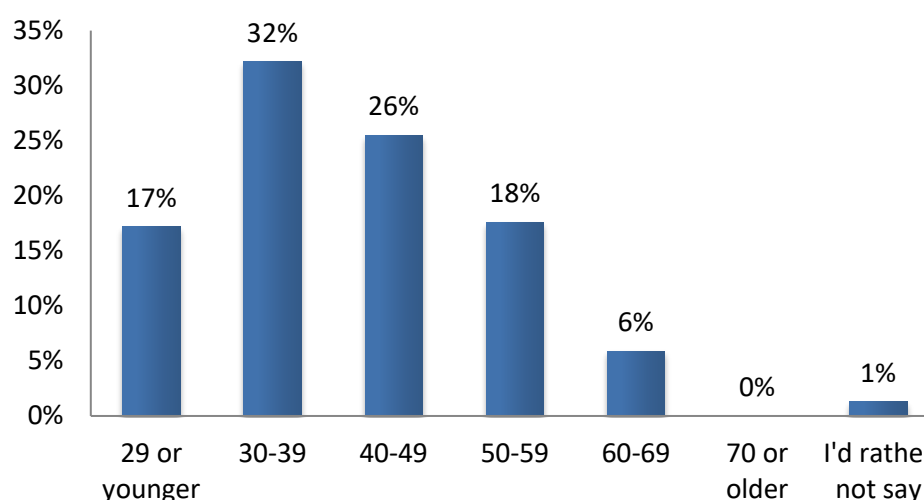
The largest group of respondents (41%) are researchers who have spent 3 years or less doing research, that is 4 out of 10. This group is followed by 33.8% of respondents with more than 10 years of experience, while a 25.3% answered having between 3-10 years of experience.



**Figure 4.5** Years in research, Finnish dataset (N= 237).

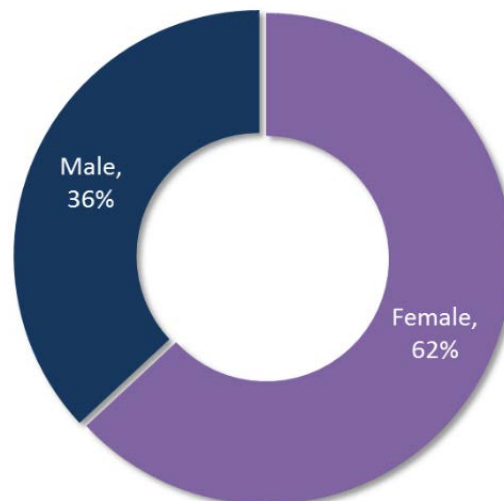
#### 4.1.4 Age and gender

In Figure 4.6 below, the age distribution of respondents is displayed. Keeping in mind that the largest respondent groups were doctoral and master students, it is no surprise that the largest age group of respondents is in their 30s (32.2%). This group followed researchers in their 40s (25.8%), there was a similar group of respondents in their 20s and 50s (around 17% each), and a small group of respondents over 60 (5.9%).

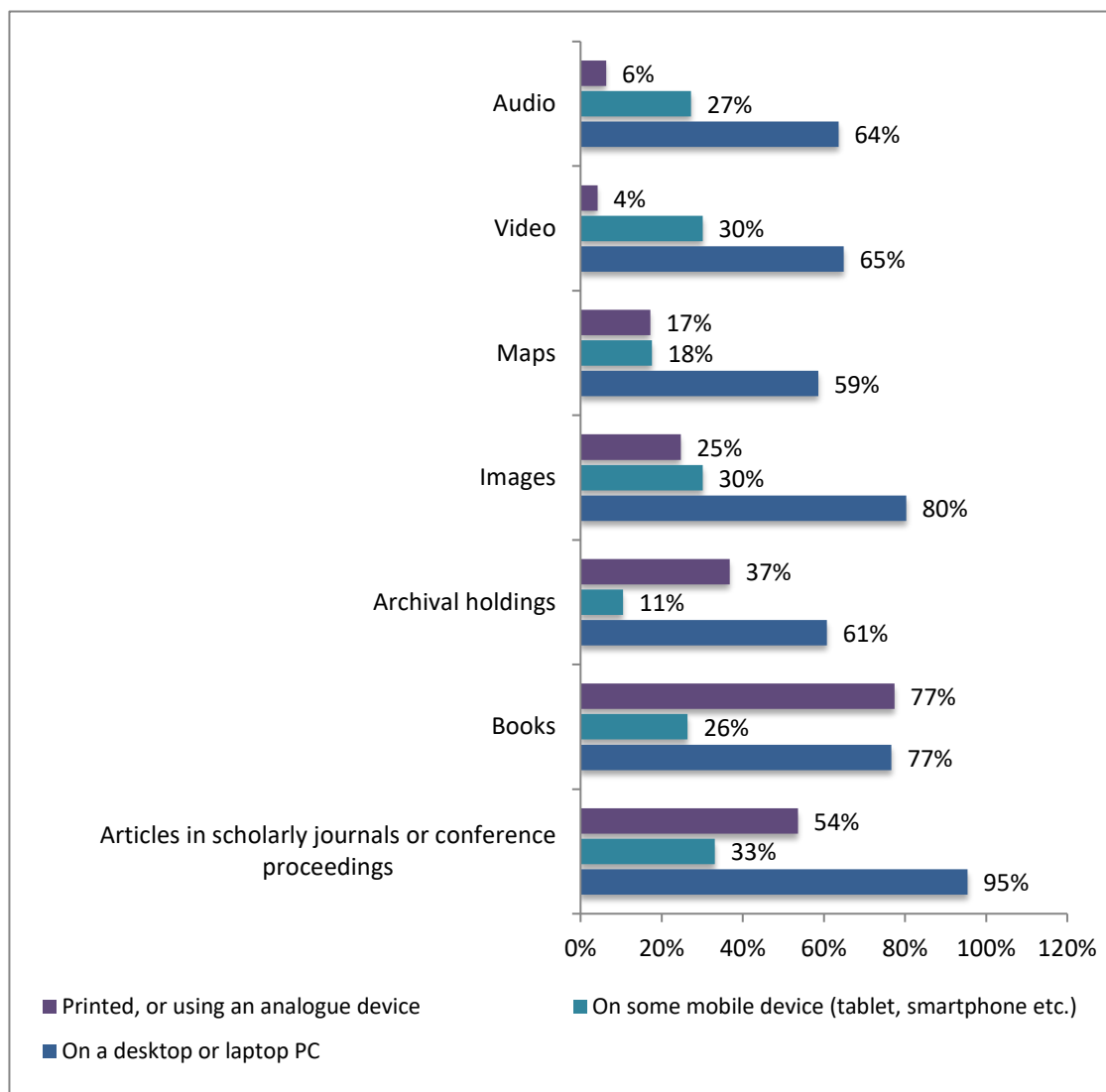


**Figure 4.6** Age, Finnish dataset (N=238).

Some respondents criticized the international core survey, for only regarding a binary gender representation. The European dataset show that a slight majority (56.5%) of respondents are women. The Finnish dataset evidences a slightly bigger majority of women respondents (62%) as displayed in Figure 4.7.



**Figure 4.7** Gender, Finnish dataset (N=233).



**Figure 4.8** Use of desktop PC/laptop, mobile devices and printed or analogue devices to consult research materials, Finnish dataset (N=239).

## 4.2 Research materials and digital access

Overall, all Finnish respondents, access research materials in digital format, or using a digital device. Though books, journals and archival holdings are still consulted by more than 25% of respondents on paper. Figure 4.8 shows a list of the most frequent types of research materials: (a) articles or conference proceedings, (b) books, (c) images, (d) archival holdings, (e) maps, (f) video and (g) audio. Respondents could specify if they consulted materials in print or using an analogue device, or when accessing them in digital form, if they were using a computer or a hand-held device (tablet or smartphone).

### 4.2.1 Articles in scholarly journals or conference proceedings

95,4% of respondents from Finland stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 53.6% stated that they read them in print. 33.1% reported that they use a mobile device for the same purpose.

### 4.2.2 Books

Books are equally consulted in print form (77.4%) and from a PC in digital format (76.6%). Additionally, 26.4% of respondents use a hand-held device to read books for research.

### 4.2.3 Archival holdings

Among respondents from Finland archival holdings are more often consulted in digital format: 60.7% from a PC and 10.5% from a mobile device. 36.8% of respondents consult archival holdings in analogue form.

### 4.2.4 Images

Images are consulted as well by most respondents in digital format, 80,3% from a PC, 30.1% from a mobile device, while still 24.7% of respondents consult images printed or using an analogue device.

### 4.2.5 Maps

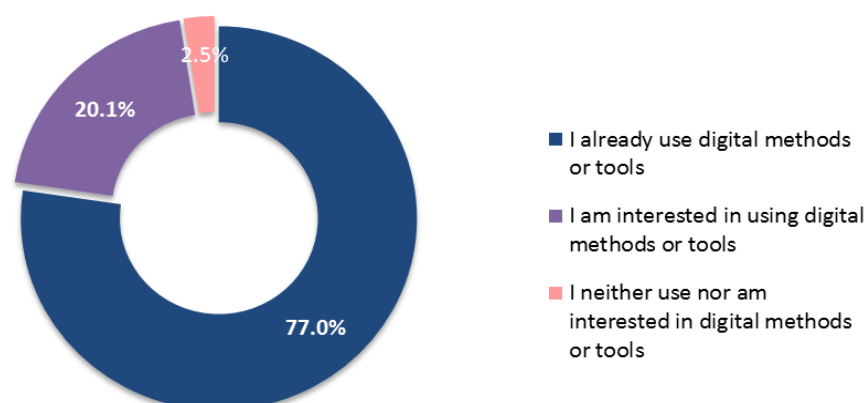
Over half of respondents stated to access maps in digital format, 58.6% from a computers, 17.6% from a mobile device. 17.2% consult maps in analogue format.

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**All research materials except for books are accessed more in some digital format than in print. Three out of ten respondents in Finland use mobile devices to access research materials.**

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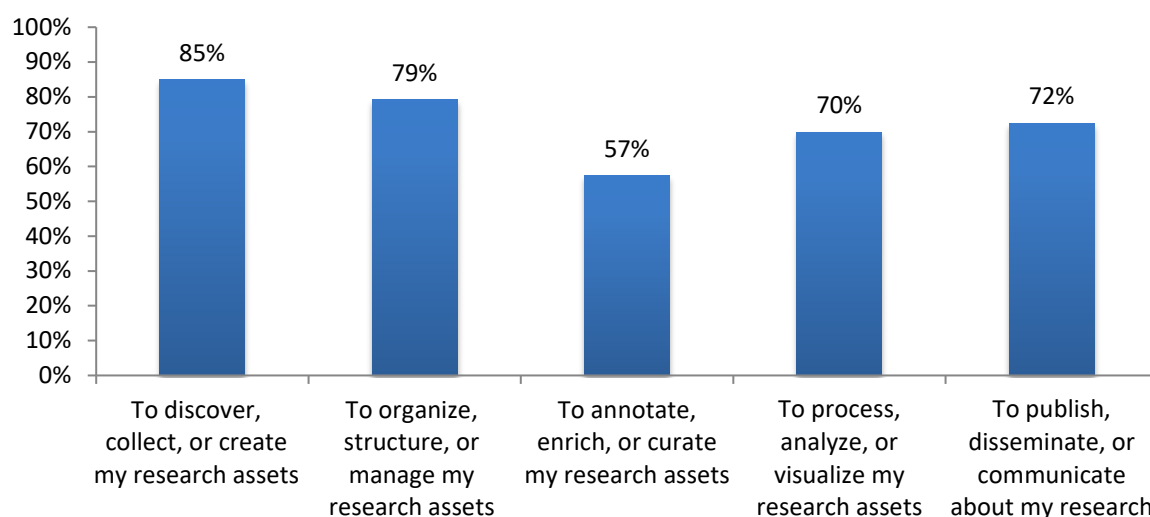




**Figure 4.10** Interest and use of digital methods or tools for research, Finnish dataset (N=239).

### 4.3.1 Purpose of use of digital research methods or tools

As mentioned in the introduction to this chapter, the questionnaire is structured having in consideration all stages of research and the possibility of making use of digital methods and tools in each of them. When looking at the distribution of Finnish respondents attending at the purpose (Figure 4.11), more respondents use or are interested in digital methods for finding (84.9%) and organising research assets (79.1%), followed by publishing research results (72.4%) and processing data (69.9%). Lastly, 57.3% of respondents make use of digital annotation and enrichment of research assets.



**Figure 4.11** Purpose of digital methods or tools, Finnish dataset (N=239).

### 4.3.2 Specific digital methods or tools used

This questionnaire was not particularly interested in measuring the digital skills of respondents nor was it targeted exclusively to digital humanities practice. Therefore, looking at the



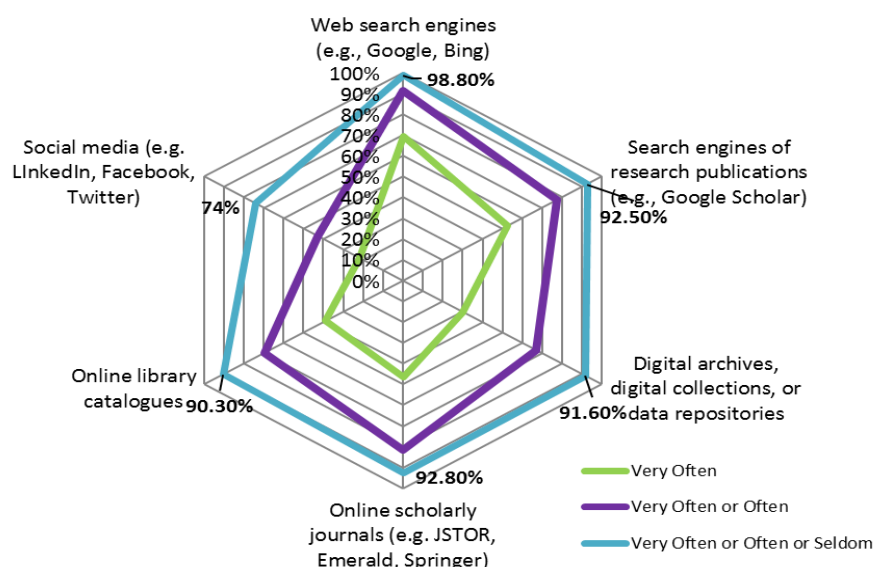
**'I use practically anything that is in my computer. From processing of texts to video and database editing, from programming to writing emails'.**

answers of respondents who described specific digital methods they apply in their research, practices range from source searching habits using catalogues to creating 3D models. This chapter analyses these digital methods based on their purpose.

In addition to methods and digital services presented in figures, this section includes a collection of specific tools mentioned by 133 respondents who voluntarily listed the software they are currently using. As this section of the question was open and some responses were vague, mentions of software were not processed quantitatively.

#### 4.3.2.1 To discover, collect or create research assets

Finnish respondents use a combination of digital sources to find publications (books, articles or journals) and other digital assets. As shown in Figure 4.12, more of them use generic web-sites (*Google*, *Google Scholar*) or scholarly search engines available (e.g., *JSTOR*) —more than 70% often or very often. Less respondents use repositories and catalogues from archives or libraries —around 60% often or very often. By contrast, 30% of respondents seek research assets on a social media platform often or very often<sup>5</sup>.



**Figure 4.12** Frequency of use of services, Finnish dataset (N=239).

<sup>5</sup> Finnish respondents were given a time reference: Very often= more often than once or twice in one month; Often= once a month or less but regularly; Seldom= I have done it before; Never= I have not done this at all.

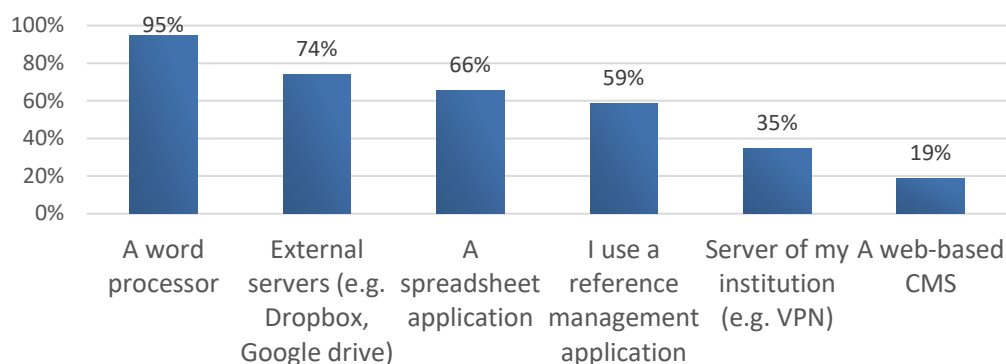
To find bibliographic sources (books, articles, journals) some respondents have mentioned OPACs provided by Universities (*Nelli HY*, *Helios UTA*...), but more often other portals such as *Google Books*, *Academia.edu*, *ResearchGate*, *Frontiers*, *Ebscohost* or *ACM* are used. Respondents in art disciplines more frequently mentioned Research Catalogue. Other than traditional bibliographic sources, research assets have been collected through specialized digital catalogues or databases: *CSC*, *Wordsmith* (for corpora or text resources), *National archives*, *RITVA*, *JAPA*, *Ylen äänitearkisto*, *elonet*, *IMDB* are some examples of repositories with data used in research.

**'On internet databases I find better images of ancient coins and inscriptions than I would find in already old and black-and-white paper publications. It is also hundred times easier to find anything'.**

Data generated by participants or web users represents an indicative amount of information for research. Methods mentioned by respondents include questionnaires (*Webropol*, *Google forms*). Also, social media content, logs or forum data were mentioned as means to collect research assets. Audiovisual data is also recorded by some respondents, these mention audio recordings more often, but some use other visual capture methods (e.g. *Movavi*, *Panono 360*).

#### 4.3.2.2 To organise, structure or manage research assets

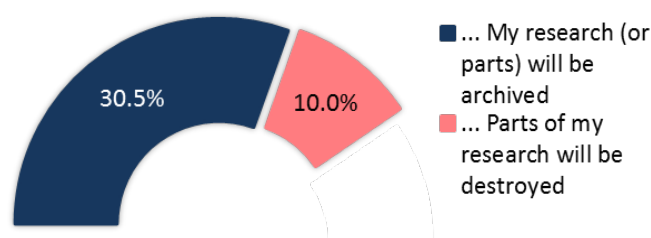
To organise, structure and manage research assets, as shown in Figure 4.13, most respondents use some sort of text editor (94.6%) or spreadsheet application (65.7%). 74,1% of respondents using digital storage space, prefer using generic storage platforms (*Dropbox*, *Google drive*, *Microsoft OneDrive*) than space offered by an institution for keeping their research assets (34.7%). 58.6% of respondents use a reference management application. And only 18.8% use a web content management editor.



**Figure 4.13** Applications used to organise and manage research assets, Finnish dataset (N=239).

When asked about specific management methods or tools, diverse bibliographic management systems were mentioned: *RefWorks*, *Zotero*, *Mendeley*, *Paperlite*, *Bookends*. Very few respondents are active developing bibliographic management systems as part of their work, respondents mentioned *Bibframe*, *Bibtex*, and *Latex*.

Finnish respondents were asked about preservation measurements taken with their own research assets. 30.5% of respondents had taken measurements to archive their data, while 10.0% of them admitted that parts of the research will be destroyed (Figure 4.14). None of the respondents provide detail on special measures taken or tools used for preserving their research data, other than doing back-ups, in external and in multiple devices, as well as using space offered by their institution.

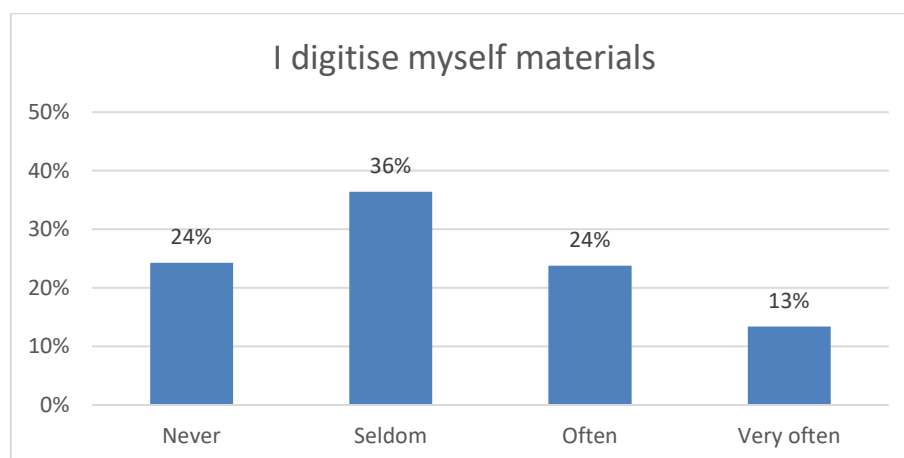


**Figure 4.14** Preserving the outcomes of most recent research, Finnish dataset (N=239).

#### 4.3.2.3 To annotate or enrich research assets

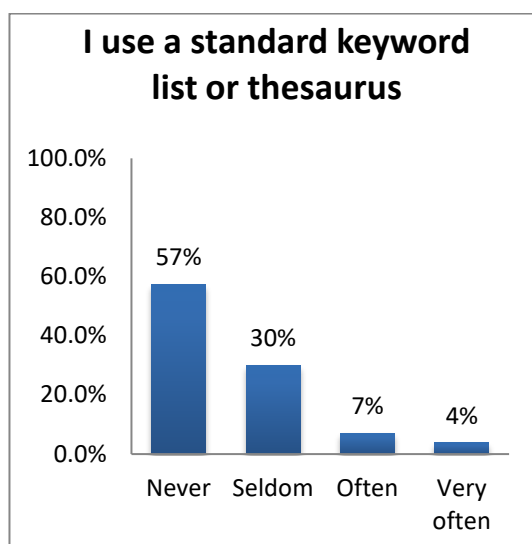
In humanities research there is a thin line that separates annotation and enrichment from actual analysing research assets, so this section focuses on methods and tools used for annotating and cleaning-up data. For text annotation, tools mentioned by respondents were *Evernote*, *OneNote*, *Endnote* and *SimpleMind*.

Finnish respondents were asked if they were involved themselves in digitisation, which could be considered enrichment of research assets. A surprisingly high number of respondents (73.6%) are involved in digitising materials, as shown in Figure 4.15. Here, it is worth considering along this activity the use of standard thesauri and vocabularies, that as seen in Figures 4.15 and 4.16, is much lower (41%).

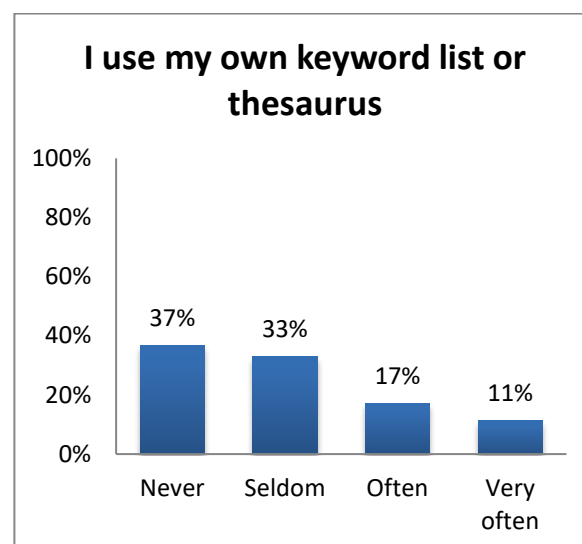


**Figure 4.15** How often do you digitise materials, Finnish dataset (N=239)

To annotate research assets, few respondents report using keyword lists or thesauri. As seen in Figures 4.16 and 4.17, while 41% of respondents use a standard keyword list or thesaurus seldom often or very often<sup>6</sup>. However, many respondents never make use of such (57.3%). By contrast, making use of one's own list of keywords or thesaurus is more common (61.6% of respondents do this very often, often, or seldom), while 36.8% never do this.



**Figure 4.16** Frequency using a standard keyword list or thesaurus to organise research assets, Finnish dataset (N=239).



**Figure 4.17** Frequency using own keyword list or thesaurus to organise research assets, Finnish dataset (N=239).

#### 4.3.2.4 To process, analyse, or visualise research assets

In accordance to the method classification used in this survey, this section summarises experiences with digital methods or tools that facilitate content analysis, network analysis, relational analysis, spatial analysis, structural analysis, visualisation, interpretation, contextualisation, modelling and theorising.

**'My main work tool is TUSTEP; first I digitise manuscripts from the Middle ages, then I compare different text versions with a machine'.**

Linguists among respondents in Finland are in the forefront using digital methods and tools for analysis, topic modelling or quantitative text transformation. For processing larger text corpora different tools are mentioned: *Voyant*, *NLTK*, *BNCweb*, *CQPweb*, *types2*, *FiCa*, *Khepri*,

<sup>6</sup> Finnish respondents were given a time reference: Very often= more often than once or twice in one month; Often= once a month or less but regularly; Seldom= I have done it before; Never= I have not done this at all.

*Text variation explorer*, *Wordsmith tools*, *AntConc* and *Tustep*. Other methods mentioned, without specifying the tools used, were for translations.

A large group of respondents mention collecting data by either recording it, using web surveys or other collection methods. This data (textual and audio-visual) is rarely used as such for research; it either has to be transcribed or edited. In addition to generic text editors and media players, some mention specialised software that facilitate transcription and media edition (*Inqscribe*, *Elan*, or *AVS Video*). For facilitating qualitative data analysis based on transcriptions respondents have mentioned to use *NVivo*, *Atlas ti*, *MAXQDA* and *Nudist*, or specialised for audio or phonetics (*Praat*, *Audacity*).

Creative tools by *Adobe* (*Illustrator*, *Photoshop*) are used to process images by a few people.

Respondents interested in larger amounts of data or quantitative analysis of statistics or other metric data make use of software such as *SPSS*, *SAP*, *R* and *YT*. Among this group, knowledge of programming languages was common, languages used are *R*, *Pearl*, *Python* or *OxygenXML*.

Few respondents describe more technical research activities: 'developing immersive educational environments using AR and AV', or doing research in archaeological sites. Software mentioned by these respondents were: 3D modelling tools (*AutoCAD*, *Sketchup*), tools for creating augmented reality environments (*Aurasma*, *Junaio* and *Wikitude*) or to process and analyse geographical data (*Idrisi*, *ArcGIS*).

### 4.3.3 Selected scholarly activities in focus

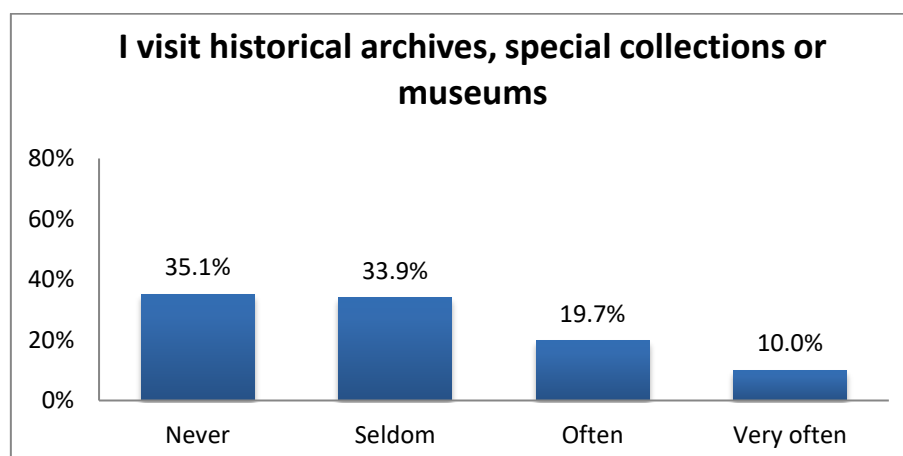
As this survey was primarily addressed to humanities researchers, activities that could be considered familiar or common to all humanities scholars were asked in focused. For the Finnish survey, we considered following activities: (a) visiting historical archives, (b) seeking archivists or subject librarians or museum curators for support, (c) using a bibliographic management system for citations, (d) accessing primary sources outside one's country of residence, (e) collaborating with others in a research project and (f) communicating with others in social media sites or discussion forums. In the following we analyse answers for each activity<sup>7</sup>.

#### 4.3.3.1 Visiting historical archives

29.7% of respondents report visiting very often or often archives, special collections, or museums. More common is that they visit seldom (33.9%) or never (35%) such institutions. All in all, this is an activity that 63,9 % of respondents have engaged in while doing research (Figure 4.18).

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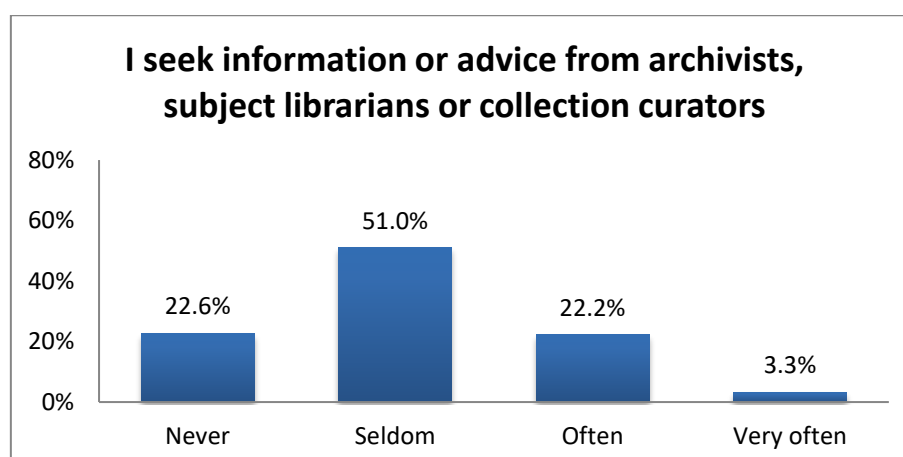
<sup>7</sup> For these activities, respondents were given a common timeframe: Very often= more often than once or twice in one month; Often= once a month or less but regularly; Seldom= I have done it before; Never= I have not done this at all.



**Figure 4.18** Visiting historical archives, special collections and museums, Finnish dataset (N=239).

#### 4.3.3.2 Seeking archivists or subject librarians or museum curators for support

Seeking support of archivists or specialists in libraries or museums is an activity that 25,5% of respondents undertake often or very often. However, overall it is practiced by 76% of respondents at some point of their research. Only 22.6% admittedly never seek support from experts in archives, libraries or museums (figure 4.19).



**Figure 4.19** Finnish dataset, Seeking advice from experts in libraries archives or museums, Finnish dataset (N=239).

#### 4.3.3.3 Using a bibliographic management system for citations

The use of specific bibliographic system (Endnote, Zotero, etc) is not as common as one would expect from active digital practitioners. 33.9% of respondents use often or very often a specialised software for managing their citations. Overall, 58.6% of respondents have used it at some point, while 40.6% reported that they never do (Figure 4.20).

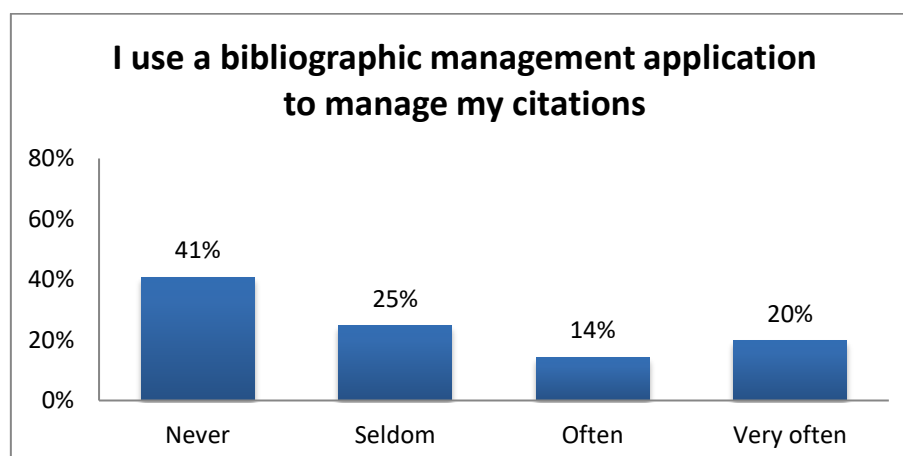


Figure 4.20 Use of bibliographic management application, Finnish dataset (N=239)

#### 4.3.3.4 Accessing primary sources outside one's country of residence

Travelling abroad or outside one's country of residence is an activity common to many respondents. More than half of them report doing it often or very often (56%), 25% do it seldom and only 17.2% have not required to travel abroad to collect primary sources for research (Figure 4.21).

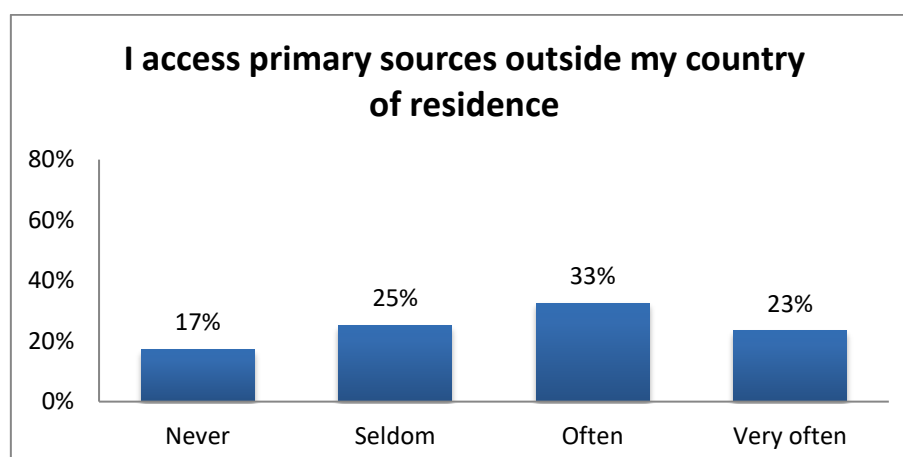
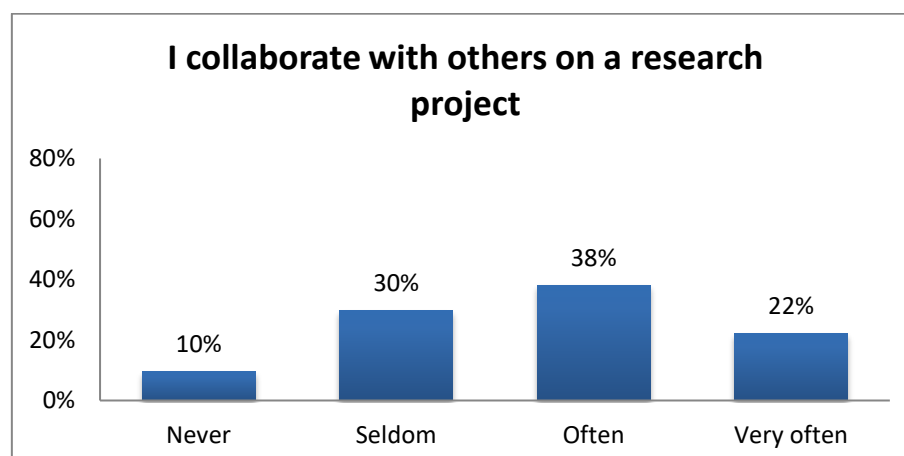


Figure 4.21 Accessing primary sources outside country of residence, Finnish dataset (N=239).

#### 4.3.3.5 Collaborating with others in a research project

Working with project collaborators is an activity that 60.3% of respondents report doing often or very often, 29.7% do it seldom while only 9.6% have admittedly never done it (Figure 4.22).

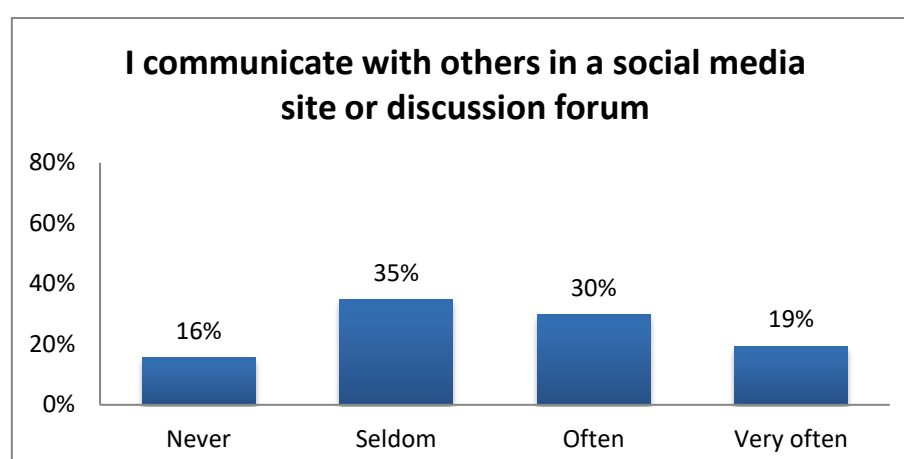




**Figure 4.22** Finnish dataset, Collaboration with others on a research project (N=239).

#### 4.3.3.6 Communicating with others in social media sites or discussion forums

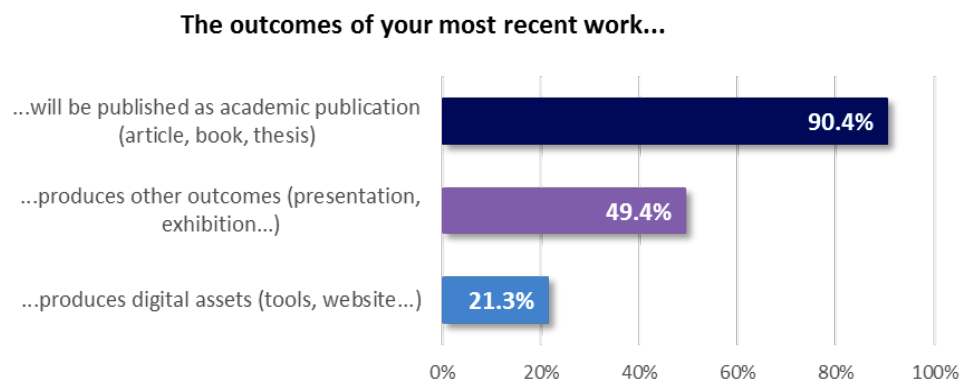
Using social media or a discussion forum as platforms for sharing information is an activity that 83.6% of Finnish respondents have done at some point. 48.2% do it very often or often, 34.7% seldom. 15.5% of respondents however reported never to use social networks or forums for communicating (Figure 4.23).



**Figure 4.23** Finnish dataset, Communicating in a social media site or forum (N=239).

## 4.4 Publication and dissemination of research results

When contemplating research outcomes in the digital age, it is relevant to diversify publishing formats. As it would be expected in the humanities, 90.4% of Finnish respondents have or plan to compile their research in a publication. Nevertheless, nearly half contemplate alternative outcomes such as presentations, exhibitions, performances. 21.3% consider alternative digital outcomes for their research such as tools or a website (Figure 4.24)



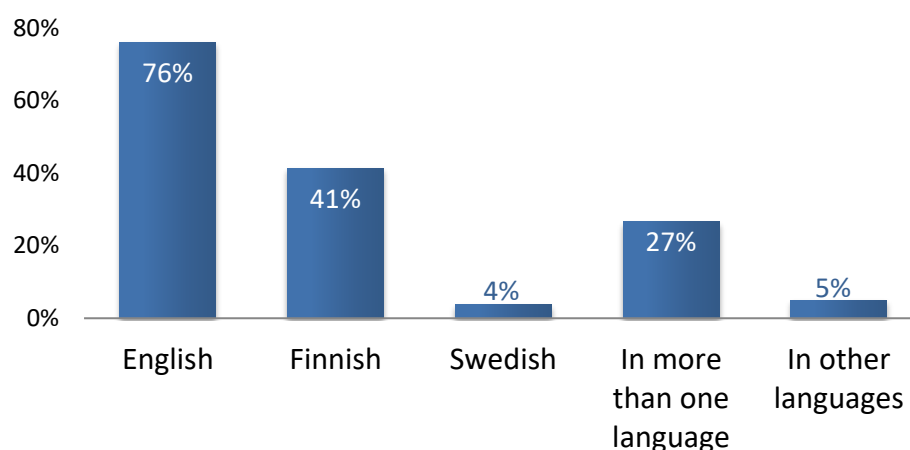
**Figure 4.24** Finnish dataset, Research outcomes (N=239)

#### 4.4.1 Language of publication

In Finland, we did not distinguish what is the native or first language of respondents. This is a conscious decision because it is not rare in Finland to find researchers with native-level command of two languages. Also, it is a safe estimation that those publishing in Finnish are Finnish or have a native-level command of the language.

**Finnish respondents publish in diverse languages, not being uncommon publishing in two languages. There is a preference to publish in English than in Finnish or Swedish, the official national languages.**

Figure 4.25 shows that English is the first language used in publications (76,1%) the second being Finnish (41,4%). 26.6% of respondents publish in several languages (26,6%) and 3,7% of respondents publish in Swedish, here it is to be reminded, that Swedish is official language in Finland.

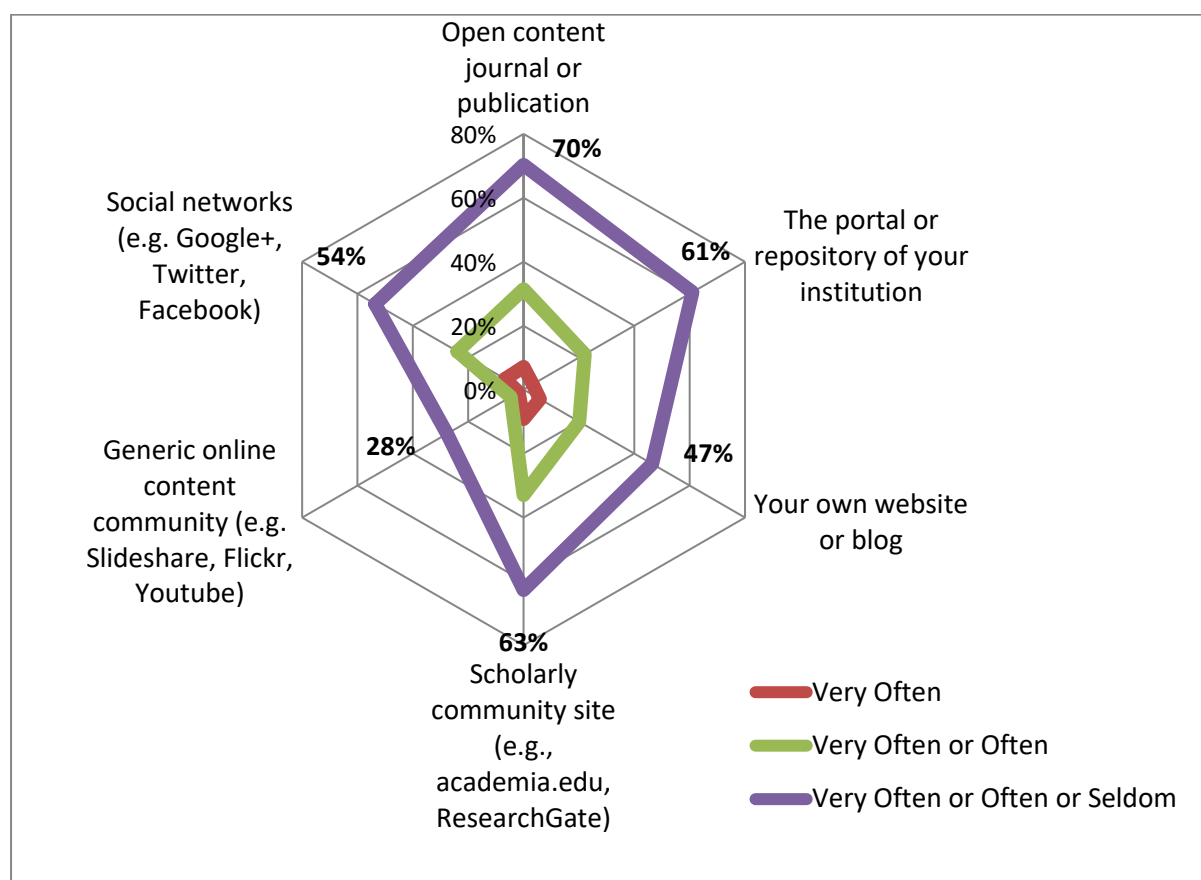


**Figure 4.25** Language of publication, Finnish dataset (N=239).

5% of respondents publish in other languages, these respondents could specify their primary publication language: German, Spanish, Russian, French, Estonian, Portuguese, Italian and Turkish were other national languages mentioned. Regional languages mentioned were Sami and Catalán.

#### 4.4.2 New channels of dissemination of scholarly work

At first glance at Figure 4.26, a seemingly moderate activity in dissemination of scholarly work through digital channels is detected among respondents. Here needs be reminded that questions where respondents had to estimate frequency, the same time-scale was provided<sup>8</sup>. Being research a time-intensive activity, it is likely that outcomes will occur more seldom than often or very often.



**Figure 4.26** New channels of dissemination of scholarly work, Finnish dataset (N=239).

Regarding the channel chosen to disseminate research results, it is no surprise that the sources of information preferred (see Figure 4.12 in section 4.3.2.1), are as well the platforms chosen to publish their scholarly work. Reading closer Figure 4. 26, we can say that between

<sup>8</sup> This time reference was: Very often: at least once a month, Often: less than once a month, but regularly, Seldom: have done this at some point, Never: never have done this.

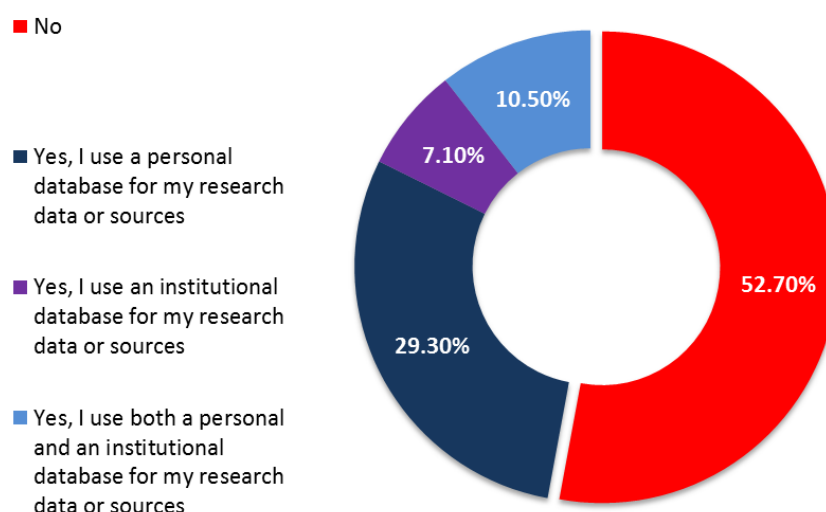
60 and 70% of respondents use or contemplate (a) open scholarly journals, (b) academic community sites and (c) their own institution to publish their work. Platforms less used to disseminate work are (d) social networks (53.6%), (e) a project or own website or blog (46.5%) or (f) other content sharing platforms such as *Flickr*, *Slideshare* or *YouTube* (27.6%). It is remarkable, that 25% of respondents have never used a digital channel to disseminate their own work, which might be explained by the large number of doctoral and master students responding this survey.

In an open section to this question respondents could provide details about other digital publication activities. Power point or similar tools were often mentioned. From the scholarly communities, *Academia.edu*, *Research Catalogue* were mentioned, as well as *Open Science Framework* and *GitHub* for code sharing. *Twitter* and *Wordpress* were the only generic web services mentioned by respondents.

## 4.5 Data management software and services

### 4.5.1 Database use

In Finnish the word ‘tietokanta’ is often used referring to catalogues or databases. This section focuses on the second meaning and focuses on a segment of 46% of respondents who make use of databases as a way to organise and structure collected research assets. As it is shown in Figure 4.27, more than half of the respondents that use databases, use a personal one (29.3% of all respondents), 10.5% use both personal and institutional databases and only 7.1% use an institutional database. 52.7% of all respondents do not make use of databases.

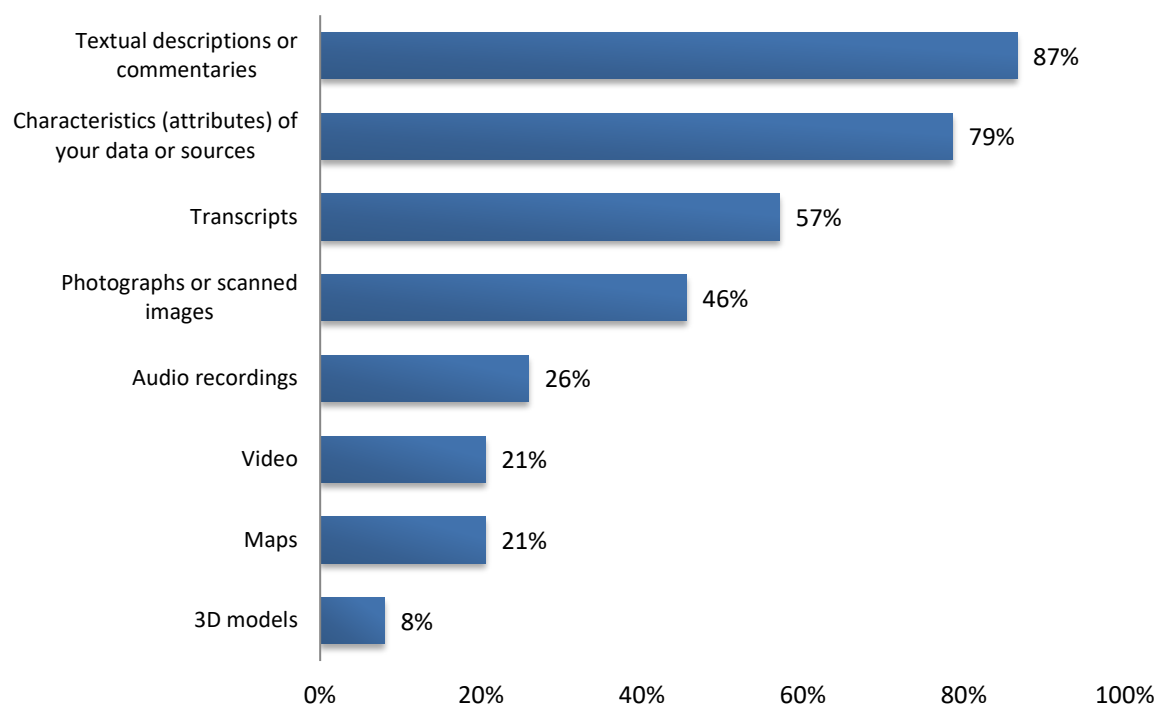


**Figure 4.27** Database use, Finnish dataset (N=239).

### 4.5.2 Database content scope

In Figure 4.28 the type of information collected in databases is shown. Respondents had a list of database content types to choose from. From the 112 respondents who use a database, the

largest content type is textual, differentiated content of this nature are descriptions or commentaries (86.6%), characteristics or attributes of data or sources (78.6%) or transcripts (57.1%). The next group of content are images, 45.5% of respondents collect photographs or scanned images. 25.9% collect audio recordings. 20.5% collect videos. Another 20.5% of this segment collects maps. Finally, 8% of respondents collect 3D models.



**Figure 4.28** Database content scope, Finnish dataset (N=112).

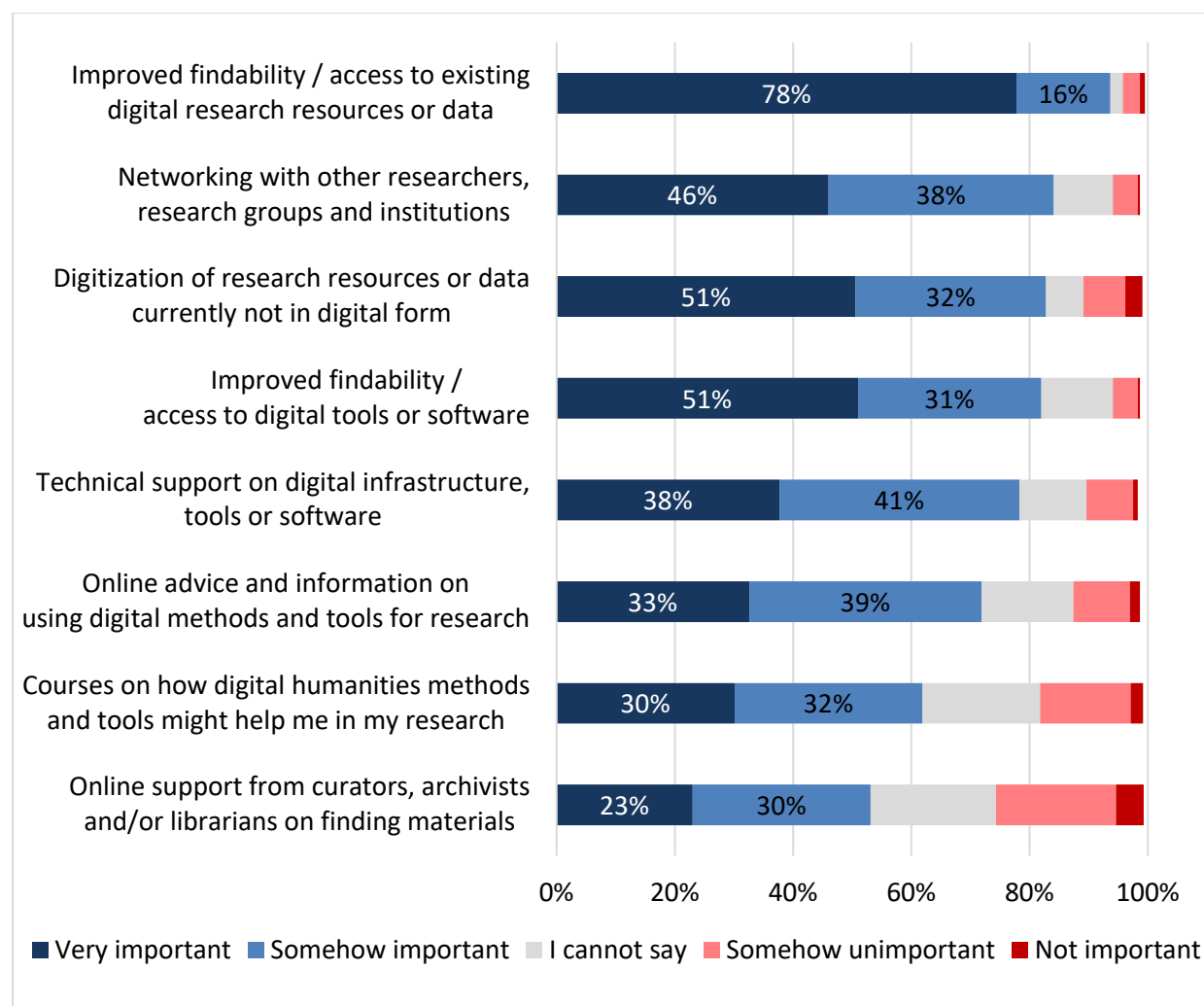
From the open section to these responses, some respondents specified what they collected: text variations, multilingual terminologies, survey data from questionnaires, terrain and volumetric data (archaeological or architectural data) were mentioned. SPSS, SAS, R, SQL and Access were database systems mentioned by respondents.

## 4.6 Assessment of researcher needs

In the questionnaire, respondents were asked to describe not only their practice using digital methods in their research, but as well their interests and unsatisfied needs when, during research, digital materials or infrastructures come into play. This section provides an analysis of these expressions of need for training or support on digital methods or tools, desire for accessing more research or data in digital form, as well as the human and technical infrastructures important for their research.

Figure 4.29 shows that Finnish respondents considered important or very important following needs (in order of more to less importance): (a) Improved access to existing digital re-

sources or data (93.7%), (b) networking with other researchers (84.1%), (c) digitisation of resources currently not in digital form (82.8%), (d) improved access to tools and software (82%), (e) technical support on digital tools and software (78.3%), (f) online advice and information on using digital methods or tools (71.9%), (g) courses on digital humanities methods (61.9%) and, at last, (h) online support from curators, archivist or librarians for finding materials were considered as important or very important by 53.1% of respondents.



**Figure 4.29** Assessment of researcher needs, Finnish dataset (N=237)

Respondents from Finland had the chance to add to this scale any digital infrastructural needs not satisfied by their home institution. Though only two out of ten responded this open section, these expressions allow to identify three main challenges: (a) improving access to digital research data, including reference guidelines (b) finding balance between training and collaboration, (c) considering the human factor in digital infrastructures.

*Improved digital access to research resources or data*

Most comments hinted to limited access to digitally published research, key scientific journals or repositories (such as *Jstor* or *OpenAthens*) not being available in their home institution. Other comments relate to difficulties that could be tackled by each institution, e.g. improving search functionality of library OPACs.

Comments such as 'Not having to re-invent the wheel, and instead, copy reference systems and data management plans from ready-made guidelines provided by the faculty' or 'reliable guidance for open data is needed' hint at expectations towards home institutions to provide clear guidance on how to use or access such materials. Adequate referencing guidelines or explicit licenses are not always attached to digital data, essential for re-use in scientific context.

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**'My research topic is multidisciplinary, so I cannot get answers in courses meant for traditional disciplines. Courses on the use of databases are suited for those whose topic fits into some existing discipline'.**

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*Collaboration vs training on digital methods and use of tools*

Though in Figure 4.29 is visible how respondents consider more important to network and collaborate rather than learn digital methods, more comments were found in this section towards furthering skills. Some respondents wish for 'Digital humanities training for doctoral students' even 'personalised tutoring'. What characterises the needs of respondents towards training in digital methods, is adequacy to their research subject. Researchers that fluctuate between disciplines might have it harder to find the right course.

Need for training in methods for textual analysis (big data analytics, text mining, topic modelling) have been mentioned the most; even by respondents from the fields of social behaviour, history or regional studies, not only by linguists. The increasing quantity of historical materials being digitised or already accessible in digital form, as well as the amount of social and cultural expressions that today are being directly produced in digital platforms, comes with the interest for learning basic skills to acquire and at least, breaking down this data. Some respondents are interested in training that facilitates handling relational data (databases). Training in the use of tools are as well on demand by respondents: Qualitative analysis tools, tools for publishing and disseminating their research online, or tools for creating infographics and graphical representations of social networks, interactions or geopolitical data.

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**'Right now, we are given limited options, based upon what people hired at the university are interested in'.**

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When course offer does not satisfy or when there is limited time to invest in learning new digital methods, the best option is to find partners and collaborators. Unfortunately, very few comments were offered regarding improving chances for collaboration or networking. These few comments mention assistance in carrying out time-consuming tasks, or mention being introduced to those who have the technical skills.

#### *Digital infrastructures and human support*

There are a few respondents who suspect not taking advantages of all the possibilities offered to them, and that they might be missing important information due to increasing workloads. But some of the respondents using or developing digital methods, evaluate the technical infrastructure chosen by their home institution as inadequate: 'Everything running on Windows instead of Linux', 'limited digital storage/server space', 'insufficient budget to buy the software needed'. Finally, some respondents would appreciate more variety and opportunities for consult when deciding in using a software.

## 4.7 Conclusions

The analysis of responses to this survey indicates that Finnish researchers in and related to the humanities who responded this survey make use of digital methods and tools. When this practice is analysed in detail, it is more likely that this occurs in initial research steps, for searching, accessing and organising research assets, and less frequently in later research stages, for analysing data, creating or communicating research results.

Digital practice is present in heterogeneous research fields, both for humanists and scholars with multidisciplinary interests or related fields such as media or education, as the Finnish survey population showed. More importantly, the respondents' description of their digital practice was accompanied by expressions of interest for learning and applying digital methods and using tools more efficiently. This evidences the need for thinking of digital humanities as an infrastructure that supports researchers within their own discipline, and supports scholars collaborating across fields.

As in the European dataset, Finnish respondents consider more and more accessible digital research resources of outmost importance for carrying out research. This is also to be explained by the fact that in Finland, except books, all types of research materials are accessed more in digital than print formats. For the most part of respondents, these resources are scholarly journals and publications. That scientific publications are behind a paywall, is the main issue regarding access to such assets internationally and in Finland<sup>9</sup>. However, as seen in responses to open questions, research assets in the arts and humanities are also archival sources, images, videos and audio material, databases, social networks and user generated

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<sup>9</sup> Through the initiative Tiedonhinta ('cost of knowledge'). More information: <http://tiedonhinta.fi>

content or metric data. For less traditional types of digital research data, comments from respondents range from the need to learn digital methods to acquire or break down the data. Also, they mentioned more international than Finnish sources of such data.

Among the research activities on focus in this survey, it is noteworthy that against 19% in Europe, 35% Finnish respondents never visit archives, special collections, or museums. Although we do not have data from Europe to compare, we observe that around 73% of Finnish respondents engage in digitising their own assets. This points at a potential disconnect between research communities and cultural heritage institutions and would require further research into how researchers are digitising or if they benefit from institutions, at the forefront of preservation and digitisation workflows.

Other than traditional publication activities (articles, books, thesis, presentations, exhibitions), a substantive 21% of respondents to the Finnish questionnaire are creating new digital assets with their research. However, the insufficient inquiry relating preservation activities done in this survey round points at an open line for research about the sustainability of research assets being created today. Regarding the choice of using digital services for publishing research outputs, Finnish and European data show similar results, respondents prefer scholarly to generalist platforms to disseminate their work. That Finnish respondents appear less active in publishing should be disregarded, as in contrast to the core survey, in Finland we provided a specific temporal reference to rate questions about frequency.

Finally, the collaborating scenario between humanities researchers with computer scientists is more likely to be happening in isolated cases, rather than it being a component of the regular activity of a researcher. An indicator of this can be found in this questionnaire by the few respondents in the humanities that showed interest outside the humanities (6.7%). In addition to researchers active in collaborative scenarios (that amount 29.3% of respondents in Finland) other respondents mentioned supervisors and people working in their departments at their home institutions. So, it is important for digital humanities to maintain human infrastructures, that can locally provide information on where to look for support when humanists require support in digital scholarly activities.



# Chapter 5

## Country profile: Greece

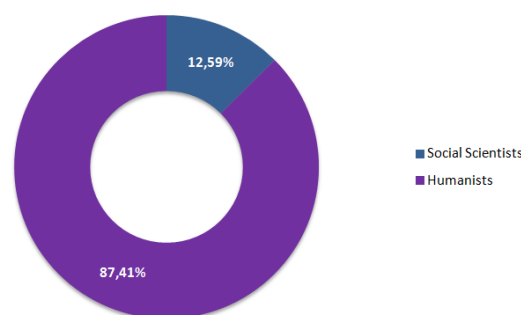
*Nephelie Chatzidiakou & Costis Dallas*

### 5.1 Respondent profile

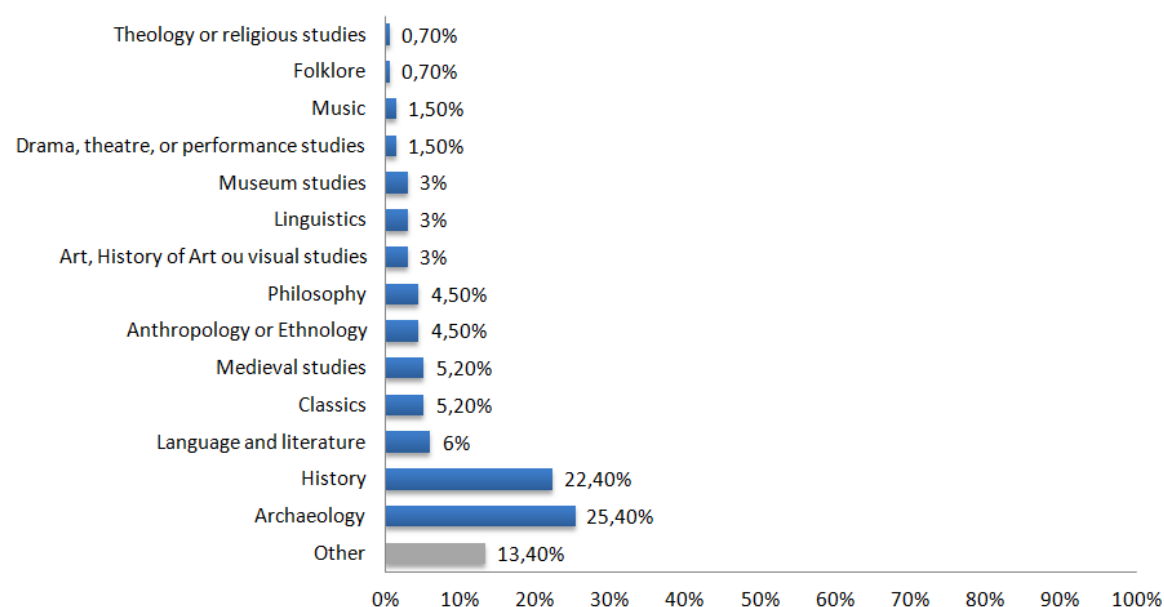
The Greek dataset consists of 149 complete responses. These responses have been categorized according to the discipline to which the respondents belong, in order to create a homogeneous sample consisting solely of researchers working on the humanities and social sciences (HSS). This filtering resulted to a final sample consisting of 135 responses.

#### 5.1.1 Discipline

As expected by the web survey design and targeting strategies, most respondents are humanists (87.4%), while a small proportion (12.6%) are social scientists (Figure 5.1). Furthermore, the dataset consists mainly of archaeologists (29.2%) and historians (25.66%), while the disciplines of language and literature, classics, medieval studies, philosophy and anthropology or ethnology are also adequately represented (7%-5%). Other disciplines represented in the dataset include art, history of art or visual studies, museum studies, linguistics, drama, theatre or performance studies, music, folklore and theology or religious studies (Figure 5.2).



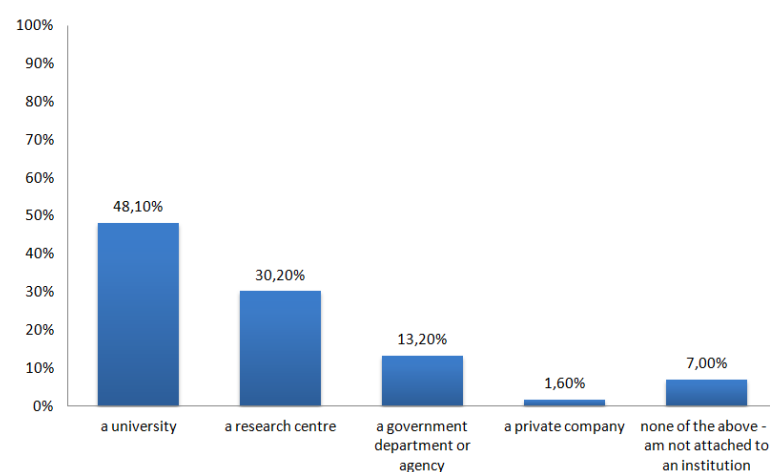
**Figure 5.1** Percentage of humanists and social scientists, Greek dataset (N=149).



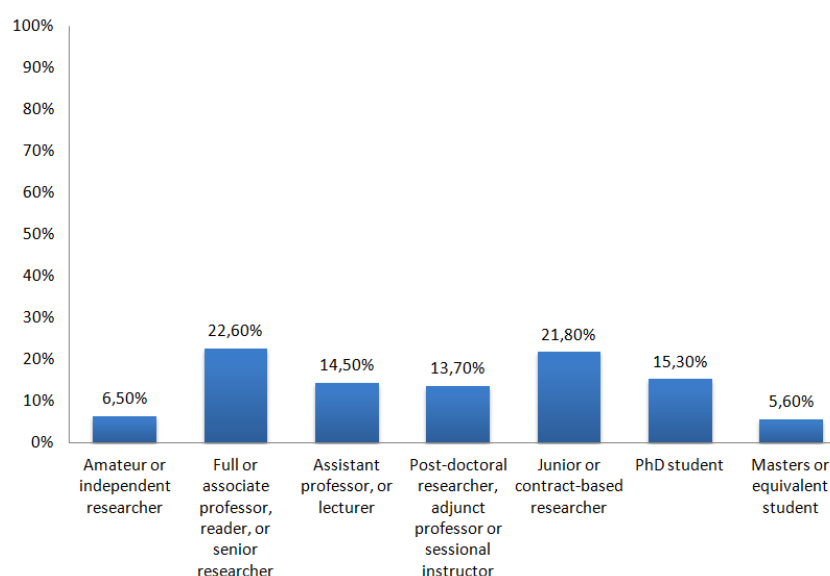
**Figure 5.2** Discipline, Greek dataset (N=135).

### 5.1.2 Professional affiliation and status

Most respondents are attached to a university (48.1%) or a research centre (30.2%), while a small percentage is attached to a government department (13.2%) or a private company (1.6%). 7% of the respondents state that they are not attached to an institution (Figure 5.3). Regarding their professional status, the majority of respondents are full or associate professors, readers or senior researchers (23.2%). Junior or contract-based researchers also represent an important percentage of the dataset (21.6%). PhD students, assistant professors or lecturers and post-doctoral researchers, adjunct professors or sessional instructors are also represented in the Greek dataset by about 14% each. Finally, amateur or independent researchers and masters students are also represented in the dataset by a small proportion (Figure 5.4).



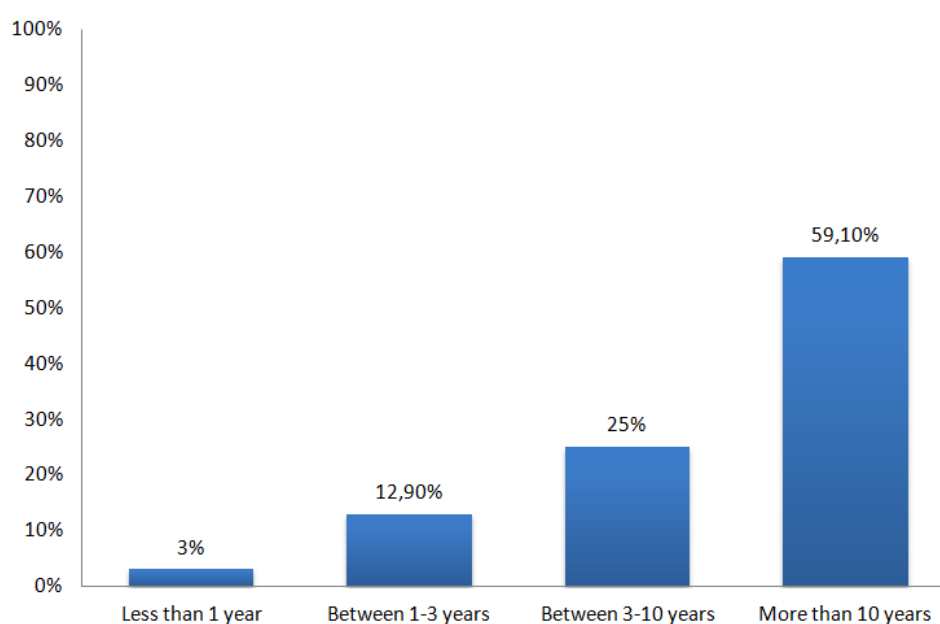
**Figure 5.3** Professional affiliation, Greek dataset (N=129).



**Figure 5.4** Professional status, Greek dataset (N=124).

### 5.1.3 Years in research

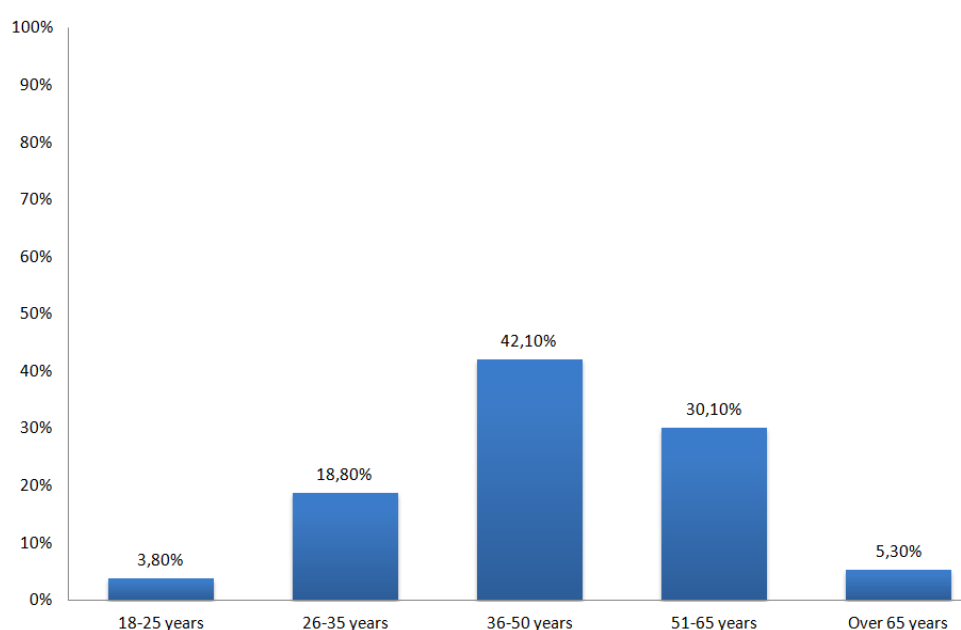
Most respondents (59.1%) are experienced researchers, working for more than 10 years in research, while 25% of the respondents work as researchers between 3 and 10 years. 12.9% of the respondents work as researchers between 1 and 3 years and only 3% of the respondents work as researchers for less than a year (Figure 5.5).



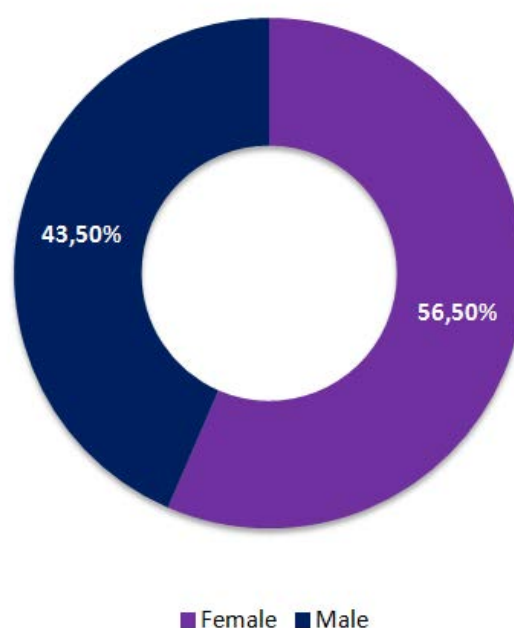
**Figure 5.5** Years in research, Greek dataset (N=132).

### 5.1.4 Age and gender

Most respondents are between 36 and 50 years old (42.1%). 30.1% of the respondents are 51 to 65 years old, while 5.3% of them are over 66 years of age. 18.8% of the respondents are 26 to 35 years old and only 3% is between 18 and 25 years of age (Figure 5.6). Finally, 56.5% of the respondents are female and 43.5% are male (Figure 5.7).



**Figure 5.6** Age, Greek dataset (N=133).

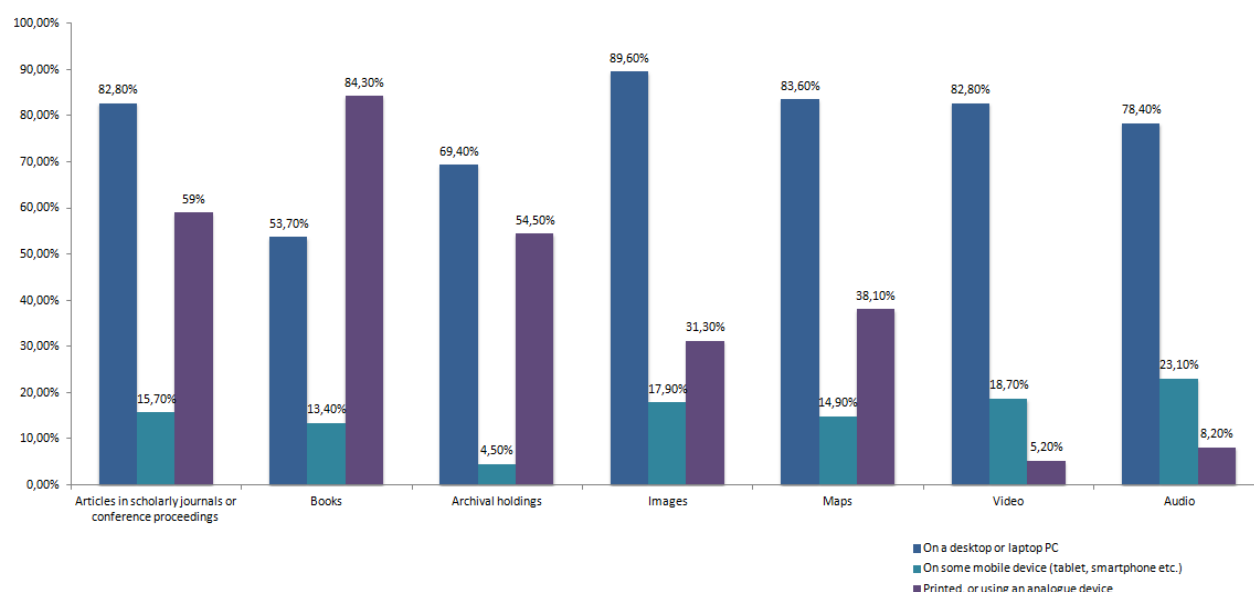


**Figure 5.7** Gender, Greek dataset (N=131).



## 5.2 Research materials and digital access

Researchers in Greece seem to use digital media regularly to consult research materials. They were asked to state where they consult specific kinds of research materials using a desktop or laptop PC, some mobile device, and/or if they use an analogue device. Multiple responses were allowed (Figure 5.8).



**Figure 5.8** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research materials, Greek dataset (N=134).

### 5.2.1 Articles in scholarly journals or conference proceedings

82.8% of the respondents stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 15.7% stated that they use a mobile device for the same purpose, while 59% state that they use printed text or an analogue device.

### 5.2.2 Books

53.7% of the respondents stated that they use a desktop or laptop PC to consult books, while 84.3% stated that they use a printed or analogue device for the same purpose. This is the only case in which the use of printed/analogue media is greater than the use of a desktop or laptop PC. 13.4% of the respondents stated that they use some mobile device to consult books.

### 5.2.3 Archival holdings

69.4% of the respondents stated that they use a desktop or laptop PC to consult archival holdings. Only 4.5% stated that they use a mobile device for the same purpose, while 54.5% state that they use printed text or analogue media.

### 5.2.4 Images

89.6% of the respondents stated that they use a desktop or laptop PC to consult images. 17.9% stated that they use a mobile device for the same purpose, while 31.3% state that they use printed text or analogue media.

### 5.2.5 Maps

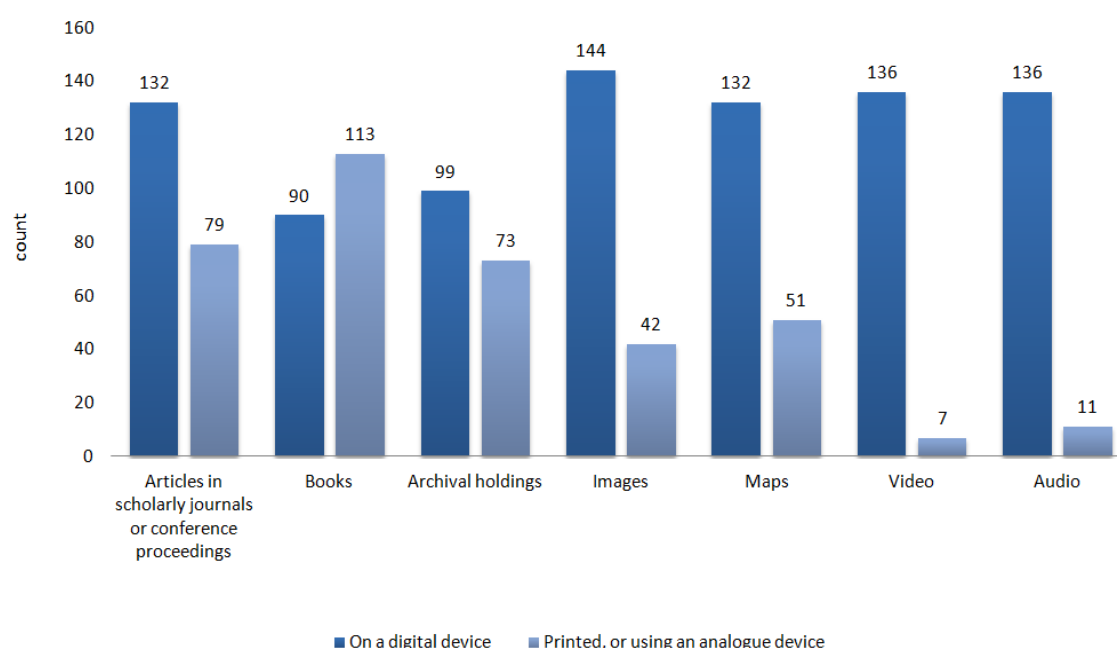
83,6 % of the respondents stated that they use a desktop or laptop PC to consult maps. 14.9% stated that they use a mobile device for the same purpose, while 38.1% state that they use printed text or analogue media.

### 5.2.6 Video

82.8% of the respondents stated that they use a desktop or laptop PC to watch video. 18.7% stated that they use a mobile device for the same purpose, while 5.2% state that they use printed text or analogue media.

### 5.2.7 Audio

78,4 % of the respondents stated that they use a desktop or laptop PC to consult some audio related to their research. 23.1% stated that they use a mobile device for the same purpose, while 8.2% state that they use printed text or analogue media.



**Figure 5.9** Use of digital and printed/analogue media to consult research materials, Greek dataset (N=134).

Figure 5.9 showcases the overall use of digital media (based on desktop or laptop PC and mobile devices) compared to the use of printed or analogue media. The use of digital media is

greater than the use of printed/analogue ones in almost all cases, except for books. Print is preferred by researchers when they need to consult books, while on the other hand, images, maps, video and audio are primarily consulted in some digital form, and rather rarely in printed or analogue form. Finally, articles in scholarly journals or conference proceedings and archival holdings are mainly accessed in a digital form, but the use of printed or analogue media is also widespread.

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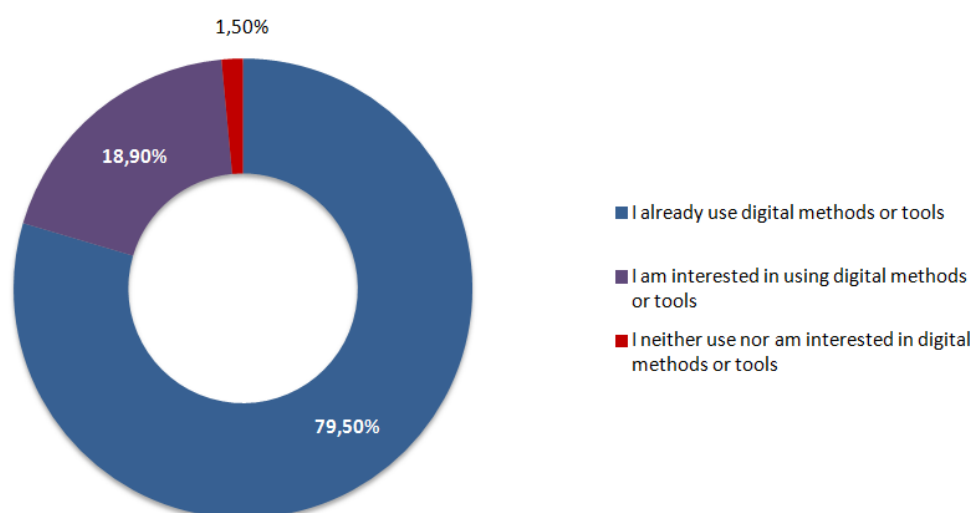
**Print is preferred by researchers when they need to consult books, while ... images, maps, video and audio are primarily consulted in some digital form.**

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An interesting result relates to the use of mobile devices, such as tablets and smartphones. While not as widely used as desktop and laptop computers for research purposes, nevertheless they are used quite regularly in order to consult audio and video.

### 5.3 Scholarly activities, methods and tools

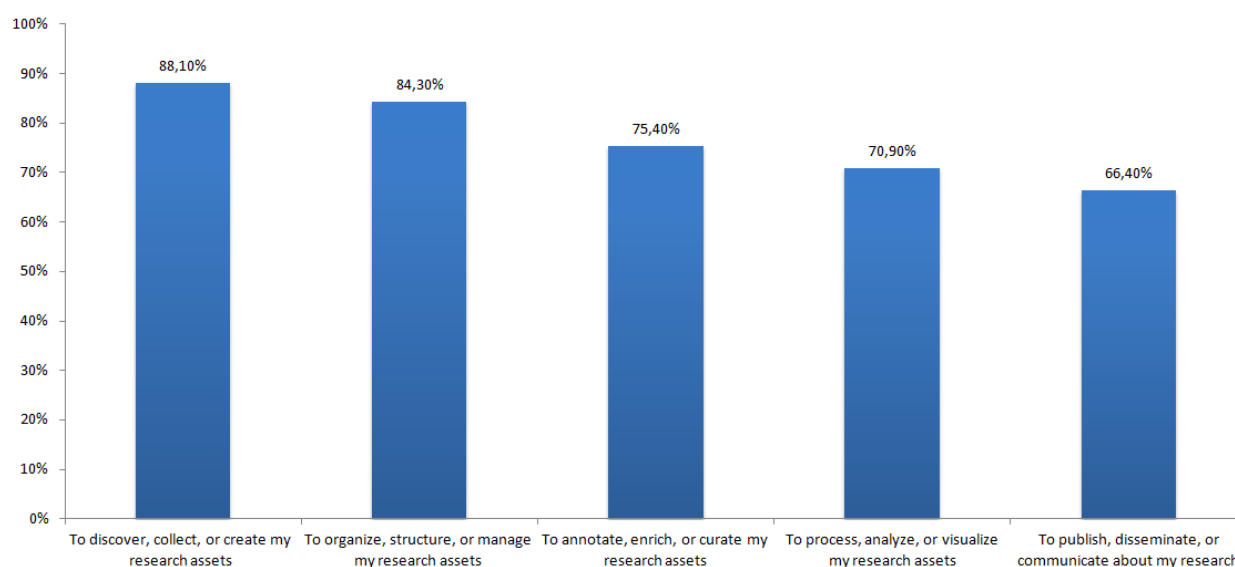
Survey respondents were asked whether they use or are interested in using digital methods or tools for their research (Figure 5.10). Most respondents (almost 80%) state that they already use digital methods or tools in the course of their research. 19% of the respondents say that they are interested in using digital methods or tools, while a small 1.5% say that they neither use nor are interested in using digital methods or tools.



**Figure 5.10** Use of digital methods or tools, Greek dataset (N=132).

### 5.3.1 Purpose of use of digital methods or tools

Respondents who stated that they already use digital methods or tools were subsequently asked, in a filter question, to state for what purpose they use them; five options were available, and respondents could enter multiple responses. Responses indicate that all five purposes proposed are relevant. More specifically, more than 66% of the respondents state that they use digital methods or tools to (1) discover, collect or create their research assets, (2) organise, structure or manage their research assets, (3) annotate, enrich or curate their research assets, (4) process, analyse, or visualise their research assets, (5) publish, disseminate or communicate about their research. Of these activities, the first two (to discover, collect or create research assets and to organise, structure or manage research assets) seem to be more widespread (Figure 5.11). In comparison, the use of digital methods or tools for publishing, disseminating or communicating about one's research seem to be a little less frequent (66.4%).



**Figure 5.11** Purpose of use of digital methods or tools, Greek dataset (N=132).

### 5.3.2 Specific digital methods and tools reported

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on the particular way respondents use, or are interested in using, digital methods or tools.

To assist interpretation of findings, responses were categorized firstly according to the particular functionality or research activity they refer to, and secondly according to the aspect of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; and, © to publish, disseminate or communicate about research. Since respondents identified both activities and examples of applications, their specific responses within each category were further classified

accordingly, and examples of applications were matched with activities they support. The findings presented below do not take into account the frequency of a specific answer, since it is the qualitative dimension of uses, activities, and services or tools used that is showcased in this section.

### 5.3.2.1 To discover, collect or create research assets

To discover and collect research assets, respondents state that they access digital repositories and library catalogues. The repositories listed are mainly available online (only one local database is named) and they are mainly international, while a small number of Greek repositories are also mentioned (Table 5.1). Methods for research asset creation mentioned include scanning, 3D laser scanning, digital photography, photogrammetry, and audio capture.

**To discover and collect research assets, respondents state that they access digital repositories and library catalogues ... Methods for research asset creation include scanning, 3D laser scanning, digital photography, photogrammetry, and audio capture.**

**Table 5.1.** Specific digital methods or tools used - Discovering, collecting, or creating research assets, Greek dataset.

Discover, collect, create research assets	
Activity	Examples mentioned
Scanning	-
3D laser scanning	-
Digital photography	-
Photogrammetry	-
Audio recording	-
Access to digital repositories and library catalogues	<p><b>International:</b> Google, Google Scholar, European, Hathi Trust, JSTOR, Academia, Packard Humanities Institute, Google Books, Archaeo-data</p> <p><b>National (Greek):</b> Anemi (Ανέμη), HEAL-Link, Archaionimion (Αρχαιομνήμων), The Academy of Athens local database</p>

### 5.3.2.2 To organise structure or manage research assets

For the purpose of organising, structuring or managing research assets, Greek respondents state that they use a variety of applications, services and tools. Databases seem to be widespread for this purpose, as well as the use of notekeeping and citation management programs

such as *Evernote* and *Zotero*. In one case the use of ontologies is mentioned. The use of cataloguing software, such as *AnyBook*, is also noted. Some respondents state also that they use word cloud generators such as *Wordle* to analyse textual data (Table 5.2).

**Table 5.2.** Specific digital methods or tools used - Organising, structuring or managing research assets, Greek dataset.

Organise structure or manage research assets	
Activity	Examples mentioned
Use of databases	MySQL, MS Access
Use of ontologies	-
Use of citation programs	Evernote, Mendeley, Citavi, Zotero
Use of cataloguing software	AnyBook
Use of word cloud generators	Wordle

### 5.3.2.3 To annotate, enrich or curate research assets

In order to annotate, enrich or curate their research assets the respondents state that they use spell checking apps as well as local and online file storage (Table 5.3). The citation programs mentioned above can also be used for annotation, enrichment, and curation purposes.

**Table 5.3.** Specific digital methods or tools used- Annotating, enriching or curating research assets, Greek dataset.

Annotate, enrich or curate research assets	
Activity	Examples mentioned
Spell checking	-
Storage	Cloud storage, local storage
Use of citation programs	Evernote, Mendeley, Citavi, Zotero

### 5.3.2.4 To process, analyse, or visualise research assets

The respondents identified a number of services and tools in order to process, analyse or visualise their research assets (Table 5.4). The activities mentioned include text processing, text recognition, presentation and analysis, image processing and digitisation, audio processing, visualisation and analysis of geo-data, the use of telescropy, and programming.

**Table 5.4.** Specific digital methods or tools used - Processing, analysing or visualising research assets, Greek dataset.

Process, analyse, or visualise research assets	
Activity	Examples mentioned
Statistical analysis	SPSS
Presentation	MS Powerpoint
Analysis	Spreadsheets
Image processing	Photoshop, Orthophoto mosaic

Drawing	CAD
Text processing	MS Word
Measuring	Total Station
Visualisation of geo-data	-
Geo-data analysis	-
Telescopic methods	-
Audio processing	-
Text recognition	OCR
Programming	PYTHON

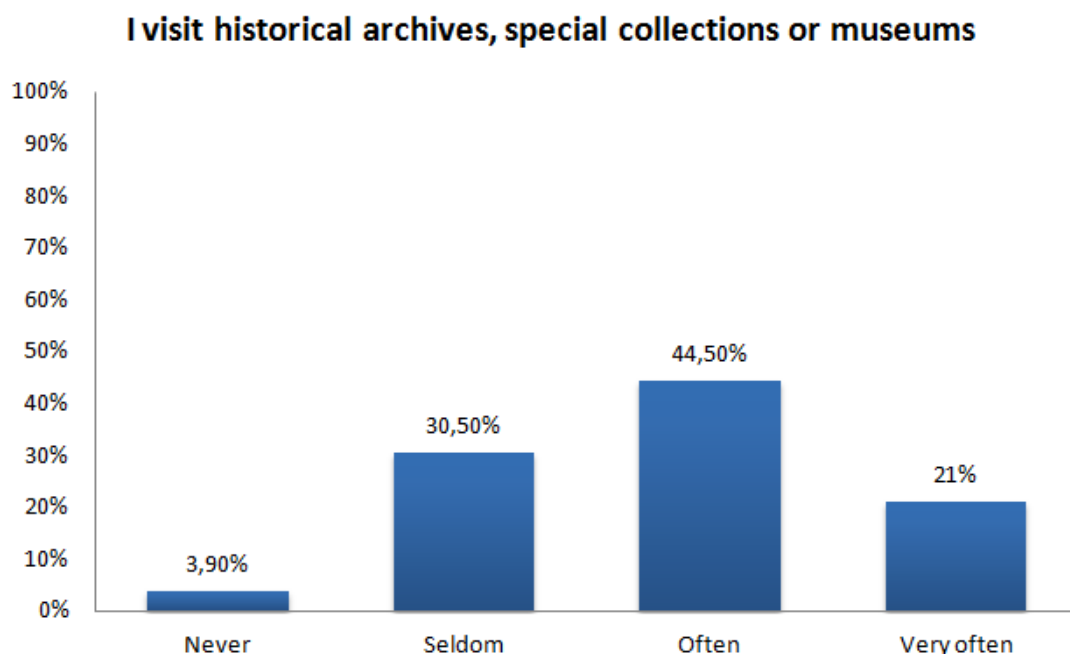
### 5.3.3 Selected scholarly activities in focus

Repondents were asked if they engage in specific kinds of activities of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organise research assets, e) using their own keyword list or thesaurus to organise research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or discussion forum. This section summarizes the answers of respondents from Greece to these questions.

#### 5.3.3.1 Visiting historical archives, special collections, or museums

44% of the respondents state that they visit historical archives, special collections, or museums often, 29.4% state that they visit them seldom, 21% state that they visit them very often and 5.6% say they never visit historical archives, special collections, or museums (Figure 5.12).

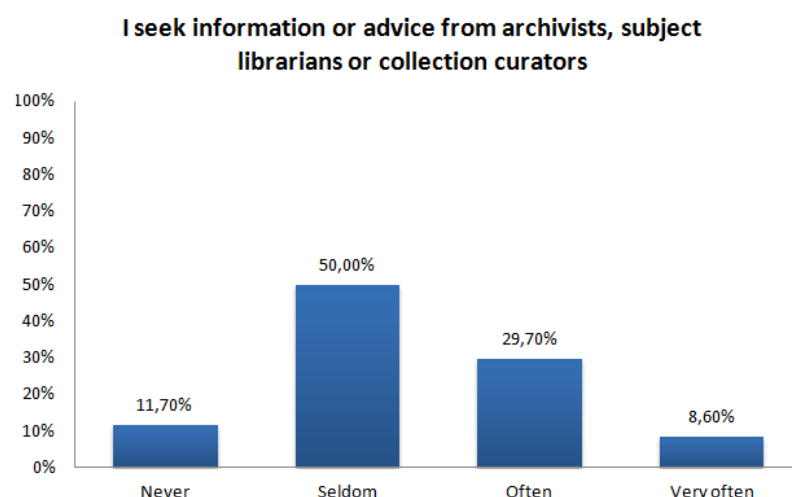




**Figure 5.12** Scholarly activities - Frequency of visiting historical archives, special collections, or museums, Greek dataset (N=128).

### 5.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

Only 8.6% of respondents from Greece state that they seek information from archivists, subject librarians, or collection curators very often, but 29.7% do so often, and 50% seldom. 11.7% state that they never do so (Figure 5.13).



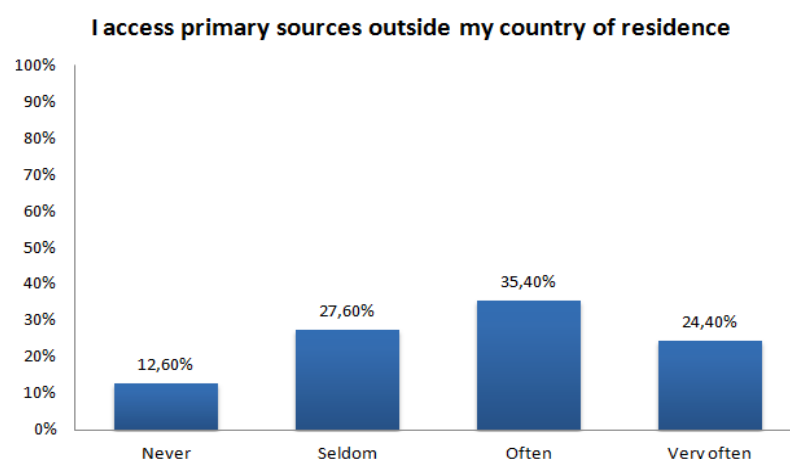
**Figure 5.13** Scholarly activities - Frequency of seeking information from archivists, subject librarians, or collection curators, Greek dataset. (N=128).

**Only 8.6% of respondents from Greece state that they seek information from archivists, subject librarians, or collection curators very often, but 29.7% do so often.**

### 5.3.3.3 Accessing primary sources outside one's country of residence

24% of respondents from Greece state that they access primary sources outside their country of residence very often, and 35.4% that they do so often. 27.6% say that they seldom do so, while 12.6% say that they never do so (Figure 5.14).

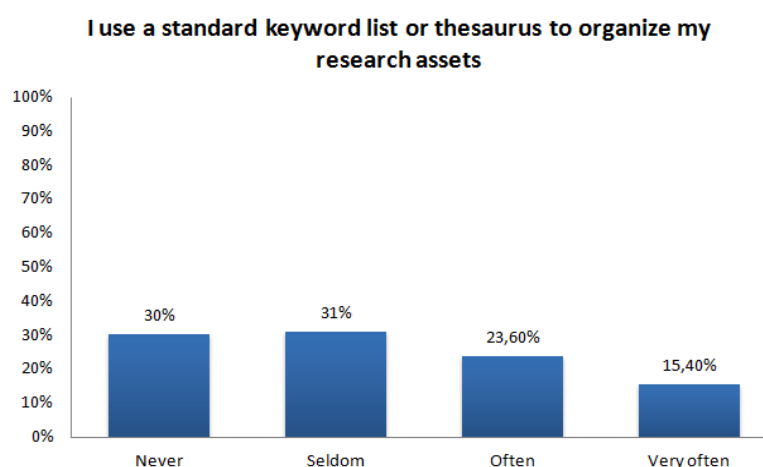
**More than half of respondents state that they often or very often access primary sources outside Greece.**



**Figure 5.14** Scholarly activities – Frequency of accessing primary sources outside one's country of residence, Greek dataset (N=128).

### 5.3.3.4 Using a standard keyword list or thesaurus to organise research assets

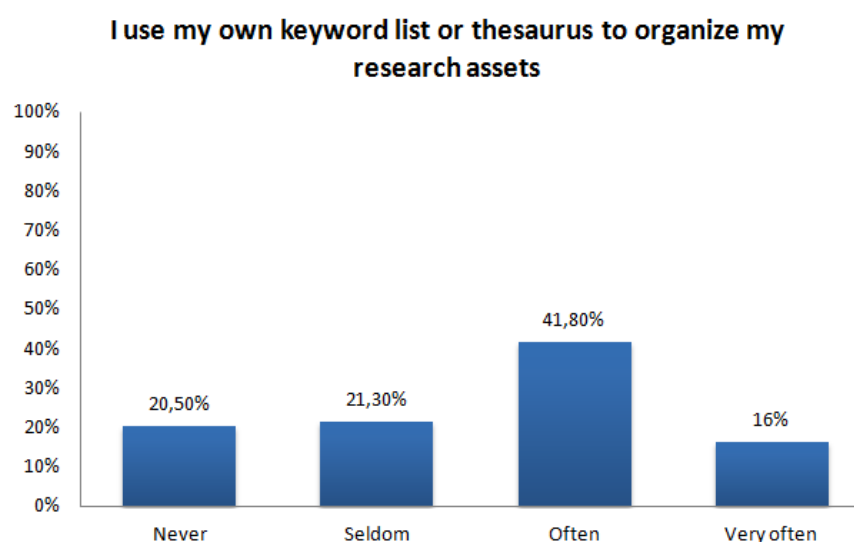
Using a standard keyword list or thesaurus to organise research assets seems to be an activity that most respondents from Greece never (30%) or seldom (31%) perform. 23.6% of the respondents, on the other hand, state that they often use a standard keyword list or thesaurus, while 15.4% state that they use a standard keyword list or thesaurus very often (Figure 5.15).



**Figure 5.15** Scholarly activities - Frequency of using a standard keyword list or thesaurus to organise research assets, Greek dataset (N=123).

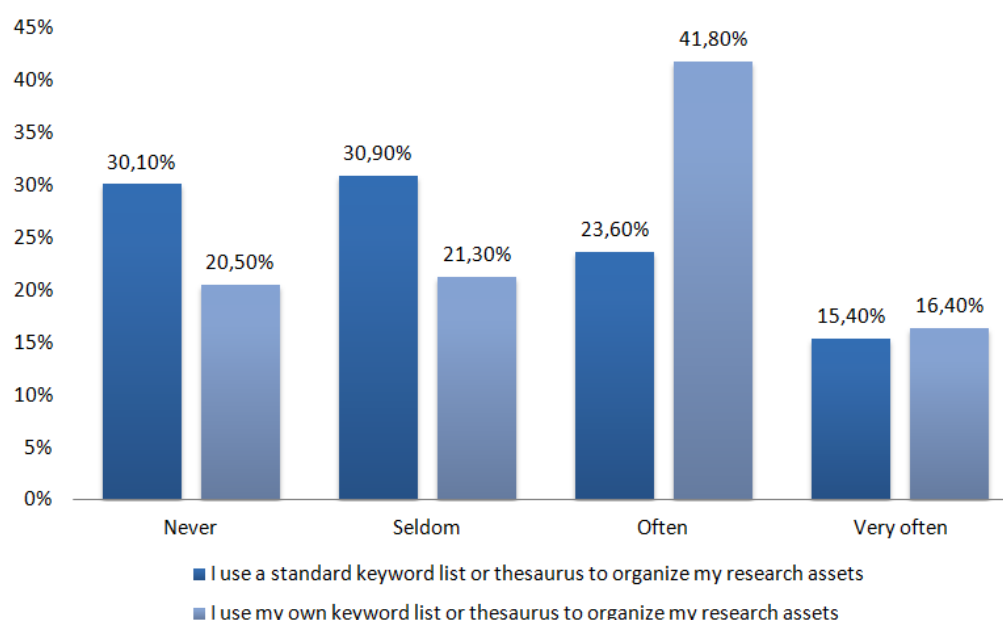
### 5.3.3.5 Using one's own keyword list or thesaurus to organise research assets

16% of respondents from Greece say that they use their own keyword list or thesaurus to organise research assets very often, while 41.8% do so often. 21.3% say that they seldom use their own keyword list or thesaurus to organise research assets, and 20.5% say that they never do so (Figure 5.16).



**Figure 5.16** Scholarly activities - Frequency of using one's own keyword list or thesaurus to organise research assets, Greek dataset (N=122).

Overall, respondents seem to use their own keyword lists more than some standard keyword list, even those who state that they use such lists very often (Figure 5.17).

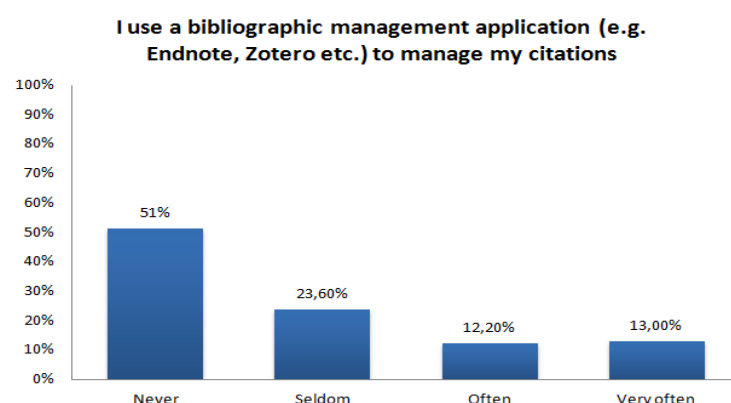


**Figure 5.17** Scholarly activities - Frequency of using one's own or a standards keyword list or thesaurus in order to organise research assets, Greek dataset (N=122).

### 5.3.3.6 Using a bibliographic management application to manage citations

Half of the respondents (51%) state that they never use a bibliographic management application to manage citations. 23.6% respond that they seldom use a bibliographic management application to manage citations, while 12.2% state that they often use such an application and 13% say that they use such an application very often.

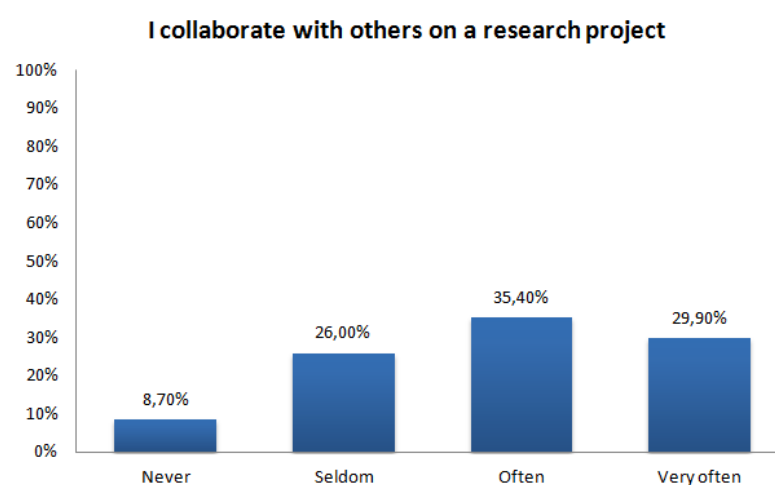
**Only half of the respondents use a bibliographic management application to manage citations.**



**Figure 5.18** Scholarly activities - Frequency of use of bibliographic management applications to manage citations, Greek dataset (N=123).

### 5.3.3.7 Collaborating with others on a research project

Most respondents (35.4%) state that they often collaborate with others on a research project, while 29.9% state that they collaborate with others on a research project very often. On the other hand, 26% say that they seldom collaborate with others on a research project, and 8.7% say that they never collaborate with others on a research project (Figure 5.19).

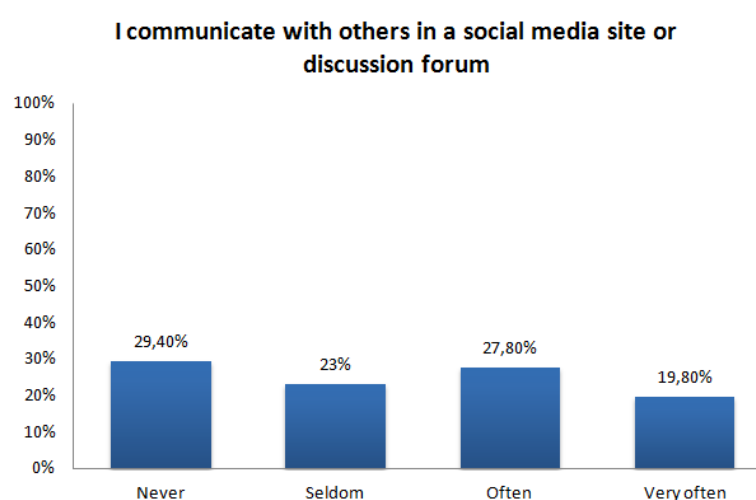


**Figure 5.19** Scholarly activities - Frequency of collaborating with others on a research project, Greek dataset (N=127).

### 5.3.3.8 Communicating with others in a social media site or discussion forum

20.6% of respondents from Greece communicate with others in a social media site or discussion forum for research purposes very often, and 29.1% of the respondents do so often. 22% state that they seldom communicate with others in a social media site or discussion forum, while 28.4% state that they never communicate with others in a social media site or discussion forum (Figure 5.20).

**Half of the respondents communicate with other researchers on social media or a discussion forum often or very often.**



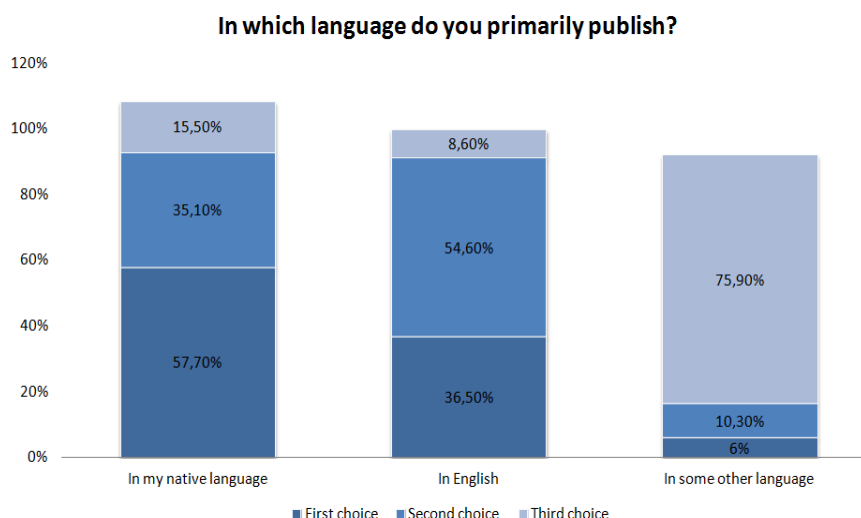
**Figure 5.20** Scholarly activities - Frequency of communicating with others in a social media site or discussion forum, Greek dataset (N=126).

## 5.4 Publication and communication of research results

### 5.4.1 Publishing language

57.7% of the respondents state that they primarily publish in their native language, while 36.5% state that they primarily publish in English, and 6% state that they primarily publish in some other language (Figure 5.21).

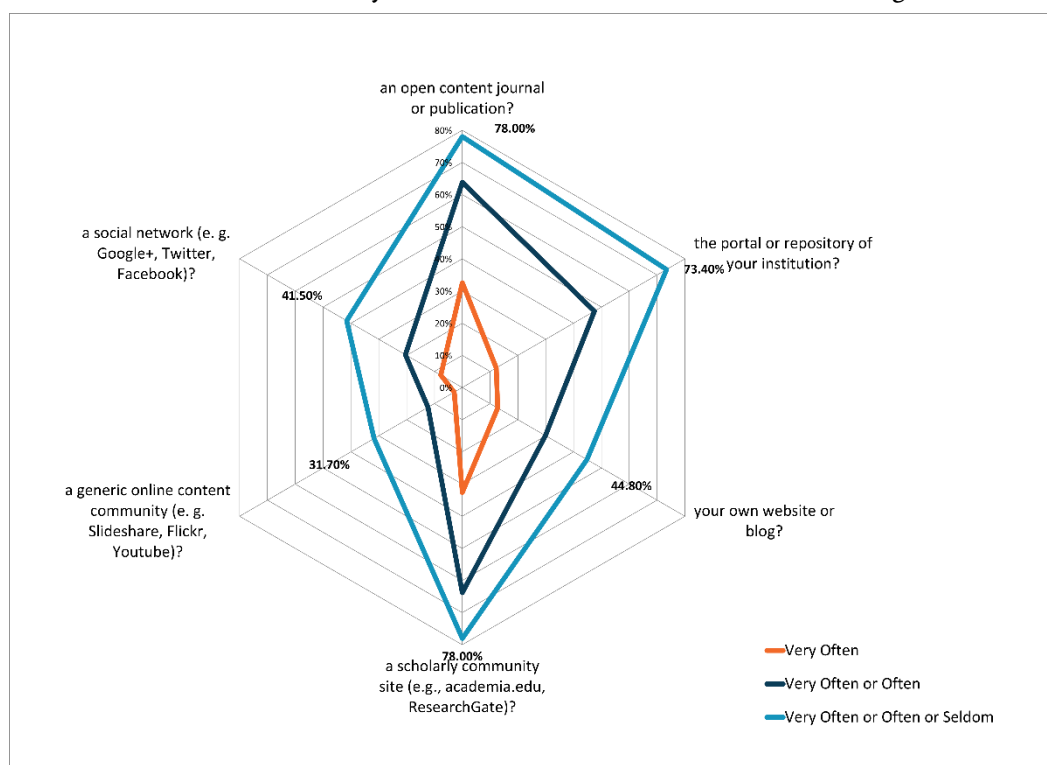
**36.5% of respondents from Greece list English as their primary publication language.**



**Figure 5.21** Publishing language, Greek dataset (N=104).

### 5.4.2 New channels of dissemination of scholarly work

Dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications) seems to be conducted by respondents from Greece more often through a commercial scholarly content community site, an open content journal or publication, and the portal or repository of the researcher's institution. Dissemination of scholarly work is conducted less often through a researcher's web site, while dissemination through a generic online content community or social networks seems to be rare (Figure 5.22).



**Figure 5.22** New channels of dissemination of scholarly work, Greek dataset (N=128).

## Dissemination of scholarly work beyond traditional channels is more often through a commercial scholarly content community site, open content journals or publications, and the portal or repository of the researcher's institution.

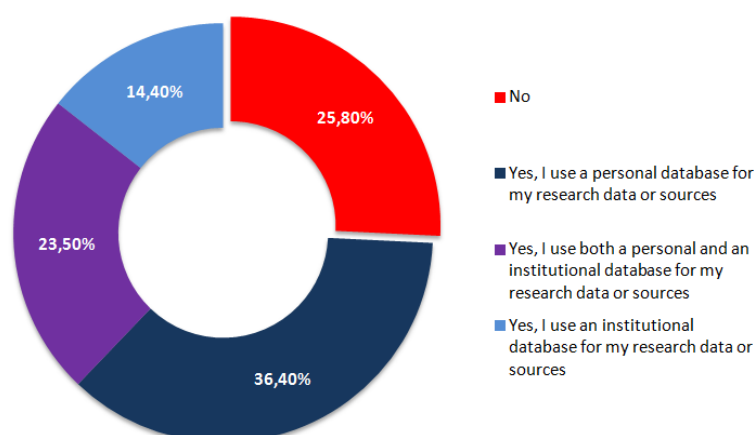
In more detail, dissemination through a commercial scholarly content community site is performed very often by as many as 32.6% of the respondents, often by 31.2% of the respondents, seldom by 14.2% of the respondents, and never by 22% of the respondents. Dissemination through an open content journal or publication is performed very often by 13.3% of the respondents, often by 32.9% of the respondents, seldom by 37.1% of the respondents, and never performed by 16.8% of the respondents. Dissemination through the portal or repository of the researcher's institution is performed very often by 12.2% of the respondents, often by 35.3% of the respondents, seldom by 25.9% of the respondents, and never by 26.6% of the respondents. Dissemination through the researcher's web site or blog is performed very often by 12.7% of the respondents, often by 17.2% of the respondents, seldom by 14.9% of the respondents, and never by 55.2% of the respondents. On the other hand, dissemination through a social network is performed very often by 7.7% of the respondents, often by 12.7% of the respondents, seldom by 21.1% of the respondents, and never by 58.5% of the respondents. Finally, dissemination through a generic online content community is performed very often by only 2.9% of the respondents, often by 9.4% of the respondents, seldom by 19.4% of the respondents, and never by as many as 68.3% of the respondents. All in all, and as regards frequent use, between half and two out of five state that they disseminate scholarly work often or very often through commercial scholarly content community sites, through open content journals or publications, and through the portal or repository of their institution. Only one of three disseminate often or very often scholarly work through their own web site or blog, while one out of five use for that purpose a social network often or very often, and only one out of ten disseminate their scholarly work often or very often on a generic online content community.

## 5.5 Data management software and services

### 5.5.1 Database use

Most respondents (36.4%) state that they use a personal database for their research data or sources, 25.8% of the respondents state that they do not use a database, 14.4% of the respondents say that they use an institutional database, while 23.5% state that they use both an institutional and a personal database for their research data or sources (Figure 5.23).

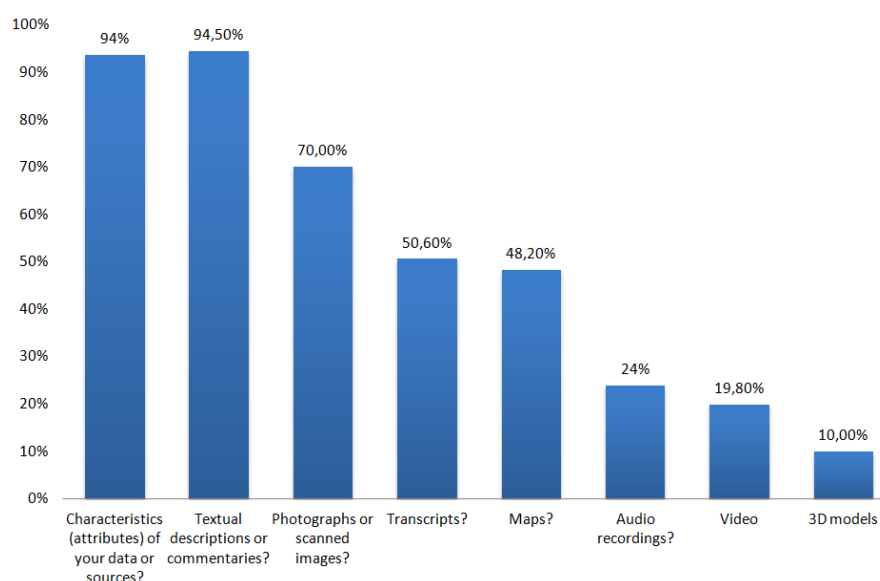




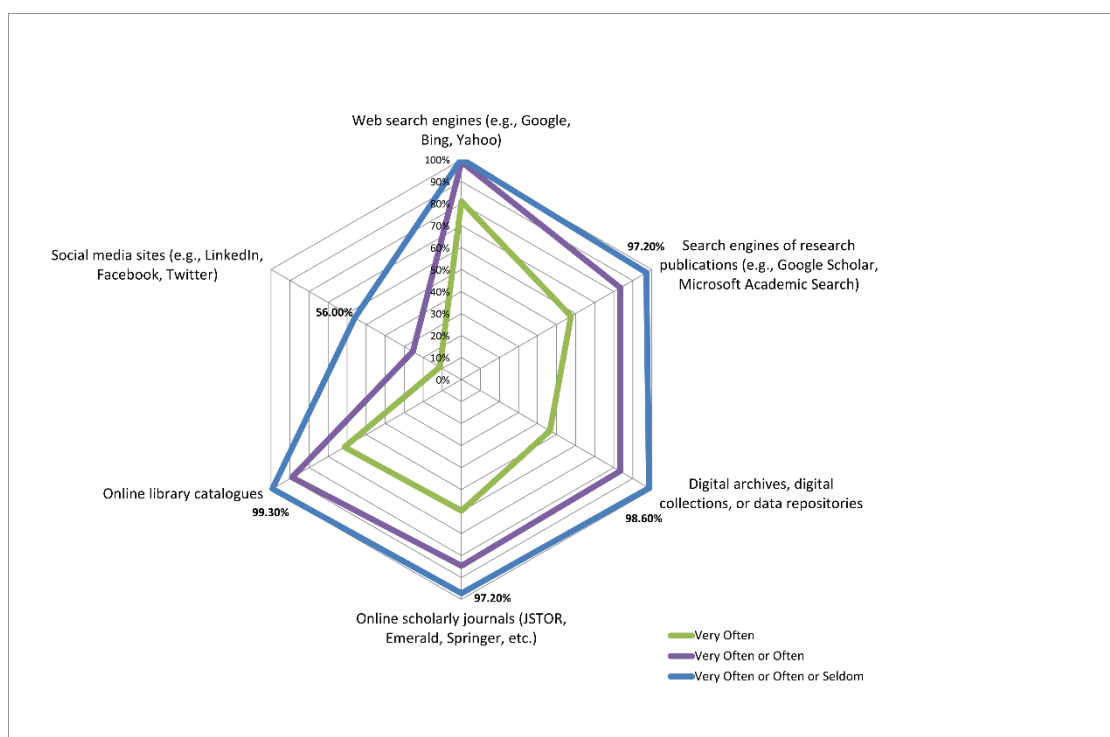
**Figure 5.22** Use of database, Greek dataset (N=132).

#### 5.5.1.1 Database content scope

Respondents from Greece who stated that they use a database were asked subsequently to indicate what kind of content is contained in their database by selecting those that apply from the following options: (a) characteristics (attributes) of data or sources, (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models (Figure 5.24). The respondents stated that their databases mainly contain textual descriptions or commentaries (94.5%) and characteristics or attributes of their data or sources (94%). Databases are also used to keep and manage photographs or scanned images (70%), transcripts (50.63%) and maps (48.2%). Databases are used to a lesser extent for audio recordings (24%), video (19.8%), and 3D models (10%).



**Figure 5.23** Database contents, Greek dataset (N=95).



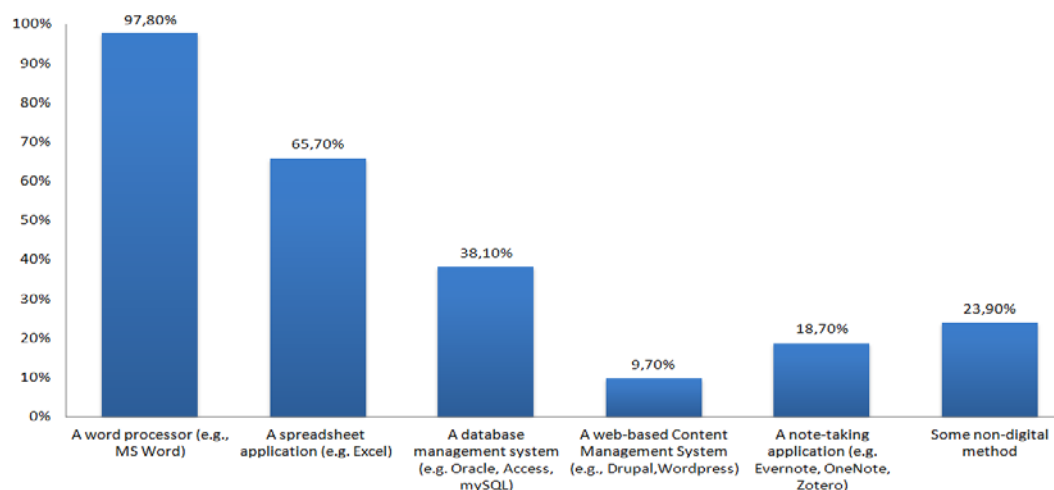
**Figure 5.25** Frequency of use of services, Greek dataset (N=132).

### 5.5.2 Online services to access research assets

Most respondents (81%) state that they use web search engines to access research assets very often, while 18% state to use them often, and only 1.4% say that they seldom use them; no participant from Greece reported not using search engines to access research assets at all. Online library catalogues are also used very often by 61.4% of the respondents, while 27.6% state that they use them often, 10.3% state that they seldom use them, and only 0.7% state that they never use them. The use of search engines of research publications, such as *Google Scholar* or *Microsoft Academic Search*, is also frequent, but not as much as generic search engines and online library catalogues: 57.5% state that they use such search engines very often, 26% state that they use them often, 13.7% state that they seldom use them and only 2.7% state that they never use such specialist search engines. The use of online journal portals, such as *JSTOR*, *Emerald* or *Springer* seems to be equally widespread, with 59.7% of the respondents stating that they use these services very often, 25% often, and 12.5% seldom, while 2.8% state that they never use such services. Digital archives, digital collection or data repositories are very often used by 46.5% of the respondents, while 36.8% state that they use them often, 15.3% state that they seldom use them, and just 1.4% state that they never use digital archives, digital collections or data repositories. Finally, social media sites seem to be less commonly used to access research assets: only 11.3% say they use them very often, 14.2% often, 30.5% seldom, while as many as 44% of the respondents state that they never use social media to access research assets. (Figure 5.25).

### 5.5.3 Research asset management applications

Almost all respondents from Greece state that they use a word processor to store and manage their research assets (97.8%), while approximately two out of three state that they use spreadsheet applications (65.7%). 38.1% state that they use a database management system, 23.9% state that they use some non-digital method to store and manage your research assets, 18.7% use a note-taking application and finally a web-based content management system is used by 9.7% of the respondents (Figure 5.26).

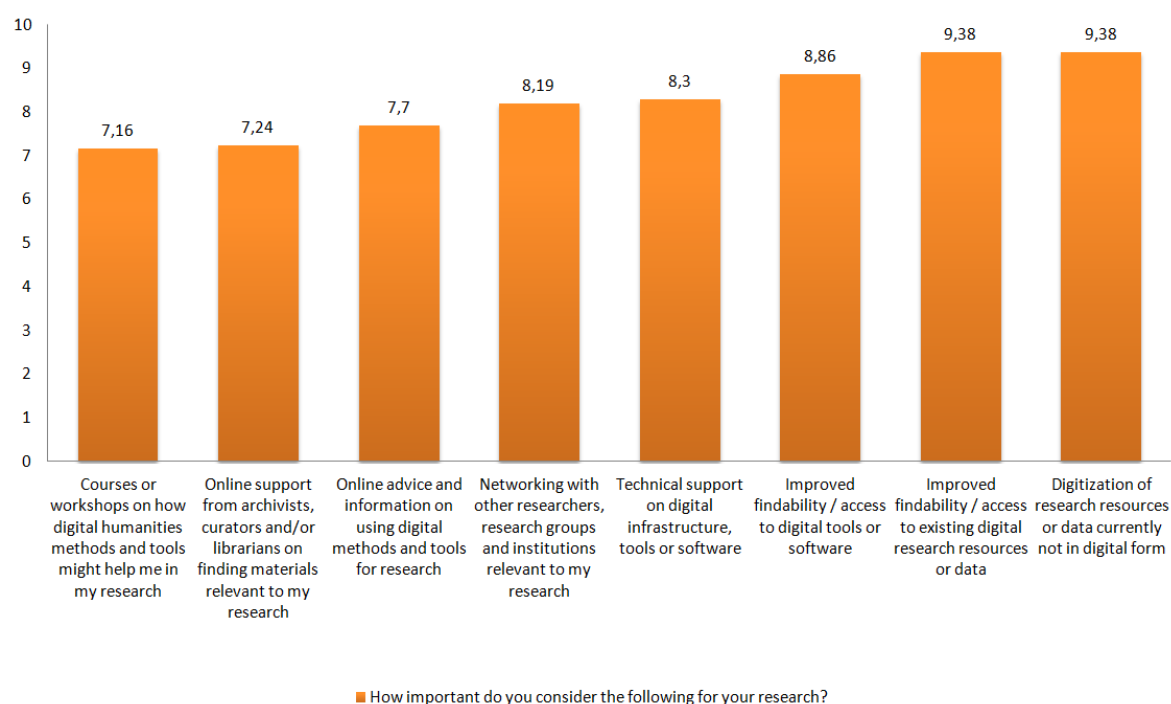


**Figure 5.24** Use of applications to store or manage research assets, Greek dataset (N=134).

## 5.6 Assessment of researcher needs

Finally, respondents were asked to rate the importance of a series of statements regarding their needs in a scale from 1 to 10, where 1 is the least important and 10 is the most important. All needs were considered to be important by respondents from Greece, but digitisation of research resources or data that are not currently in digital form, and improved findability and access to existing digital research resources or data were rated as the most important, with an average score (mean) of 9.38. Access to digital tools and software, technical support on digital infrastructures, tools or software and networking with other researchers, research groups and institutions are also considered to be very important, with an average score of approximately 8 points. Finally, respondents rated with less than an average of 8 the importance of online advice and information on using digital methods and tools, online support by archivists, curators and/or librarians, and the existence of courses or workshops on how digital humanities methods and tools might be useful in research.

**Digitisation of research resources or data not currently in digital form, and improved findability and access to existing digital research resources or data were rated as the most important needs.**



**Figure 5.25** Importance of needs, Greek dataset

## 5.7 Conclusions

The use of digital media seems to be common amongst researchers from Greece in the human sciences. 79.5% of the respondents state that they already use digital methods or tools for their research and 18.9% state that they are interested in using such methods or tools. The majority use mainly desktop or laptop PCs to consult articles in scholarly journals or conference proceedings, archival holdings, images, maps, video and audio. On the other hand, they consult books primarily in a printed/analogue form, and secondarily in some digital form. The use of printed/analogue media is not common when it comes to audio and video material; it is limited for consulting images and maps, and it seems to be more widespread for consulting articles and archival holdings. Respondents from Greece do not seem to use solely one means to consult their research materials. Especially articles and books seem to be consulted in more than one form.

When working on their research, respondents from Greece report that they often collaborate with other researchers, that they visit historical archives, special collections, or museums, and that they access primary sources outside Greece. Less frequently, they state using their own keyword list or thesaurus to organise their research assets, and communicating with others in a social media site or discussion forum. Respondents from Greece indicate that they most often use digital methods or tools in order to discover, collect or create research assets, and to organise, structure or manage research assets. As concerns discovering, collecting or analysing research assets, they report that they often use scanning and 3D laser scanning, digital photography, photogrammetry and audio recording, while they also visit digital repositories

and library catalogues such as *Google*, *Google Scholar*, *Europeana*, *Hathi Trust*, *JSTOR*, *Academia*, *Packard Humanities Institute*, *Google Books*, *Archeodata* and also Greek repositories such as *Anemi*, *HEALink*, *Archaiomnemon*, and the research database of the Academy of Athens. For analysing, structuring and managing research assets, some researchers report using databases (they mention *MySQL* and *MS Access*), ontologies, citation programs (specifically, *Evernote*, *Mendeley*, *Citavi* and *Zotero*), cataloguing software (specifically, *AnyBook*), and word cloud generators (specifically, *Wordle*).

Most respondents from Greece primarily publish in Greek (57.7%), but a remarkable percentage (36.5%) state that they publish their work primarily in English. Many seem to disseminate their work frequently through a commercial scholarly content community site, the portal or repository of their institution, and an open content journals or publications.

The use of a database for managing research data and sources is relatively widespread amongst respondents from Greece; three out of four state to use at least one database for their research. Databases seem to mainly contain fielded data and attributes of source materials, as well as textual descriptions or commentaries. Databases are also used to store and manage photographs or scanned images, transcripts, and maps. Respondents mainly use word processing and spreadsheet applications, and less often some database management system, to store their own research assets.

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### Respondents mainly use word processing and spreadsheet applications, and less often some database management system, to store their own research assets.

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To access research sources, the great majority of respondents use very often web search engines and online library catalogues. They also make frequent use of online scholarly journals, search engines of research publications and digital archives, digital collections and data repositories, while on the other hand they rarely use social media sites for such purposes.

Finally, respondents from Greece consider it most important to have improved access to existing digital research resources or data, and to digitise more research resources and data that are not available in digital form. Furthermore, they deem important to have improved access to digital tools or software, technical support on digital infrastructure, tools or software, and networking with researchers, research groups and institutions relevant to their research.



# Chapter 6

## Country profile: Lithuania

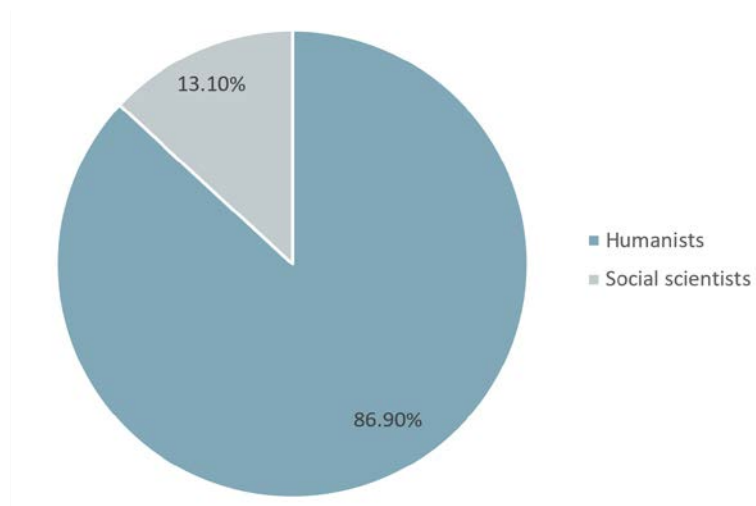
*Ingrida Kelpšienė*

### 6.1 Respondent profile

The Lithuanian dataset consists of 161 complete answers. To ensure validity of further analysis, respondents indicating a primary discipline outside the human sciences were excluded, in order to create a homogeneous dataset consisting solely of researchers working in the humanities and social sciences (HSS). This filtering resulted to a dataset consisting of 137 complete answers.

#### 6.1.1 Discipline

As expected by the web survey design and targeting strategies, most respondents are humanists (86.9%), while a small proportion (13.1%) are social scientists (Figure 6.1).

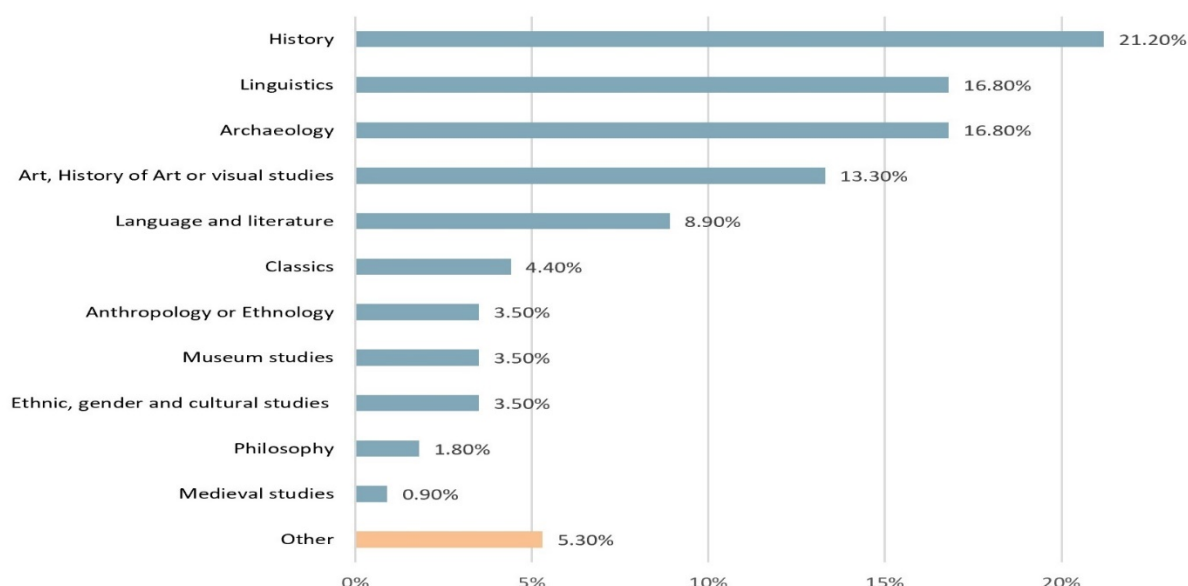


**Figure 6.1** Percentage of humanists and social scientists, Lithuanian dataset (N=137).



**History is the most frequently represented discipline (21,2%) in the Lithuanian dataset followed by linguistics and archaeology, which are equally represented by 16,8% of respondents.**

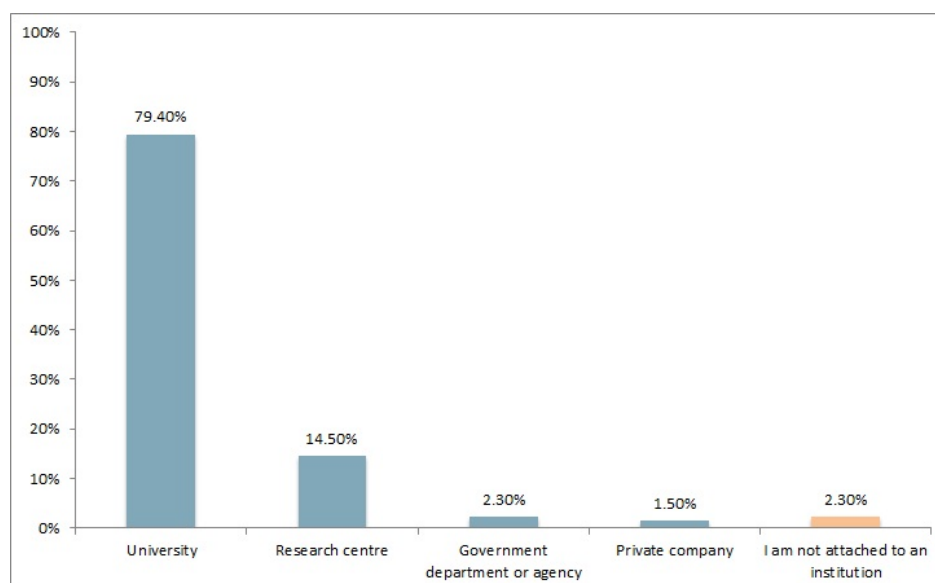
Looking at specific disciplines, the survey shows that the largest group of respondents from Lithuania were historians (21.2%). Other well-represented disciplines are linguistics and archaeology, each sharing 16.8% of the respondents. 13.3% of the respondents said that they work in the field of art, history of art or visual studies, and 8.9% indicated language and literature as their field of research. Other disciplines, represented in the dataset with smaller percentages, include classics, anthropology or ethnology, museum studies, ethnic, gender and cultural studies, philosophy, and medieval studies (Figure 6.2).



**Figure 6.2** Discipline, Lithuanian dataset (N=107).

### 6.1.2 Professional affiliation and status

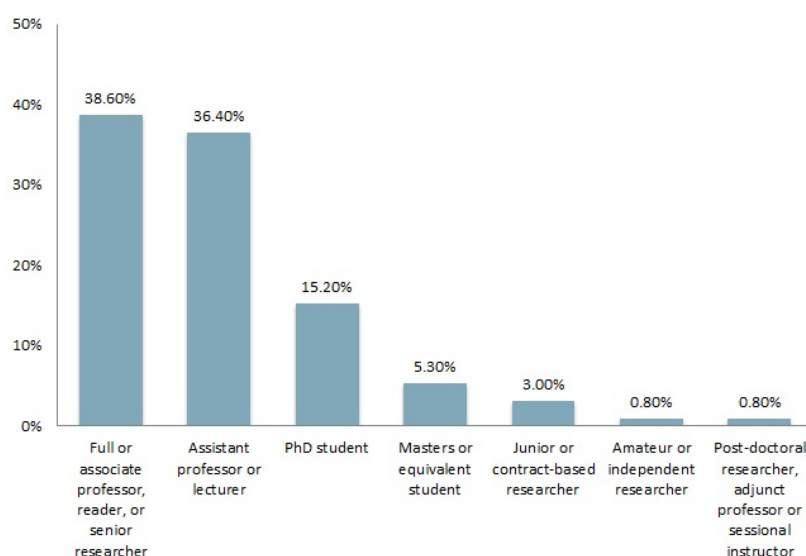
Most respondents in the Lithuanian dataset are attached to a university (79.4%), while just 14.5% are attached to a research centre, and very few respondents are associated with a government department (2.3%) or a private company (1.5%). Only 2.3% of the respondents state that they are not attached to any institution (Figure 6.3).



**Figure 6.3** Professional affiliation, Lithuanian dataset (N=131).

**Most Lithuanian respondents (79,4%) are affiliated to a university. Most are experienced researchers with more than 10 years of research experience.**

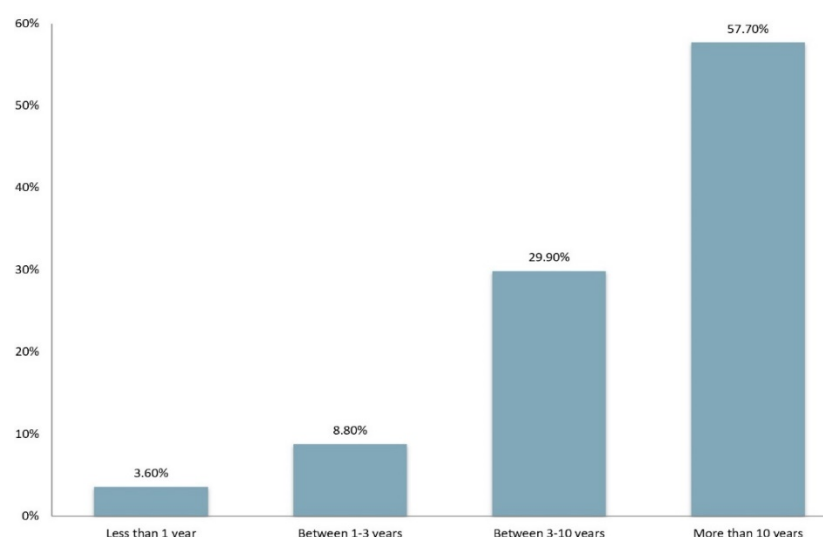
Regarding professional status, the largest groups of respondents are either full or associate professors or senior researchers (36.6%), and assistant professors or lecturers (36.4%). PhD students are also represented in the Lithuanian dataset by 15.2%, while masters students, junior or contract-based, amateur or independent and post-doctoral researchers are represented in the dataset by small proportions (Figure 6.4).



**Figure 6.4** Professional status, Lithuanian dataset (N=132).

### 6.1.3 Years in research

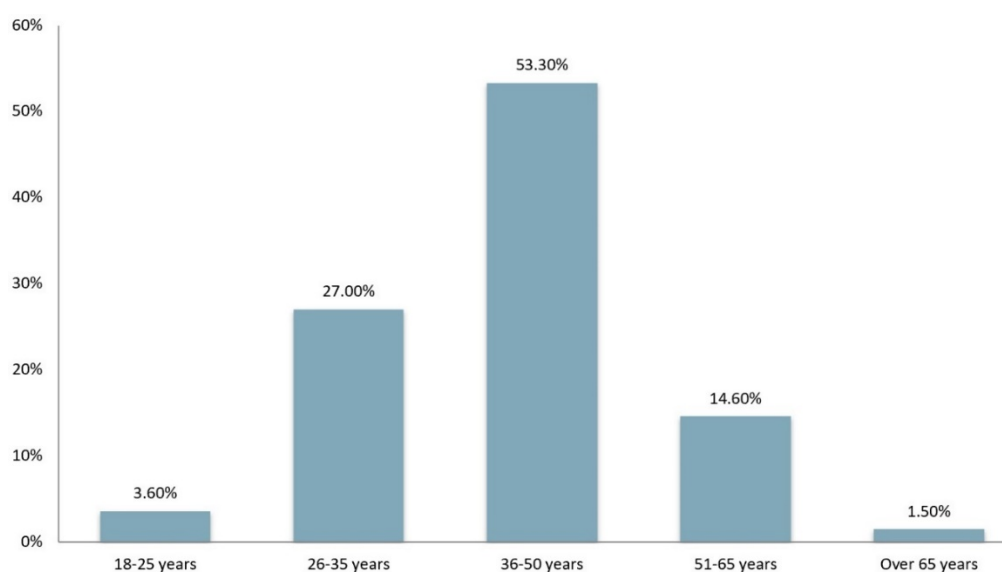
Most respondents from Lithuania (57.7%) are experienced researchers, working for more than 10 years in research, while 29.9% of the respondents work as researchers between 3 and 10 years. On the other hand, 8.8% of the respondents work as researchers between 1 and 3 years, and only 3.6% of the respondents work as researchers for less than a year (Figure 6.5).



**Figure 6.5** Years in research, Lithuanian dataset (N=137).

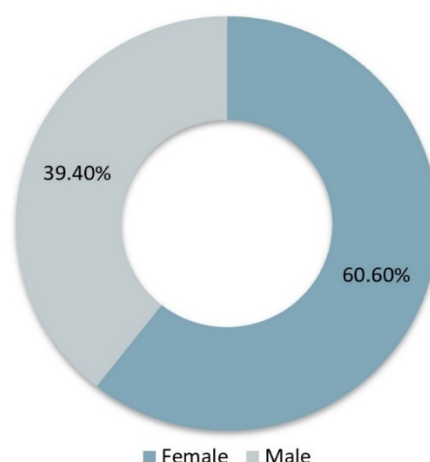
### 6.1.4 Age and gender

Most respondents are between 36 and 50 years old (53.3%). 27% of the respondents are 26 to 35 years old, while 14.6% are 51 to 65 years old. 3.6% of the respondents are 18 to 25 years old, and only 1.5% are over 65 years (Figure 6.6).



**Figure 6.6** Age, Lithuanian dataset (N=137)

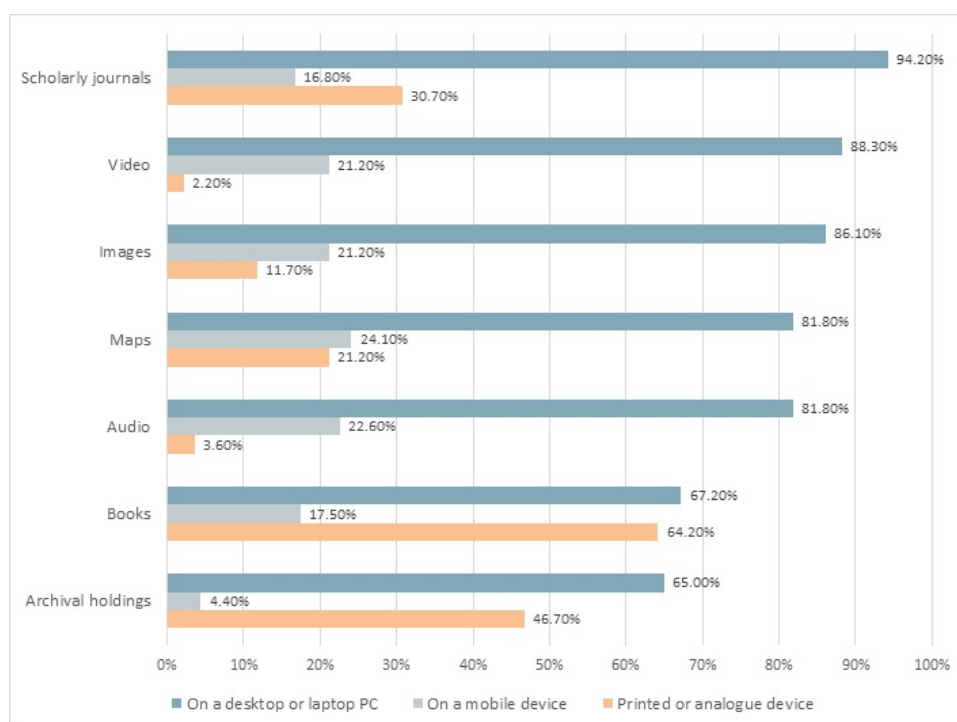
Finally, 60.6% of the respondents are female and 39.4% are male (Figure 6.7).



**Figure 6.7** Gender, Lithuanian dataset (N=137).

## 6.2 Research materials and digital access

The use of digital media in order to consult research materials seems to be widespread amongst respondents from Lithuania. Respondents were asked to state where they consult materials such as articles in scholarly journals or conference proceedings, books, archival holdings, images, maps, video and audio. They were also asked if they use a desktop or laptop PC, some mobile device, and/or if they use an analogue device to consult the abovementioned materials. Multiple responses were allowed (Figure 6.8).



**Figure 6.8** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research materials, Lithuanian dataset (N=137).

### 6.2.1 Articles in scholarly journals or conference proceedings

94.2% of the respondents stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings, while 16.8% of them use a mobile device for the same purpose. 30.7% of the respondents indicated that they use printed text or an analogue device.

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**Most Lithuanian researchers (94.2%) access journal articles and conference papers in digital form. Only 30.7%, less than half of the European average of 66%, read such materials in print.**

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### 6.2.2 Books

67.2% of the respondents stated that they use a desktop or laptop PC to consult books, while 17.5% of them use a mobile device for the same purpose. 64.2% of the respondents indicated that they use printed text or an analogue device.

### 6.2.3 Archival holdings

65% of the respondents stated that they use a desktop or laptop PC to consult archival holdings and only 4.4% of them use a mobile device for the same purpose. 46.7% of the respondents indicated that they use printed text or an analogue device.

### 6.2.4 Images

86.1% of the respondents stated that they use a desktop or laptop PC to consult images, while 21.2% of them use a mobile device for the same purpose. 11.7% of the respondents indicated that they use printed text or an analogue device.

### 6.2.5 Maps

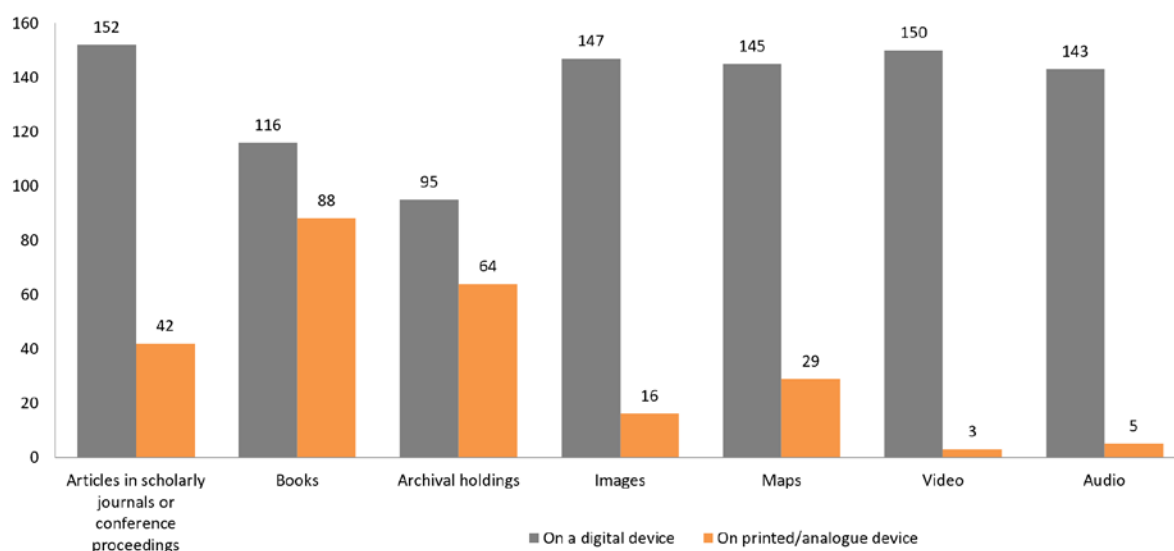
81.8% of the respondents stated that they use a desktop or laptop PC to consult maps, while 24.1% of them use a mobile device for the same purpose. 21.2% of the respondents indicated that they use printed text or an analogue device.

### 6.2.6 Video

88.3% of the respondents stated that they use a desktop or laptop PC to consult video, while 21.2% of them use a mobile device for the same purpose. Only 2.2% of the respondents indicated that they use printed text or an analogue device.

### 6.2.7 Audio

81.8% of the respondents stated that they use a desktop or laptop PC to consult audio, while 22.6% of them use a mobile device for the same purpose. Only 3.6% of the respondents indicated that they use printed text or an analogue device.



**Figure 6.9** Use of digital and printed/analogue media to consult research materials, Lithuanian dataset (N=137).

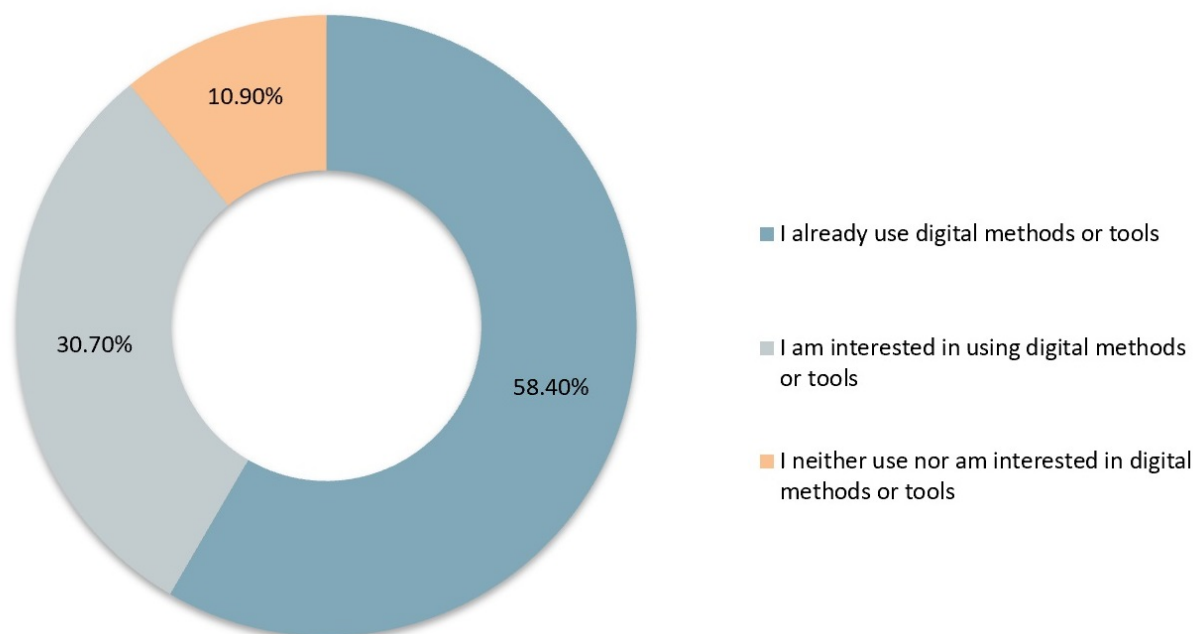
Figure 6.9 showcases the overall use of digital media (based on desktop or laptop PC and mobile devices) compared to the use of printed or analogue media. The use of digital media is greater than the use of printed/analogue ones in all cases. However, to consult books and archival holdings on a printed or an analogue device is still a common practice among researchers. On the other hand, articles in scholarly journals or conference proceedings are far less preferred in their printed form, while images, maps, video and audio are mainly consulted in some digital form and very rarely in printed or analogue form. The latter are also more likely to be consulted on mobile devices, such as tablets and smartphones, even if these devices in general are not as widely used as desktop and laptop computers.

## 6.3 Scholarly activities, methods and tools

The respondents to the web survey were asked whether they use or are interested in using digital methods or tools for their research.

**10,9% of Lithuanian respondents expressed reluctance towards the use of digital technologies in research.**

58.4% of the respondents stated that they already use digital methods or tools in the course of their research, while 30.7% indicated that they are interested in using digital methods or tools. 10.9% said that they neither use nor are interested in using digital methods or tools (Figure 6.10).



**Figure 6.10** Use of digital methods or tools, Lithuanian dataset (N=137).

### 6.3.1 Purpose of use of digital methods or tools

The respondents who stated that they already use digital methods or tools were then asked, in a filter question, to say for what purpose they use them. Five answers were available, and respondents could enter multiple responses. Their answers indicate that all five purposes proposed are relevant.

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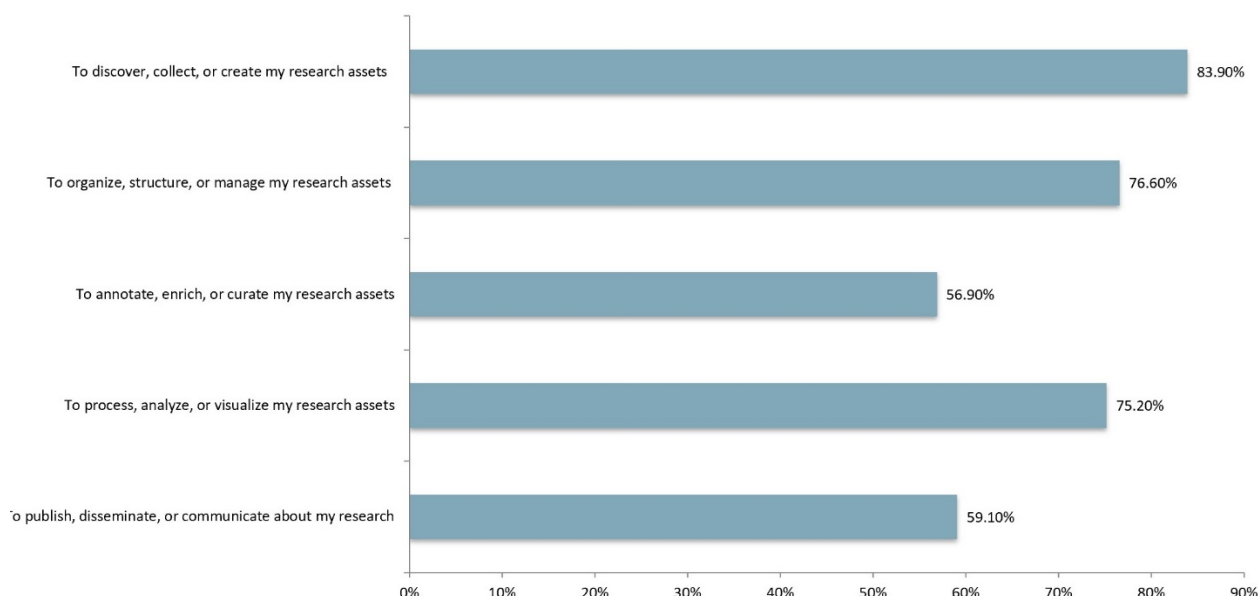
**Digital methods and tools are most commonly used by Lithuanian respondents for the discovery, collection and creation of research assets.**

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The main purpose of using digital methods or tools is (a) to discover, collect or create their research assets, as it was indicated in 83.9% of the respondents answers; (b) 76.6% of the respondents stated they apply digital methods or tools to organise, structure or manage their research assets; and, (c) 75.2% of researchers use them to process, analyse, or visualise their research assets – thus the latter purposes seem to be more widespread. On the



other hand, the use of digital methods or tools for (d) publishing, disseminating or communicating about one's research, as well as (e) to annotate, enrich or curate their research assets (5) seem to be less frequent (Figure 6.11).



**Figure 6.11** Purpose of use of digital methods or tools, Lithuanian dataset (N=137).

### 6.3.2 Specific digital methods and tools reported

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on the particular way respondents use, or are interested in using, digital methods or tools.

To assist interpretation of findings, responses from Lithuania were categorized firstly according to the particular functionality or research activity they refer to, and secondly according to the aspect of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; and, (e) to publish, disseminate or communicate about research. Since respondents identified both activities and examples of applications, their specific responses within each category were further classified accordingly, and examples of applications were matched with activities they support. The findings presented below do not account for the frequency of a specific answer, since it is the qualitative dimension of uses, activities, and services or tools used that is showcased in this section.

### 6.3.2.1 To discover, collect or create research assets

In order to discover and collect research assets, respondents from Lithuania state that they access digital repositories, library catalogues or electronic text corpora. The repositories listed are available online and includes national, as well as international digital resources (Table 6.1). Web search engines, such as Google and Yahoo are also used to discover resources on the Internet. A few respondents also indicated using computer assisted web interviewing as online research method for collection of data. For the creation of research assets respondents name methods such audio and video recording, photography, photogrammetry, digitisation, and GPS-based methods.

**Table 6.1** Specific digital methods or tools used - Discovering, collecting, or creating research assets, Lithuanian dataset.

Discover, collect, create research assets	
Activity	Examples mentioned
Access to digital repositories and library catalogues	<b>International:</b> Academia, Diogenes, Google Books, Google Scholar, Perseus Digital Library <b>National (Lithuanian):</b> Lituanistika, Tautos menta
Access to electronic text corpora	<b>International:</b> British National Corpus (BNC), IDS COSMAS II, the Corpus of the Contemporary American English (COCA), the Thesaurus Linguae Graecae corpora <b>National (Lithuanian):</b> the Corpus of the Contemporary Lithuanian Language, the Corpus of Academic Lithuanian Language (CorALit) Digitalxdictaphone Digitalxphotocamera GPS and GNSS receivers, georadar, magnetometer -
Audio recording	CanonScan LiDE 500F scanner
Digital photography	Google, Yahoo
Locating	-
Photogrammetry	-
Digitisation	-
Searching and browsing	-
Video recording	-
Web interviewing	-
3D scanning	-

### 6.3.2.2 To organise, structure or manage research assets

The use of databases, such as *MS Access*, *WinBasp* or *ArcGIS*, to organise, structure or manage research assets is widespread (Table 6.2). Cloud storage systems, services and platforms were also mentioned as being used for these purposes. In order to manage data respondents also use online content management systems (e.g., *Wordpress*) and reference

management software (e. g. *Endnote*, *Zotero*). *MS Excel* or *MS Office* are usually used as of-line tools for organisation of research assets.

**Table 6.2** Specific digital methods or tools used - Organising, structuring or managing research assets, Lithuanian dataset.

Organise, structure or manage research assets	
Activity	Examples mentioned
Manage content online	WordPress
Organise data	MS Excel, MS Office
Store content in the Cloud	-
Use of cloud based services and platforms	ArcGIS
Use of databases	MS Access, WinBasp
Use of GIS	-
Use of reference management software	Endnote, Zotero

### 6.3.2.3 To process, analyse, or visualise research assets

Respondents identified a wide range of activities, as well as a number of tools and services, to process, analyse or visualise their research assets (Table 3).

**Digital tools used by Lithuanian respondents include common desktop applications as well as generic software used across disciplines for various kinds of qualitative and quantitative data analysis.**

The most common activities mentioned include various types of analysis (qualitative, quantitative, comparative, statistical analysis, etc.) or analysis of specific data relevant to respondents' research field (archaeological, linguistic, social network analysis, etc.). Other activities include programming, transcribing, drawing, data and image processing, video editing and visualisation of data, including 3D visualisation.

**Table 6.3** Specific digital methods or tools used - Processing, analysing or visualising research asset, Lithuanian dataset.

Process, analyse, or visualise research assets	
Activity	Examples mentioned
Archaeological data analysis	ArcGIS, WinBasp
Comparative analysis	MS Excel
Computational analysis	Loglet, Mathcad, MS Excel
Correspondence analysis	-
Data processing	MS Excel, MS Office
Data visualisation	ArcGIS, MS Word
Drawing	CorelDRAW
Geo-data analysis	ArcGIS, ArcMap

Image processing	Adobe Illustrator, Adobe Photoshop, CorelDRAW AntConc, WordSmith
Linguistic analysis	-
Programming	HAMLET, MAXQDA, PSPP
Quantitative and qualitative data analysis	-
Semantic text analysis	-
Serialism	Gephi
Social network analysis	-
Sound analysis	SPSS, OriginLab
Statistical analysis	Typelt
Transcribing	-
Video analysis	Adobe Premiere Pro, Videopad
Video editing	Google Analytics
Web analysis	AutoCAD
3D visualisation	

#### 6.3.2.4 To publish, disseminate or communicate one's research

Only a small number of researchers mentioned activities that relate to research publication, dissemination, or communication (Table 6.4). Respondents pointed out such activities as collaborative learning, lecturing, presenting and MS Powerpoint as a most common tool for such purpose. A few respondents also said they rely on online dissemination and social networking to communicate about research.

**Table 6.4** Specific digital methods or tools used - Publishing, disseminating or communicating about research, Lithuanian dataset.

Publish, disseminate or communicate about research	
Activity	Examples mentioned
Collaborative learning	-
Lecturing	MS Powerpoint
Online dissemination	WordPress
Presenting	MS Powerpoint
Social networking	Facebook, Academia

#### 6.3.2.5 To annotate, enrich or curate research assets

In order to annotate, enrich or curate their research assets respondents state that they use citation programmes (e.g., *EndNote*, *Zotero*). Measuring research impact can also be regarded as activity, which serves the same purposes (Table 6.5).

**Table 6.5** Specific digital methods or tools used - Annotating, enriching or curating research assets, Lithuanian dataset.

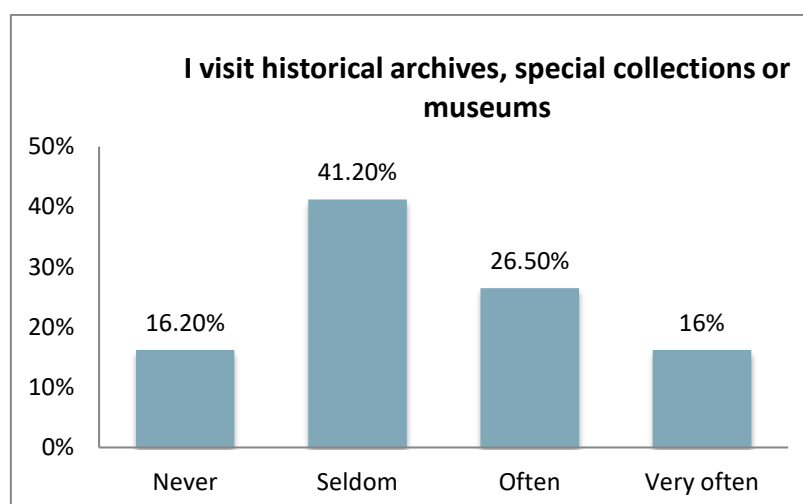
Annotate, enrich or curate research assets	
Activity	Examples mentioned
Use of citation programmes	EndNote, Zotero
Measuring research impact	Publish or Perish

### 6.3.3 Selected scholarly activities in focus

Respondents in the Lithuanian dataset were asked if they engage in specific activities considered to be of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organise research assets, e) using their own keyword list or thesaurus to organise research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or discussion forum. This section summarizes the answers of respondents to these questions.

#### 6.3.3.1 Visiting historical archives, special collections, or museums

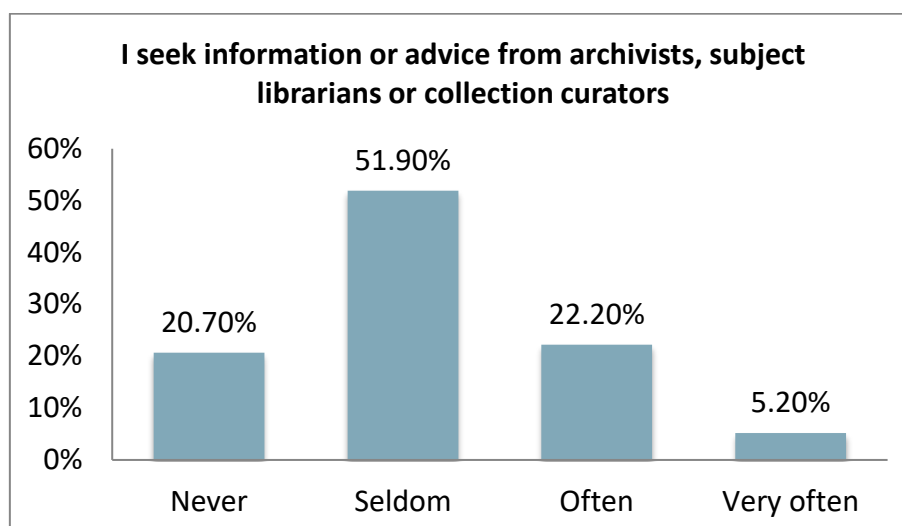
16% of the respondents stated that they visit historical archives, special collections, or museums for research purposes very often, while 26.5% stated that they visit them often. 41.2% of the respondents said that they seldom visit historical archives, special collections, or museums, and 16.2% indicated that they never do so (Figure 6.12).



**Figure 6.12** Scholarly activities - Frequency of visiting historical archives, special collections, or museums, Lithuanian dataset (N=137).

#### 6.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

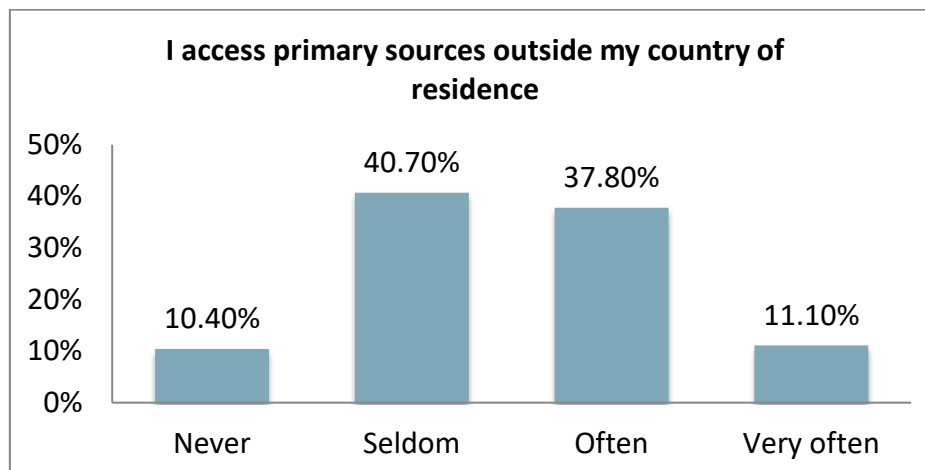
Only 5.2% of the respondents stated that they seek information or advice from archivists, subject librarians, or collection curators very often, while 22.2% stated that they seek it often. On the other hand, a majority of 51.9% indicated that they seek such information or advice seldom, and 20.7% that they never do so (Figure 6.13).



**Figure 6.13** Scholarly activities - Frequency of seeking information from archivists, subject librarians, or collection curators, Lithuanian dataset (N=137).

### 6.3.3.3 Accessing primary sources outside one's country of residence

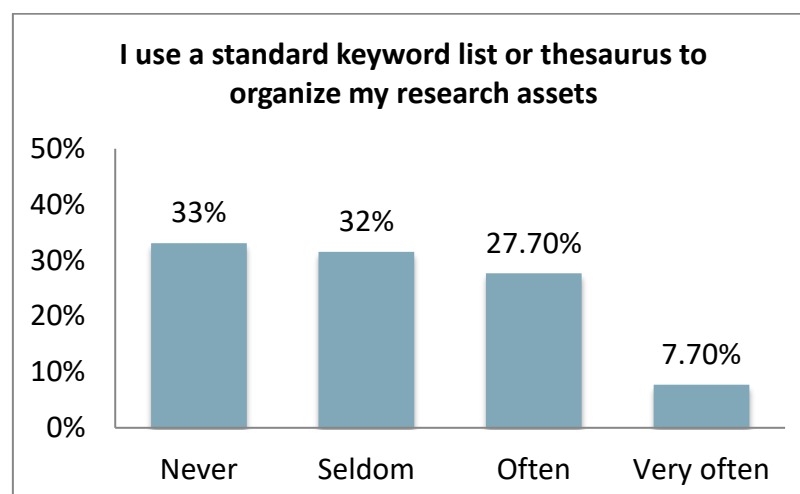
Only 11.1% of respondents from Lithuania stated that they access primary sources outside their country of residence very often, while 37.8% stated that they access such sources often. On the other hand, 40.7% indicated that they seldom access primary sources outside their country of residence, and 10.4% of the respondents said that they never do so (Figure 6.14). The most frequent answer to this question is 'seldom'.



**Figure 6.14** Scholarly activities – Frequency of accessing primary sources outside one's country of residence, Lithuanian dataset (N=137).

### 6.3.3.4 Using a standard keyword list or thesaurus to organise research assets

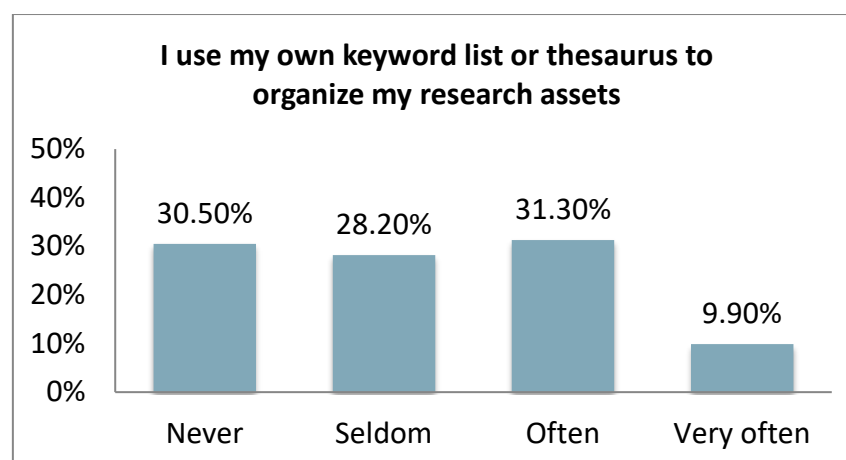
Only 7.7% of respondents from Lithuania stated that they use a standard keyword list or thesaurus to organise their research assets very often, but an additional 27.7% indicated that they do so often. On the other hand, most respondents use a standard keyword list or thesaurus either seldom (32%), or never (33%) (Figure 6.15).



**Figure 6.15** Scholarly activities - Frequency of using a standard keyword list or thesaurus to organise research assets, Lithuanian dataset (N=137).

#### 6.3.3.5 Using one's own keyword list or thesaurus to organise research assets

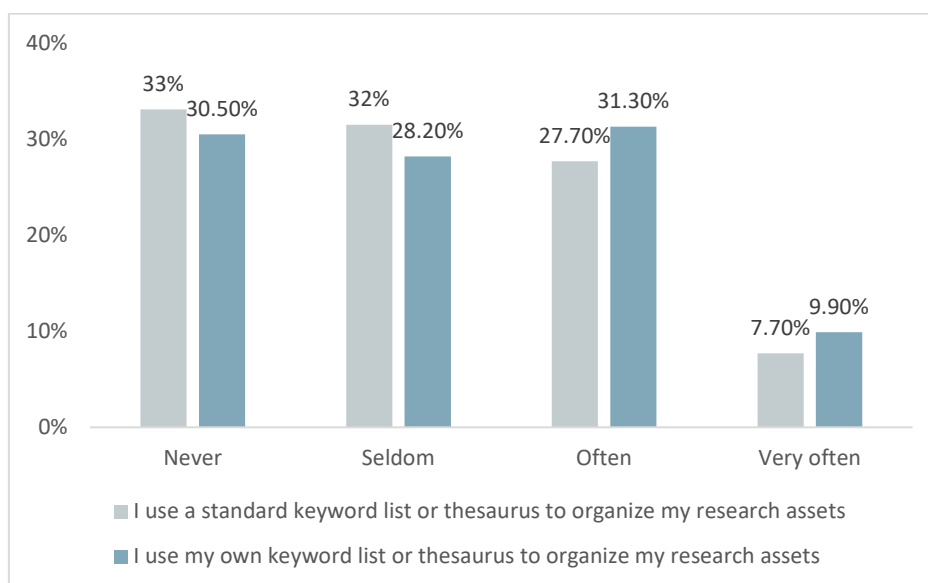
Similarly, a slightly higher 9.9% of the respondents stated that they use their own keyword list or thesaurus to organise their research assets very often, while an additional 31.3% indicated that they do so often. Again, most respondents use a standard keyword list or thesaurus either seldom (28.2%), or never (30.5%) (Figure 6.15).



**Figure 6.16** Scholarly activities - Frequency of using one's own keyword list or thesaurus to organise research assets, Lithuanian dataset (N=137).

Overall, while a slightly higher percentage of researchers from Lithuania reported using their own keyword list or thesaurus often or very often in comparison with a standard keyword list or thesaurus, the difference is not very large (Figure 6.17).

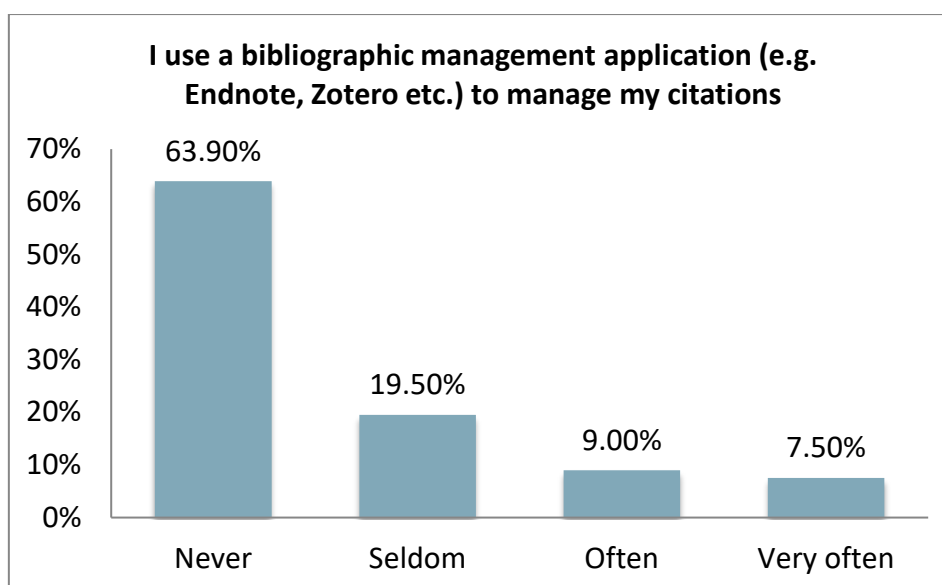




**Figure 6.17** Scholarly activities - Frequency of using one's own or standard keyword list or thesaurus to organise research assets, Lithuanian dataset (N=137).

#### 6.3.3.6 Using a bibliographic management application to manage citations

Just 7.5% of respondents from Lithuania stated that they use a bibliographic management application to manage citations very often, while only an additional 9% stated that they use such an application often. 19% responded 'seldom', while the majority (63.9%) never use such an application (Figure 6.18).

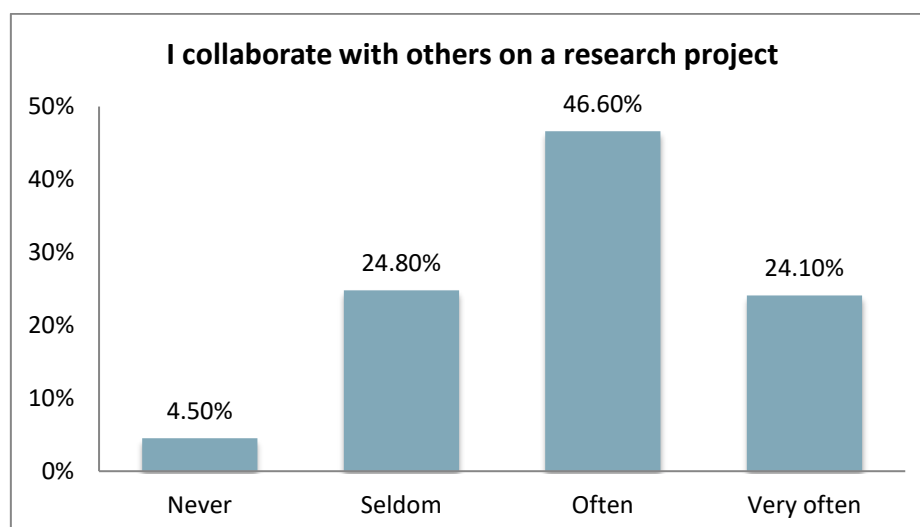


**Figure 6.18** Scholarly activities - Frequency of use of bibliographic management applications to manage citations, Lithuanian dataset (N=137).

#### 6.3.3.7 Collaborating with others on a research project

A notable 24.1% of respondents from Lithuania indicated that they collaborate with others on a research project, while an additional 46.6% stated that they do so often – *in toto* more

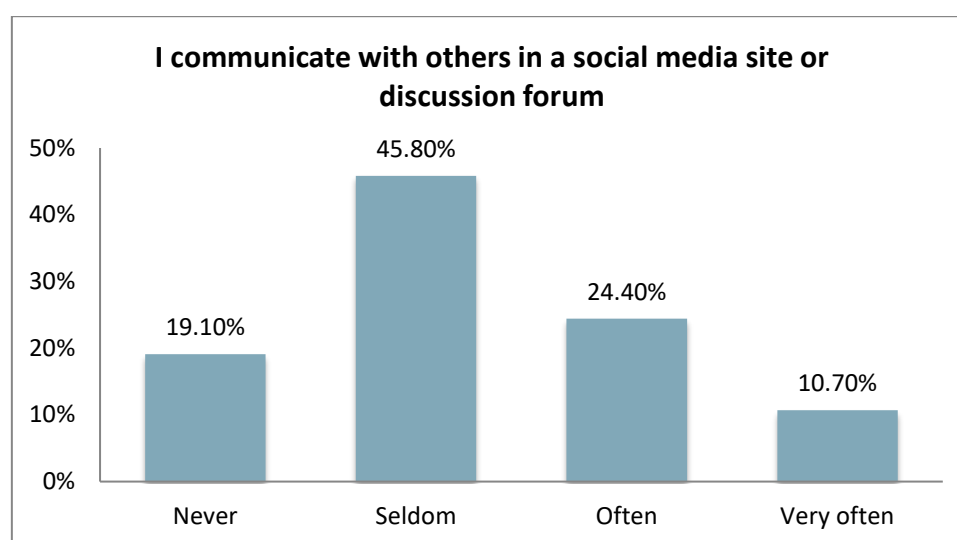
than two out of three respondents. On the other hand, 24.8% reported that they collaborate seldom, while just 4.5% said that they never do so (Figure 6.19).



**Figure 6.19** Scholarly activities - Frequency of collaborating with others on a research project, Lithuanian dataset (N=137).

#### 6.3.3.8 Communicating with others in a social media site or discussion forum

While only 10.7% of the respondents said that they communicate very often with others in a social media site or discussion forum for research purposes, an additional 24.4% indicated that they do so often. On the other hand, a majority stated that they do so either seldom (45.8%) or never (19.1%) (Figure 6.20).

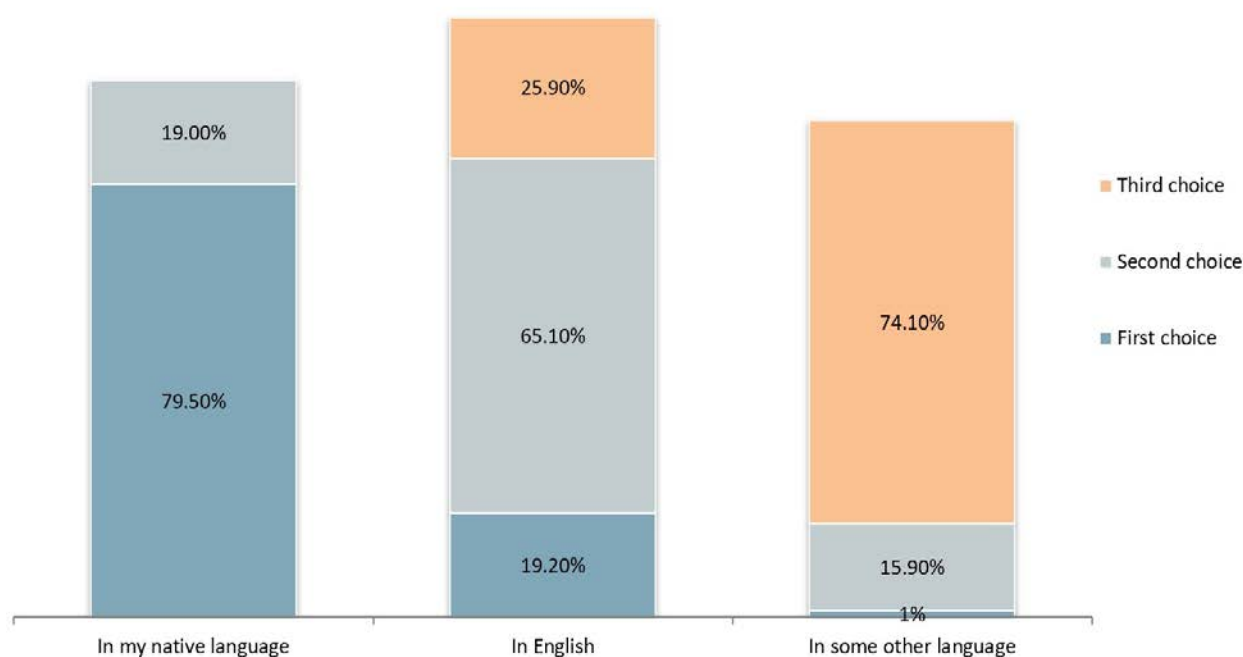


**Figure 6.20** Scholarly activities - Frequency of communicating with others in a social media site or discussion forum, Lithuanian dataset (N=137).

## 6.4 Publication and dissemination of research results

### 6.4.1 Publishing language

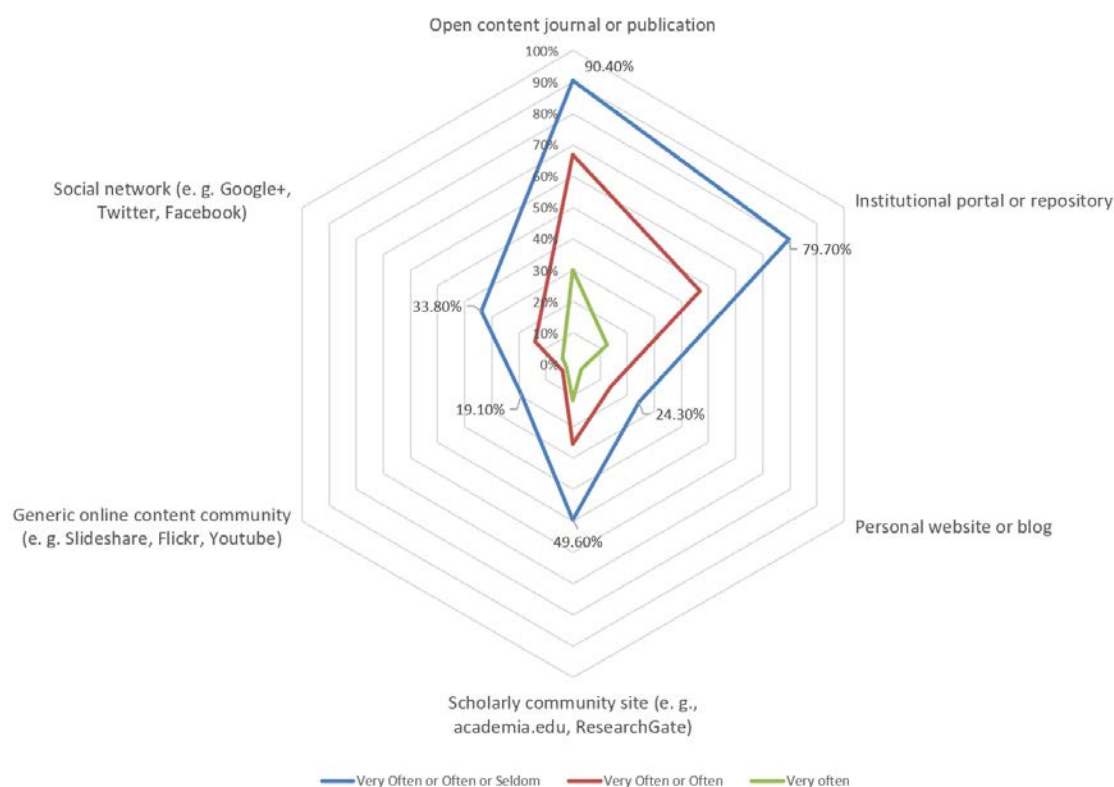
Most respondents from Lithuania (79.5%) primarily publish in their native language, while 19% state that they primarily publish in English. Only 1% primarily publish in some other language (Figure 6.21).



**Figure 6.21** Publishing language, Lithuanian dataset (N=137).

### 6.4.2 New channels of dissemination of scholarly work

Dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications) seems to be mostly achieved through an open content journal or publication. Less often researchers use the portal or repository of their institution. Dissemination through a commercial scholarly content community site seems to be rare amongst respondents from Lithuania (Figure 6.22). A generic online content community, one's web site, or blog and social network, appears to be the least preferred means for research dissemination.



**Figure 6.22** New channels of dissemination of scholarly work, Lithuanian dataset (N=137).

More specifically, dissemination through an open content journal or publication is performed very often by 30.1% of the respondents, and performed often by 36.8% of the respondents, while 23.5% of the respondents use it seldom, and 9.6% of them never do so.

Only 12.5% of the respondents disseminate their scholarly work very often through the portal or repository of the researcher's institution, while 34.4% of them do it often. On the other hand, 32.8% of the respondents use it seldom and 20.3% never.

**The most common digital channel for disseminating research materials identified by Lithuanian researchers is an open content journal or publication. Personal websites or blogs, and social networks, are among the least preferred channels of scholarly dissemination.**

The majority of the respondents (75.6%) never use a personal web site or blog for dissemination. Only 3.1% of the respondents stated they use it very often, and 11% of researchers use it often, while 10.2% use it seldom.

Half (50.4%) of the respondents stated that they never use a commercial scholarly content community site (e. g. *Academia*, *ResearchGate*, etc.) for dissemination of their work. It is seldom performed by 24% of the respondents, while only 14% of them use it often and 11% of the respondents use it very often.

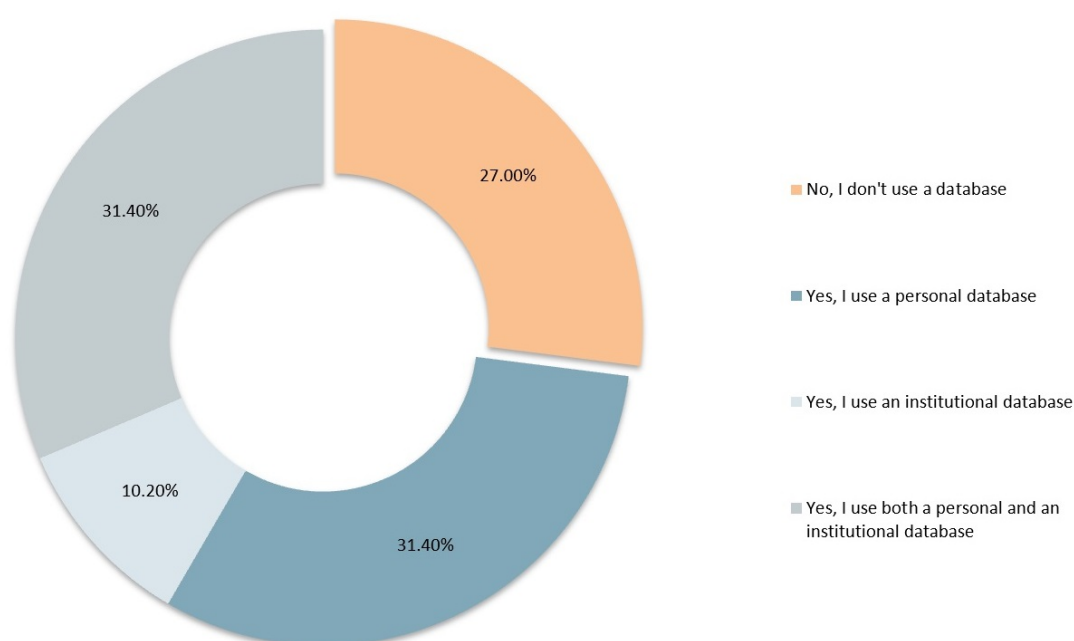
Most respondents (81%) do not use some generic online content community (e. g. *Slideshare*, *Flickr*, *YouTube*, etc.) to disseminate their research. 15.1% of researchers indicating using it seldom. Only a small number of respondents use it very often (2.4%), or often (1.6%).

Finally, 66.1% of the respondents stated that they never use a social network (e. g. *Facebook*, *Google+*, *Twitter*) to disseminate their research. It is seldom performed by 19.7% of the respondents, while 10.2% of them use it often and only 3.9% of the respondents use it very often.

## 6.5 Data management software and services

### 6.5.1 Database use

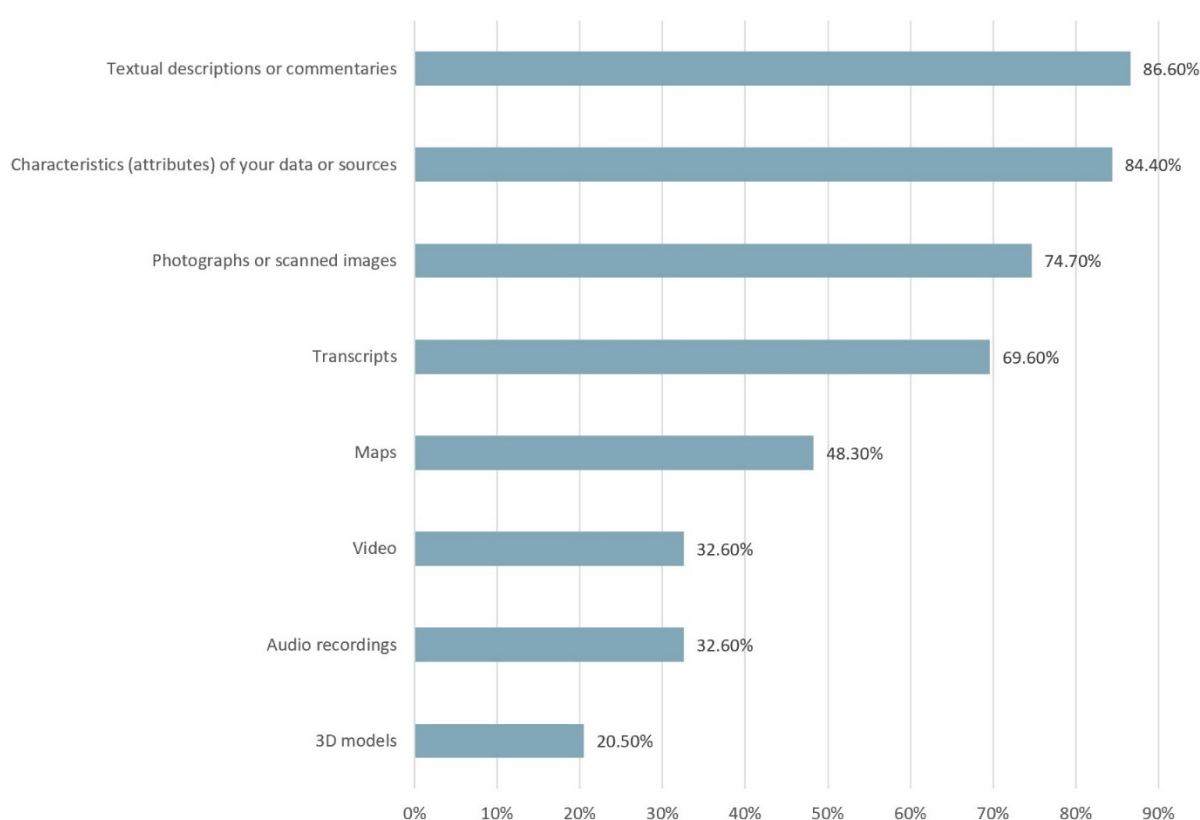
Among Lithuanian respondents, 62.8% stated that they use a personal database for their research data or sources: 31.4% on its own, and 31.4% in combination with an institutional database. 10.2% of the respondents stated that they only use an institutional database, while 27% that they do not use a database at all (Figure 6.23).



**Figure 6.23** Use of database, Lithuanian dataset (N=137).

### 6.5.1.1 Database content scope

Respondents from Lithuania who stated that they use a database were asked to indicate what kind of content is contained in their database, by selecting those that apply from the following options: a) characteristics (attributes) of data or sources, b) textual descriptions or commentaries, c) photographs or scanned images, d) transcripts, e) maps, f) audio recordings, g) video, and h) 3D models. Respondents stated that their databases mainly contain textual descriptions or commentaries (86.6%) and characteristics or attributes of their data or sources (84.4%). Databases are also used to keep and manage photographs or scanned images (74.7%) and transcripts (69.6%). Databases are used in a lesser extent for maps (48.3%), audio (32.6%), video recordings (32.6%) and 3D models (20.5%) (Figure 6.24).



**Figure 6.24** Database contents, Lithuanian dataset (N=137).

### 6.5.2 Online services to access research assets

Most respondents (75.2%) stated that they use web search engines very often to access research assets, while 19% state to use them often, and 5.1% said that they seldom use them. Only 0.7% of the respondents said that they never use web search engines.

The use of search engines of research publications, such as *Google Scholar* or *Microsoft Academic Search*, is also frequent. 49.6% of the respondents stated that they use such search

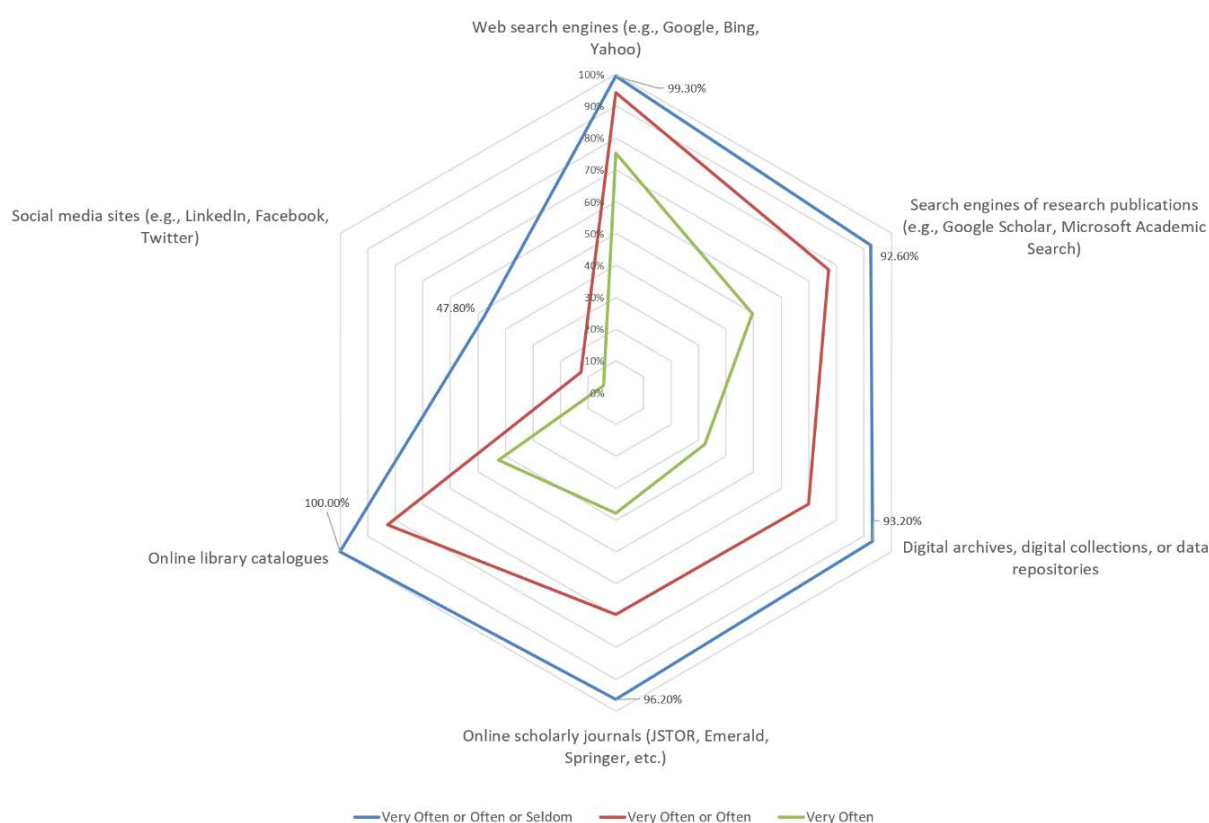
engines very often, 27.7% stated that they use them often. 15.3% of the respondents indicated seldom using them and 7.3% said that they never use such search engines.

Digital archives, digital collection or data repositories are often used by 37.7% of the respondents and very often by 32.3% of them. 23.3% stated that they seldom use them and 6.8% said that they never use digital archives, digital collections or data repositories.

The use of online journals, such as *JSTOR*, *Emerald* or *Springer*, are very often used by 37.9% of the respondents and often by 31.8% of them. 26.5% stated that they seldom use them and 3.8% said that they never use online journals.

Online library catalogues are very often used by 42.5% of the respondents, while 40.3% stated that they often use them. 17.2% of researchers said that they seldom use online library catalogues. However, none of the respondents indicated that he/she has never used an online library catalogue.

Finally, social media sites seem to be less common, with 52.2% of the respondents saying they never use them. 35.1% stated that they seldom use them, while 8.2% use them often and only 4.5% use social media for research purposes very often (Figure 6.25).



**Figure 6.25** Frequency of use of services, Lithuanian dataset (N=137).

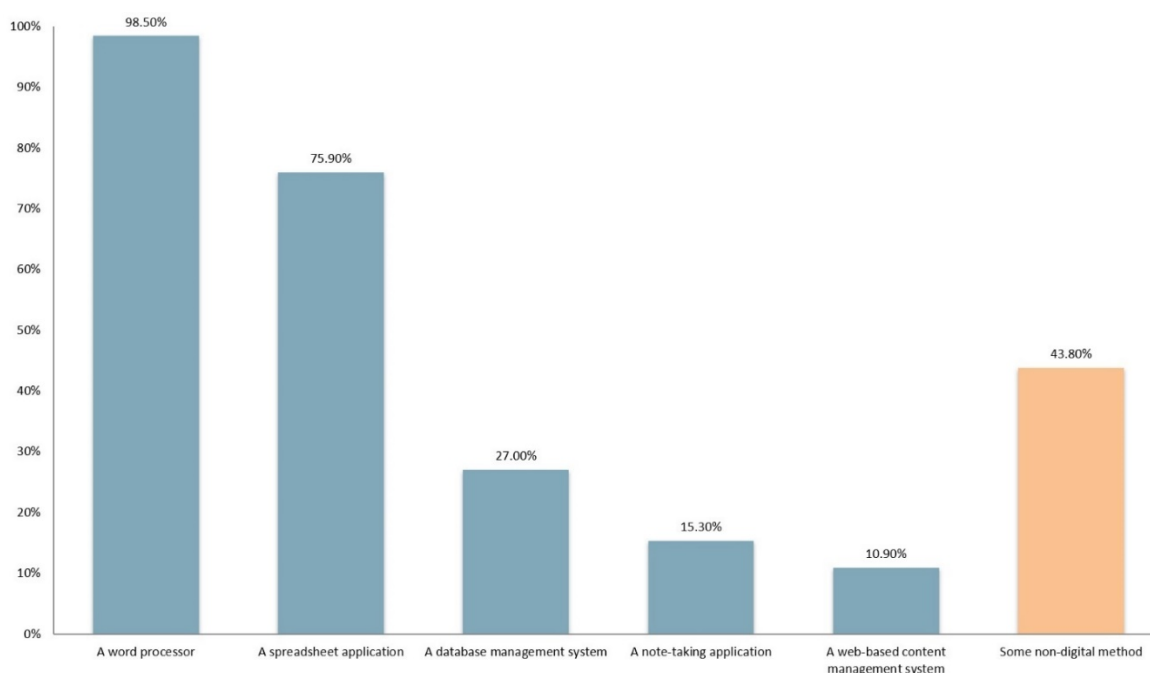


### 6.5.3 Research asset management applications

Most researchers stated that they use a word processor (98.5%) and spreadsheet applications (75.9%) to store and manage their research assets.

27% stated that they use a database management system, 15.3% indicated using a note-taking application and 10.9% responded using a web-based content management system. Finally, 43.8% of the respondents reported of using non-digital method to store and manage your research assets.

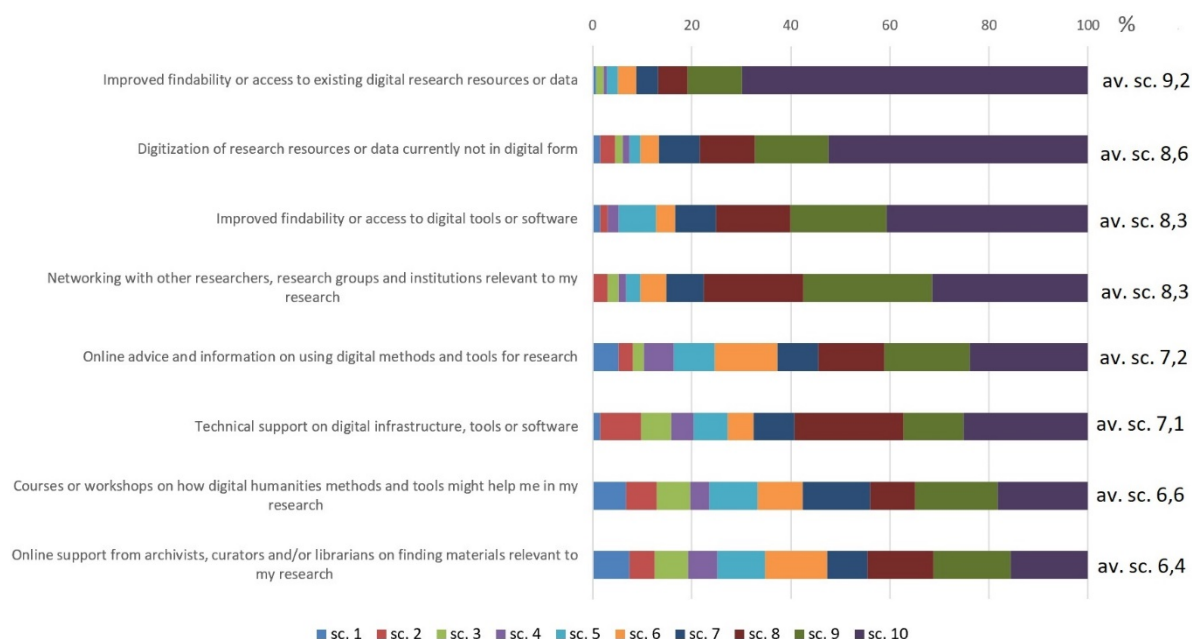
**Word processors and spreadsheet software, alongside with non-digital means, are used most often to manage research assets. Notetaking programs and web content management systems are the least common.**



**Figure 6.26** Use of applications to store or manage research assets, Lithuanian dataset (N=137).

## 6.6 Assessment of researcher needs

Finally, survey participants were asked to rate the importance of a series of statement regarding their needs in a scale from 1 to 10, where 1 is the least important and 10 is the most important. All available statements were considered to be important for their research (Figure 6.27).



**Figure 6.27** Importance of needs, Lithuanian dataset (N=137).

Improved findability or access to an existing digital research resources are the most important need for the majority of respondents. In addition, respondents also noted that digitisation of research resources improved access to digital tools and software, and networking with other researchers are identified as important issues for them as well.

Online advice and information on using digital methods and tools, technical support of digital infrastructure, tools and software, courses or workshops on how digital humanities methods and tools might be useful in research, online support from archivists, curators and/or librarians on finding material are also stated as important by many researchers, though to a lesser extent on average. Roughly one out of four respondents rate technical support with a score of 4 or less. An even higher percentage of Lithuanian respondents, exceeding 30%, rated with a score of 4 or lower the need for courses or workshops on digital humanities, and online support by information professionals (i.e., archivists, librarians, collections curators, etc.) to find online materials (Figure 6.27). This suggests that there exists a sizeable group of Lithuanian scholars who consider technical support and online information to be adequate, or, more likely, who are quite confident in their abilities to apply digital methods or tools and identify digital resources for their research.

**In line with other European respondents, Lithuanians identified improving access to existing digital research resources, and digitisation of new research assets, as their two most important needs.**

## 6.7 Conclusions

The use of digital media seems to be quite common amongst researchers in the human sciences in Lithuania who responded to the survey. 58.4% of the respondents state that they already use digital methods or tools for their research and 30.7% state that they are interested in using such methods or tools. These researchers do not seem to use solely one means to consult their research materials. Most use mainly desktop or laptop PCs to consult articles in scholarly journals or conference proceedings, images, maps, video and audio, while more than a half of researchers use it to read books or view archival holdings. On the other hand many still consult books or archival holdings in a printed or analogue form. However, the use of printed/analogue media is not common when it comes to audio, video material and images, it is also limited for consulting maps and articles in scholarly journals. The use of mobile devices is not widespread, but it is used for all kinds of research materials. Maps, audio, video and images are the most viewed items by using mobile device, while books and scholarly journals are less common for such usage. Archival holdings are rarely consulted by mobile devices.

When working on their research, respondents from Lithuania often collaborate with others on a research project. Less frequently they access primary sources outside Lithuania, visit historical archives, special collections, or museums and use their own keyword list or thesaurus to organise research assets. They seldom use a standard keyword list or thesaurus to organise research assets, or communicate with others in a social media site or discussion forum, and even more rarely seek information from archivists, librarians or collection curators, or use a bibliographical management application to manage citations.

Respondents state that they use digital methods or tools primarily to discover, collect or create research assets. Digital repositories, library catalogues, electronic text corpora or generic web search are widely used to discover and collect digital resources. The creation of digital assets is based on audio and video recording, photography, photogrammetry, digitisation, GPS technologies and online surveys.

In order to organise, structure or manage research assets, researchers in the Lithuanian dataset often use databases. Cloud storage systems, services and platforms, online content management tools and reference management software were also mentioned as being used for these purposes. All in all, *MS Excel* and *MS Office* are most often used among offline tools for organisation of research assets.

Researchers use a wide range of digital tools to process, analyse or visualise their research materials. Most often various types of analytical research methods are being used together with an appropriate tool package that enables the most preferable type of analysis. For example, *SPSS* and *OriginLab* are used for statistical analysis, *Loglet*, *Mathcad*, *MS*

*Excel* – for computational analysis, *HAMLET*, *MAXQDA*, *PSPP* – for quantitative and qualitative data analysis, etc. Respondents also mentioned specific tools that are closely related to research methods used in respondents' research field, e. g. *ArcGIS* or *WinBasp* – for archaeological research, *AntConc* or *WordSmith* – for linguistic analysis, *Gephi* – for social network analysis, etc.

Finally, respondents also indicated using digital methods to disseminate their work and to annotate or curate their research assets. The most common tool for research presentation or lecturing is *MS Powerpoint*. A few respondents also said they rely on online dissemination and social networking to communicate about research. To annotate, enrich or curate their research assets respondents use citation programmes (e. g. *Endnote*, *Zotero*), as well as tools measuring research impact (e. g. *Publish or Perish*).

80% of the Lithuanian research materials in the human sciences is primarily published in Lithuanian language. The second most frequently used language is English. Researchers seem to disseminate their work more frequently through an open content journal or publication. Less frequently they use institutional portal or repository. Personal website or blog and social media sites are the least preferred new channels of dissemination for researchers in Lithuania.

The use of a database for managing research data and sources is relatively widespread amongst researchers in the Lithuanian dataset, since about 73% of the respondents state to use at least one database for their research. Databases seem to mainly contain textual descriptions and commentaries, as well as characteristics (attributes) of data and sources. In many cases databases also contain photographs, scanned images and transcripts. Maps, audio, video recordings and 3D objects are less to be found in the databases.

Respondents most widely use web search engines. They also often use other digital services such as search engines of research publications, digital archives or data repositories and online library catalogues. Social media sites are rarely used for research purposes.

Finally, researchers in the human sciences in Lithuania who responded to the survey seem to believe that it is the most important to have improved access to existing digital research resources or data, and to digitise more research resources and data that are not available in digital form. Furthermore, they stress the importance of other issues such as the digitisation of research resources, the improved access to digital tools or software and the networking with other researchers, research groups and institutions relevant to their research.

# Chapter 7

## Country profile: Poland

*Maciej Maryl*

### 7.1 Respondent profile

The Polish dataset consists of 152 complete answers of researchers working in the humanities and social sciences (HSS) who reported Poland as their country of residence. The Polish version of the questionnaire was translated and disseminated by Digital Humanities Centre at the Institute of Literary Research of the Polish Academy of Sciences and Poznań Supercomputer and Networking Center. Apart from the open call for participation published in social media and on institutional websites, the survey was distributed through the mailing lists of Polish librarians, linguists and to all institutions involved in the creation of the DARIAH-PL consortium. These collection strategies may have influenced the dataset composition. The total of 154 valid responses was collected between fall 2014 and February 2015.

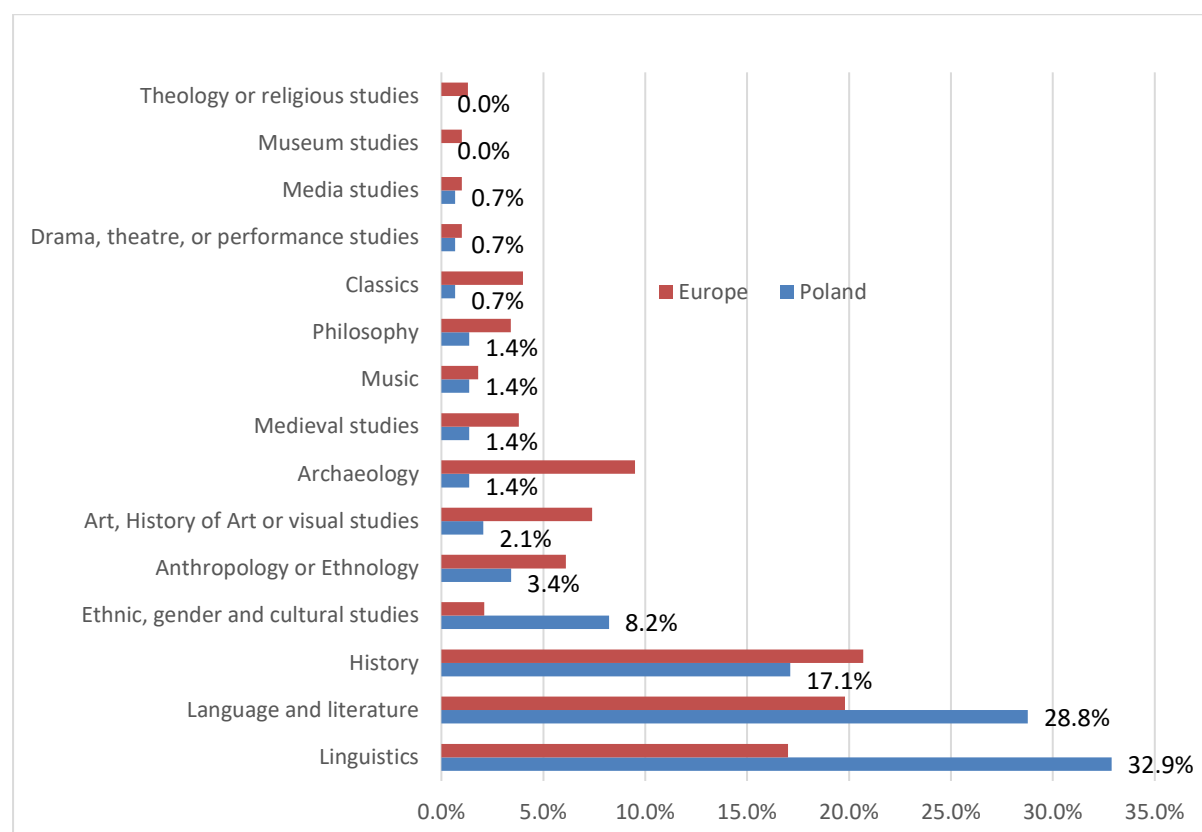
#### 7.1.1 Discipline

Most respondents identified themselves as humanists (96.7%), but respondents included also a small number of social scientists (3.3%) (Figure 7.2). In more detail, the largest groups of respondents were linguists (32.2%), literary scholars (28.2%), historians (16.8%) and cultural studies researchers (8.1%), while the remaining 14.8% of the dataset is more or less adequately distributed (0.7-3.4 %) among disciplines such as anthropology and ethnology, arts, archaeology, medieval studies, music, philosophy, and sociology.

This distribution of disciplines represented in the Polish dataset is broadly similar to that of the European dataset (N=1,782), where the three largest groups are the same yet the order is slightly different (Figure 7.1): history (20.7%), followed by language and literature (19.8%) and linguistics (17%). The relative over-representation of linguists in the Polish dataset may be attributed to the fact that, at the time when the survey was conducted, the most organised group of digital humanists in Poland were researchers in linguistics who have already been collaborating for some time within the CLARIN-PL consortium. Also, certain disciplines are

under-represented in the Polish dataset in comparison to the European results: archaeology (only 1.9% vs. 9.5% in the European data); art, history of art and visual studies (2.1% vs. 7.4%) and anthropology or ethnology (3.4% vs. 6.1%). We also note that cultural studies are better represented in the Polish dataset than at the European level (2.1%).

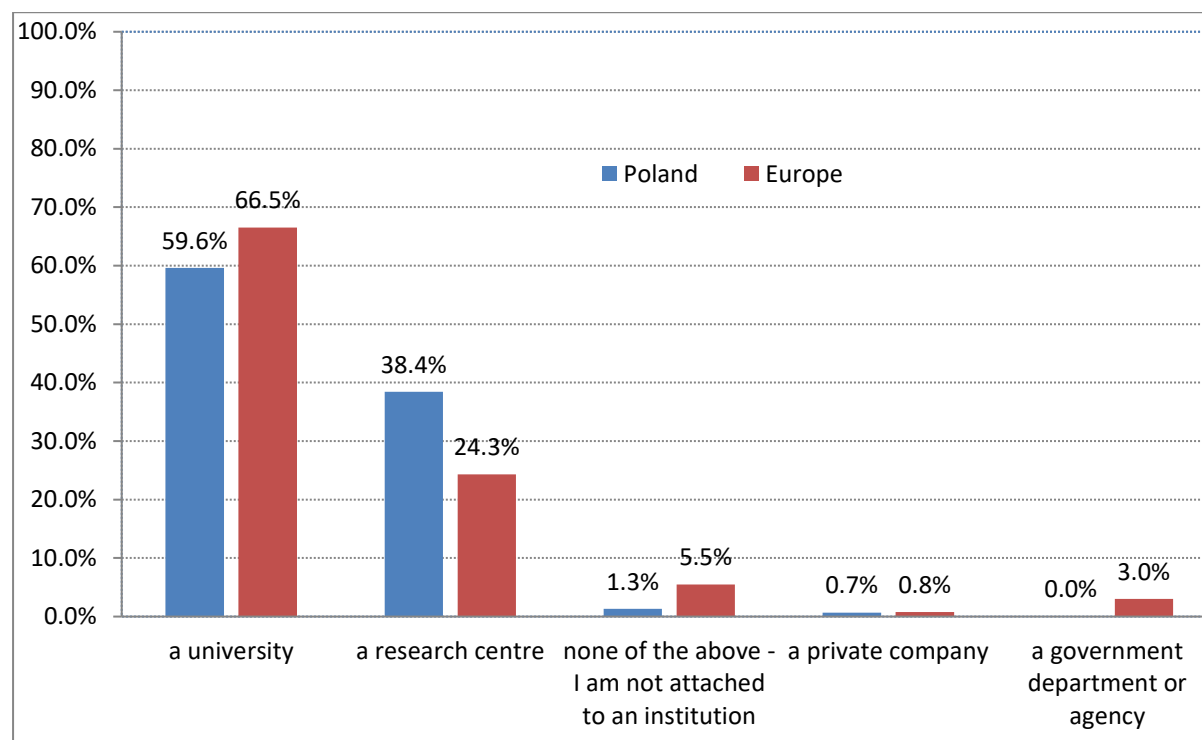
The dataset seems to reflect the disciplinary shape of digital humanities in Poland, where linguists, literary scholars and historians are most active participants of initiatives in the field, including the organisation of conferences and THATCamps, and cooperation with European entities or networks (e.g., CLARIN, DARIAH, NeDiMAH). Yet it should also be noted that the situation may be changing rapidly in Poland, where digital humanities quite recently achieved momentum and scholars from other humanities disciplines are increasingly interested in using digital methods and tools. Although we cannot claim that every scholar who uses digital methods in Poland had an equal chance to participate in the survey, we may confidently assert that the questionnaire reached those individuals and institutions most active in the digital humanities community in Poland. In that respect, the results seem to reflect adequately broader trends in practices and needs of the DH community in Poland.



**Figure 7.1** Discipline, Polish dataset (red, N=149), compared to the consolidated European dataset (blue, N=1782). For clarity, only percentages for the Polish dataset are shown.

### 7.1.2 Professional affiliation and status

Almost all respondents are attached either to a university (59.6%) or to a research centre (38.4%) and only a very small percentage report being attached to a private company (0.7%) or not to be attached to any institution at all (1.3%) (Figure 7.2).



**Figure 7.2** Professional affiliation, Polish dataset (red, N=151), compared to the consolidated European dataset (blue, N=2,018).

In comparison with the consolidated European dataset we note two interesting phenomena. Firstly, on the European level only 24.3% respondents are affiliated with a research centre compared to 38.4% among respondents from Poland. The difference may be attributed to the fact that several institutes of the Polish Academy of Sciences (Institutes of: Arts; Computer

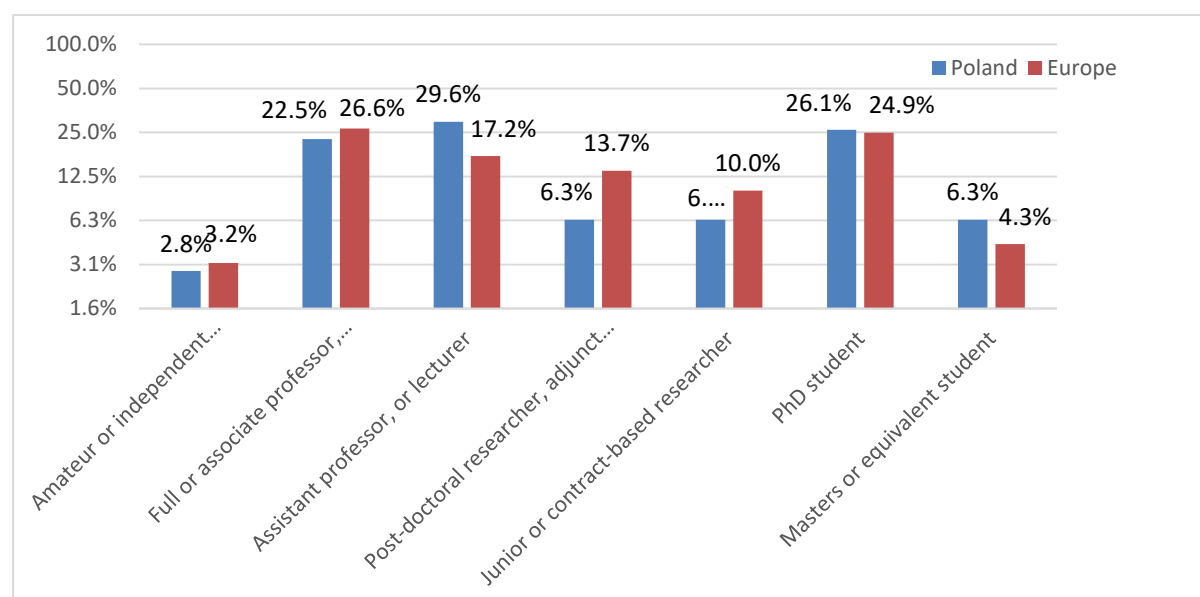
The higher ratio of respondents affiliated with a research centre in Poland may be due to the high level of digital humanities activity of institutes of the Polish Academy of Sciences. The lack of respondents attached to a government department or agency, on the other hand, may reflect the current lack of recognition for digital humanities within Polish governmental circles.



Science; History; Literary Research; and Slavic Studies) are among the most active institutions in the Polish digital humanities community. Secondly, nobody among respondents from Poland reported being attached to a government department or agency (3% in the European dataset); this seems to mark the relative newness of the digital humanities in Poland, and the current lack of recognition of DH within governmental circles, a situation that needs to be addressed by the Polish DH community.

### Compared to the broader European situation, digital humanities in Poland are driven to a large extent by younger or less established scholars.

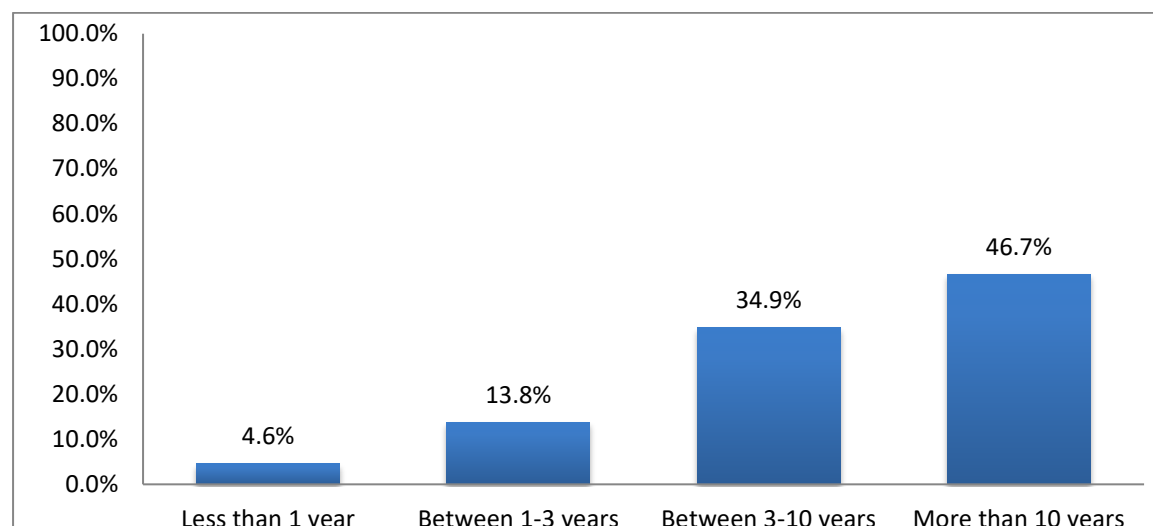
Regarding their professional status, the majority of respondents report being either assistant professors or lecturers [*adiunkt, starszy wykładowca*] (29.6%), or full / associate professors, readers or senior researchers [*profesor zwyczajny; profesor nadzwyczajny*] (22.5%). Interestingly, at the European level more respondents reported that they are full or associate professors (26.6%) than assistant professors, readers, etc. (17.2%). If we also consider the higher percentage of PhD students (26.1% in the Polish dataset vs. 24.9% in the consolidated European dataset), there appears to be a clear indication that, compared to the broader European situation, digital humanities in Poland are driven to a larger extent by younger or less established scholars. Post-doctoral researchers [*post-doc; stażysta*], Junior or contract-based researchers [*asystent*], and MA students are represented by the same ratio of respondents (6.3%) (Figure 7.3).



**Figure 7.3** Professional status, Polish dataset (red, N=142), compared to the consolidated European dataset (blue, N=1,931).

### 7.1.3 Years in research

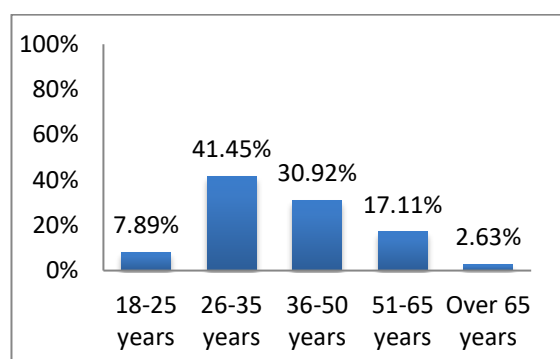
The largest group of respondents (46.7%) are experienced researchers, working in research for more than 10 years, while 34.9% work as researchers between 3 and 10 years. 13.8% of the respondents work as researchers between 1 and 3 years, and only 4.6% for less than a year (Figure 7.4).



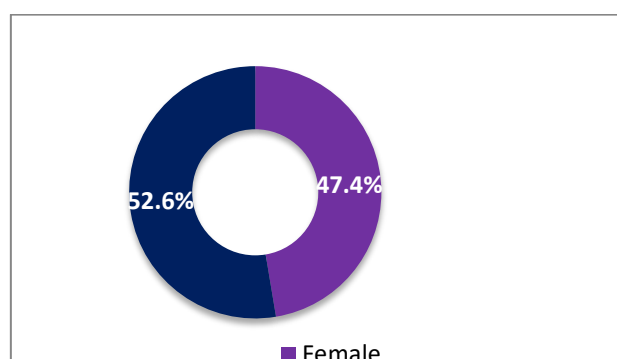
**Figure 7.4** Years in research, Polish dataset (N=152).

### 7.1.4 Age and gender

The largest group of respondents, 41.45%, are between 26 to 35 years old, 30.9% are between 36 and 50 years old and 17.1% are between 51 and 65 years old, with only 2.6% over the age of 65; 7.9% of the respondents are between 18 and 25 years old (Figure 7.5). The main difference to the European dataset concerns early career researchers: those working between 3 and 10 years (34.9% in Poland, vs. 29% in the consolidated European dataset), or 26 to 35 years old (41.45% vs. 30.40%). This may further support the claim that the Polish DH community is driven by younger researchers. Finally, the gender distribution in the Polish dataset is almost equal, with 52.6% male and 47.4% female respondents (Figure 7.6).



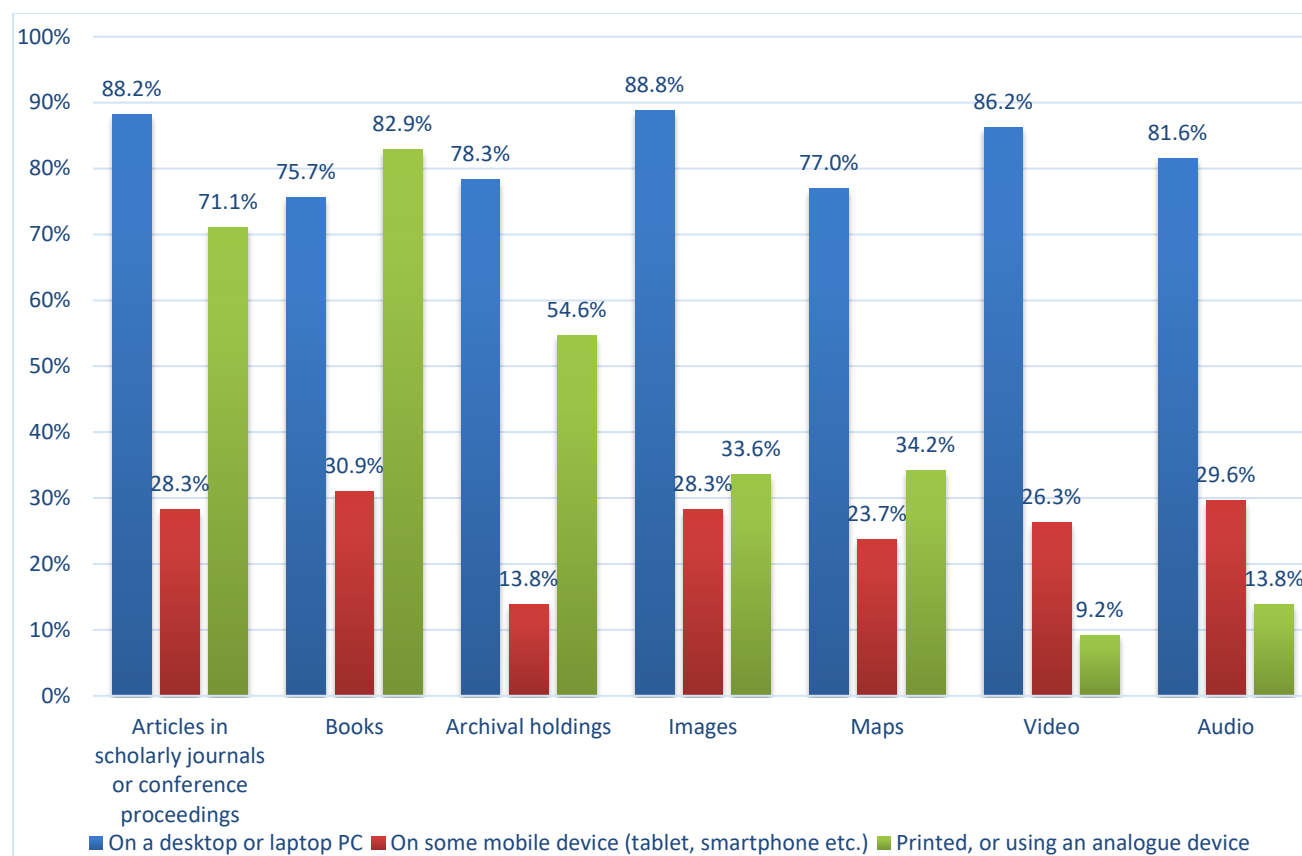
**Figure 7.5** Age, Polish dataset (N=152).



**Figure 7.6** Gender, Polish dataset (N=131).

## 7.2 Research materials and digital access

The use of digital devices to consult research materials is a common practice among scholars in Poland. Respondents were asked to state whether they consult materials such as articles in scholarly journals or conference proceedings, books, archival holdings, images, maps, video and audio using the following kinds of devices: a) a desktop or laptop PC, b) some mobile digital device, c) print, or an analogue device. Multiple responses were allowed (Figure 7.7).



**Figure 7.7** Use of a desktop or laptop PC, mobile devices, and printed format or analogue devices to consult research materials, Polish dataset (N= 152).

### 7.2.1 Articles in scholarly journals or conference proceedings

88.2% of the respondents stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 28.3% stated that they use a mobile device for the same purpose, while 71% stated that they use printed text or an analogue device.

### 7.2.2 Books

75.7% of respondents from Poland stated that they use a desktop or laptop PC to consult books. 30.9% stated that they use a mobile device for the same purpose, while 82.9% state that they use printed text or an analogue device.

### 7.2.3 Archival holdings

78.3% of the respondents stated that they use a desktop or laptop PC to consult archival holdings. 13.8% stated that they use a mobile device for the same purpose, while 54.6% state that they use printed text or an analogue device.

### 7.2.4 Images

88.8% of the respondents stated that they use a desktop or laptop PC to consult images. 28.3% stated that they use a mobile device for the same purpose, while 33.6% stated that they use printed text or an analogue device.

### 7.2.5 Maps

77% of the respondents stated that they use a desktop or laptop PC to maps. 23.7% stated that they use a mobile device for the same purpose, while 34.2% stated that they use printed text or an analogue device.

### 7.2.6 Video

86.2% of the respondents stated that they use a desktop or laptop PC to watch video. 26.3% stated that they use a mobile device for the same purpose, while 9.2% stated that they use an analogue device.

### 7.2.7 Audio

81.6% of the respondents stated that they use a desktop or laptop PC to consult audio materials. 29.6% stated that they use a mobile device for the same purpose, while 13.8% stated that they use an analogue device.

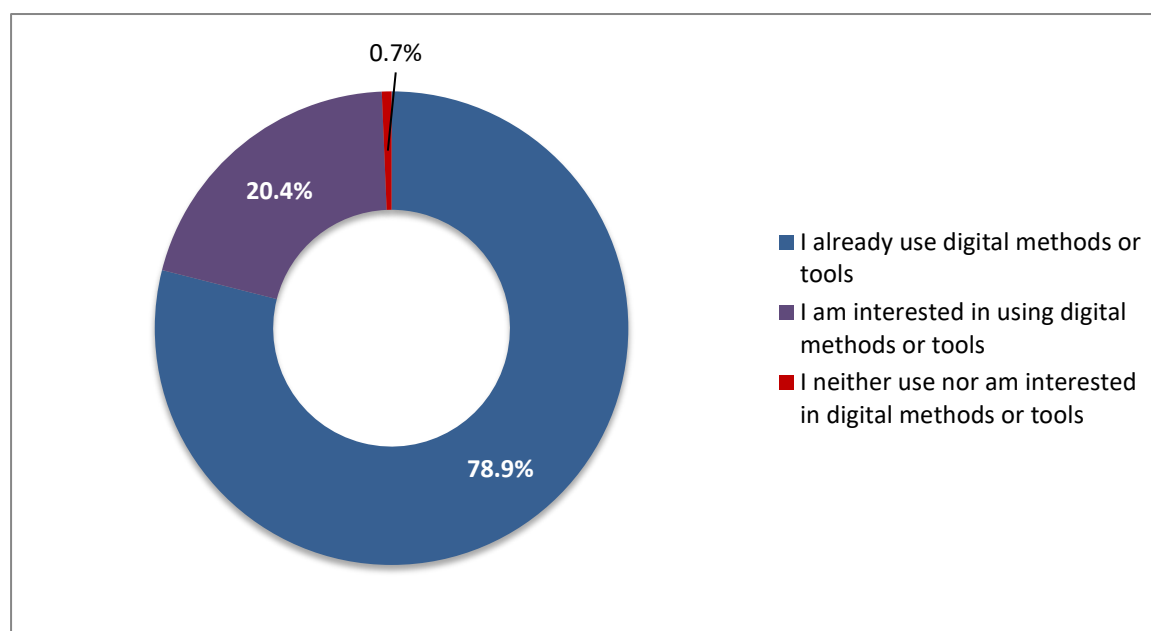
For most kinds of resources (except for reading books), using a digital device, and in particular a desktop or laptop computer, was the most popular means of accessing scholarly content (Figure 7.8). Notably, also, about a quarter of the respondents (23.9%-30.9%) use a mobile device such as a tablet or smartphone to consult most kinds of materials, except for archival holdings (13.8%). The difference between the popularity of computers and mobile devices may stem from the relative novelty of the latter, yet it could be interesting to assess (through a follow-up study) in which situations either type of device proves to be more useful.

The Polish results are consistent with the European ones in terms of general tendency, with some minor differences in percentage. The most visible difference concerns the higher tendency of scholars in Poland to access books and archival holdings through a computer (75.7% and 78.3% respectively, compared to European dataset averages of 62.5% and 65.7%).

Digital methods are used to support the existing research practices. Nine out of ten respondents from Poland use digital methods or tools to discover, collect or create research assets, while only two out of three to annotate, enrich or curate research assets.

### 7.3 Scholarly activities, methods and tools

Most of the respondents (78.9%) to the survey reported that they already use digital methods or tools in their research. 20.4% of the respondents from Poland are interested in using such methods and tools, and only one respondent (0.7%) neither uses nor is interested in them. In the European dataset the percentage of respondents already using digital methods and tools is slightly greater (83.3%) (Figure 7.8).

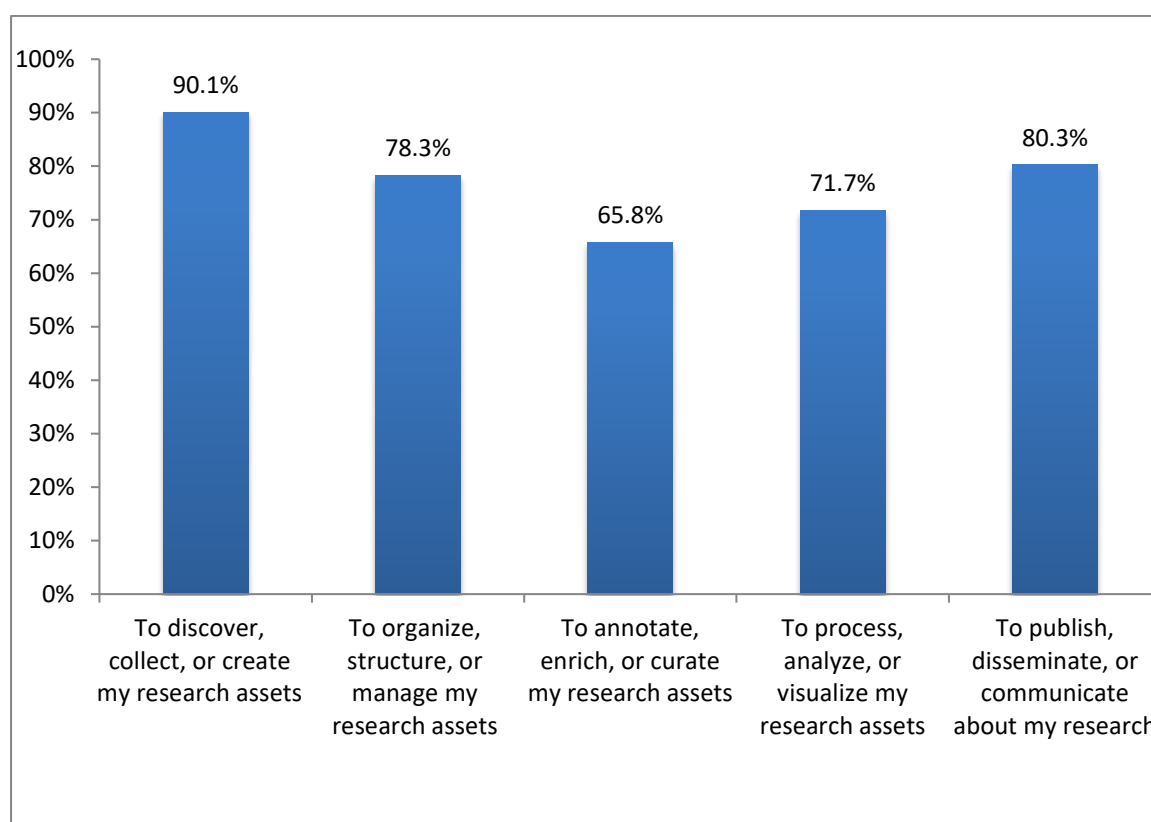


**Figure 7.8** Use of digital methods or tools, Polish dataset (N=152).

#### 7.3.1 Purpose of use of digital methods or tools

Respondents who stated that they either use or are interested in using digital methods or tools were subsequently asked to specify for what purpose they (want to) use them. Respondents were asked to affirm if they use digital methods or tools for each of five different purposes, related to different aspects of the scholarly information lifecycle: (1) to discover, collect or create their research assets; (2) to organise, structure or manage research assets; (3) to annotate, enrich or curate research assets; (4) to process, analyse or visualise research assets; and, (5) to publish, communicate or disseminate their research. While the majority of

respondents in the Polish dataset stated that they use digital methods or tools for all five purposes, it seems that digital methods and tools serve primarily as a vehicle of improving 'traditional' research activities such as collecting and organising research materials, or disseminating results (Figure 7.9). The highest percentage of respondents (90.1%) stated that they use, or wish to use, digital methods or tools to discover, collect or create research assets. Other purposes for the use of digital methods or tools stated by respondents were, in decreasing order of popularity: to publish, disseminate or communicate about research (80.3%), and to organise, structure or manage research assets (78.3%). Less popular were activities changing research materials: to annotate, enrich or curate research assets (65.8%) or to process, analyse, or visualise research assets (71.7%). These ratios were similar to those in the European dataset, with only slight differences in actual ratios.



**Figure 7.9** Purpose of use of digital methods or tools, Polish dataset (N=152).

### 7.3.2 Specific digital methods and tools reported

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on the particular way respondents use, or are interested in using, digital methods or tools.

Responses were categorized firstly according to the particular functionality or research activity they refer to, and secondly according to the aspect of the scholarly information lifecycle

they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; and, (e) to publish, disseminate or communicate about research. As methods and tools related to organising and curating research aspects are often overlapping, categories c and d were merged. Furthermore, since many responses cut across the research lifecycle and could be assigned to multiple (if not all) categories, a separate category was created to accommodate them.

Given the qualitative nature of this question, the wide range of responses received and especially the difficulty of interpreting the meaning of non-response, no quantitative comparisons based on frequencies are made beyond confirming that, like in the previous question, the notion of digital methods and tools remains mostly associated with facilitating access to digitised assets. All examples presented in parentheses and in italics are taken from the open text responses.

### 7.3.2.1 To support cross-cutting research activities

Responses referring to cross-cutting, multi-purpose tools which facilitate the research process include, first of all, **word processors** and note-taking applications (e.g., *MS Word*, *Evernote*); **programming-related tools** and methods (*HTML*, *XML*, *PHP*, *SQL*, *Javascript*; *IDE*, *Mercurial*); tools for facilitating **communication** within the research team, such as messaging applications, e-mail, online collaboration services (e.g. *Framapad*), and project-management software. Some respondents also mentioned basic **hardware equipment**, such as tablet, smartphone, e-book reader and laptop.

### 7.3.2.2 To discover, collect or create research assets

Some respondents from Poland mentioned using **search environments** such as bibliographic management applications, online catalogues of *offline* libraries, or search engines (either global, like *Google*, or local search engines of particular collections), useful to help research asset discovery. Many respondents consult the following **online resources** to collect research materials: research content sites (e.g. *Academia*, *ResearchGate*, *Central Eastern European Online Library*), digital libraries (e.g. *Google Books*), archival resources, collections of digital and digitised maps, video platforms (e.g. *YouTube*), linguistic resources (dictionaries, corpora), formatted datasets (*Google Fusion*) or thematic portals and educational platforms. This category of tools was widely popular among respondents. Finally, respondents mentioned using two kinds of tools useful to create research materials: firstly, **hardware equipment** used to collect data from the physical world, such as GPS devices or drones for 3D surfaces (e.g. archaeological sites), and scanners or digital cameras for creating 2D digital objects; and secondly, tools for **digital data** retrieval, such as data mining tools (e.g. data scrapers, *TAGS* for *Twitter*), web surveys, or specialist software for gameplay recording.



### 7.3.2.3 To organise, curate and enrich research assets

Respondents from Poland reported using a variety of services and tools, most of which may serve all purposes of organising, curating and enriching research assets. More particularly, some respondents reported using citation managers (e.g., *Zotero*, *Mendeley*), bookmark managers (e.g., *Delicious*), as well as corpus management tools and database management software (including specialist software for managing dictionaries), useful to **organise** research assets. Also, some respondents stated that they use cloud storage services (e.g. *Dropbox*, *Google Drive*) or archiving tools to **store** research assets. Finally, some respondents reported that they **enrich** research assets by using either functions available in applications designed for organising them (e.g., adding annotations in a bibliographic citation manager), or specialist scholarly editing tools to encode texts (*oXygen* in conjunction with the *Text Encoding Initiative* markup standard).

### 7.3.2.4 To process, analyse, or visualise research assets

Respondents from Poland pointed at diverse tools and services useful to **process** research assets, such as audio and video editing software (e.g. *Adobe Premiere*), word processors (e.g. *MS Word*), image editors (e.g. *Corel*), or spreadsheets (e.g. *MS Excel*). In addition, some respondents reported that they **analyse** research assets with tools for image analysis, content analysis of qualitative data (e.g. *MAXQDA*), tabular data analysis (e.g. *TAGS*, *Google Fusion*), linguistic analysis (e.g. *Wordsmith*, *CLARIN tools*, *AntConc*, *NooJ*), or statistical software (e.g. *SPSS*, *R*, *stylo package for R*). There were also mentions of specialist software for spatial data analysis and radiocarbon calibration (*OxCal*). Finally, respondents reported use of various tools and services (e.g. *Gephi*, *Voyant*, *Wordle*, *R packages*), suitable for **visualising** research assets.

### 7.3.2.5 To publish, disseminate or communicate one's research

Respondents from Poland reported using various word processing applications (e.g. *MS Word*, *Scrivener*), as well as advanced publishing software and services (e.g. *XeTeX*, *BibLaTeX*; *Open Journal System*), Content Management Systems and blogging platforms (e.g. *Wordpress*), useful to **publish and disseminate** research findings. They also identified presentation software (e.g., *MS PowerPoint*, *Prezi*) and hardware equipment (e.g. *beamer*) suitable for the same purpose.

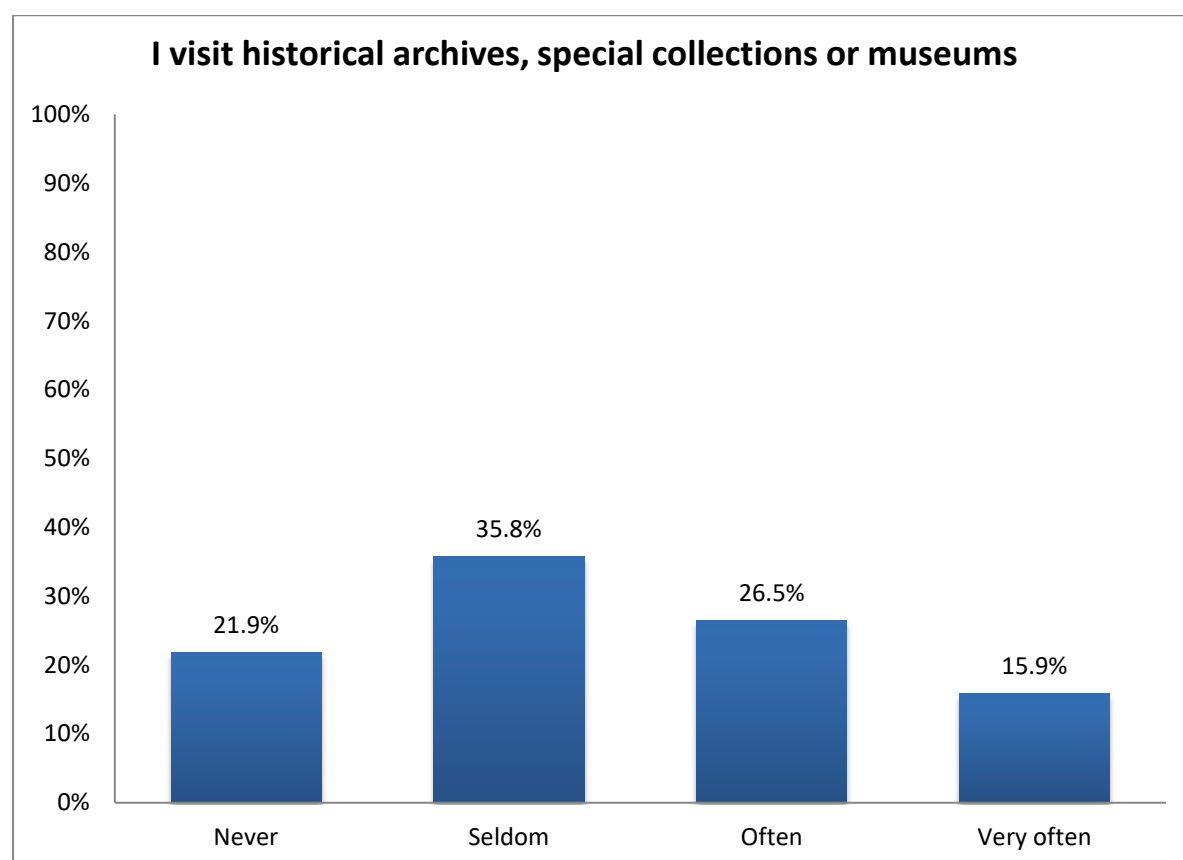
## 7.3.3 Selected scholarly activities in focus

Respondents were asked if they engage in specific activities considered to be of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organise research assets, (e) using their own keyword list or thesaurus to organise re-

search assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or discussion forum. This section summarizes the answers of respondents from Poland to these questions.

### 7.3.3.1 Visiting historical archives, special collections, or museums

15.9% of the respondents state that they visit historical archives, special collections, or museums very often, and 26.5% state that they visit often, whereas 35.8% of the respondents state that they seldom visit historical archives, special collections, or museums. On the other hand, 21.9% say they never visit historical archives, special collections, or museums (Figure 7.10). These results are in line with those observed in the consolidated European dataset.

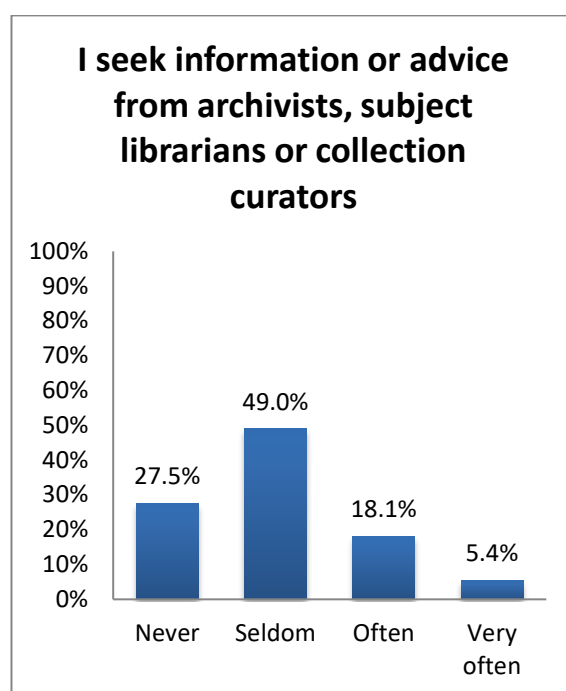


**Figure 7.10** Scholarly activities - Frequency of visiting historical archives, special collections, or museums, Polish dataset (N=151).

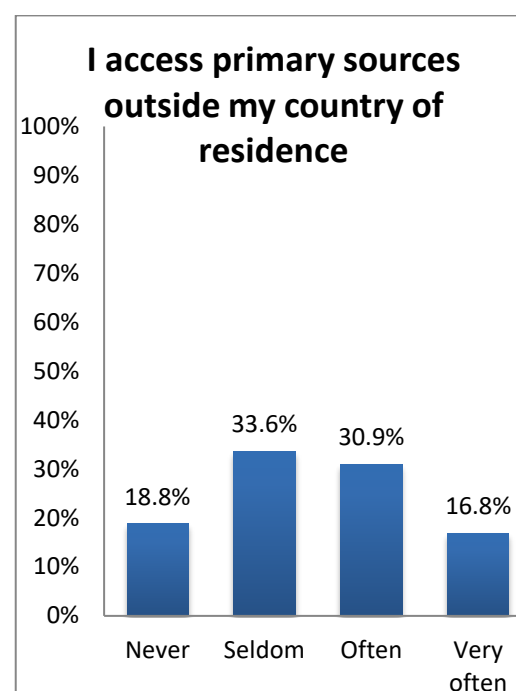
### 7.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

18.1% of the respondents state that they often seek information or advice from archivists, subject librarians, or collection curators, while only 5.4% state that they seek such information or advice very often. On the other hand, 49% state that they seldom seek information or advice from archivists, subject librarians, or collection curators, and 27.5% state that they never do so (Figure 7.11). The main difference with the consolidated European dataset concerns the percentage of respondents who never (18.6%, compared to 27.5% in the Polish dataset) or often

(26.3%, compared to 18.1 in the Polish dataset) seek information or advice from information professionals.



**Figure 7.11** Scholarly activities - Frequency of seeking information from archivists, subject librarians, or collection curators, Polish dataset (N= 149).



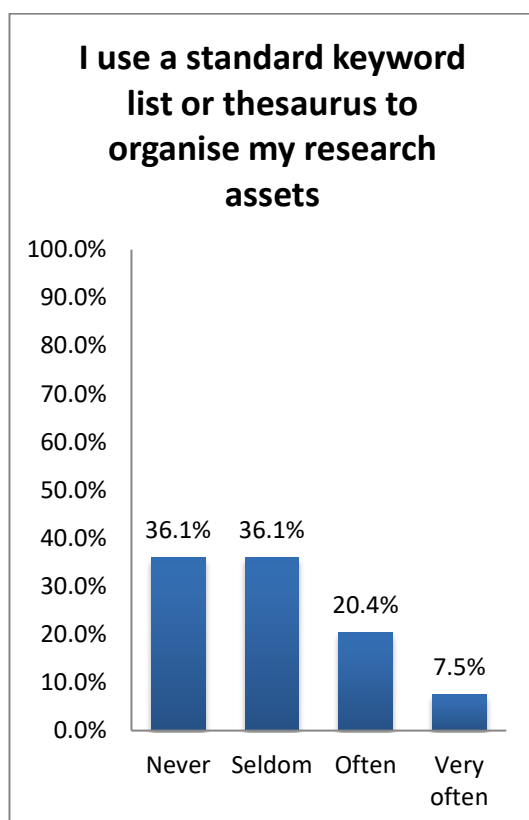
**Figure 7.12** Scholarly activities - Frequency of accessing primary sources outside one's country of residence, Polish dataset (N=149).

### 7.3.3.3 Accessing primary sources outside one's country of residence

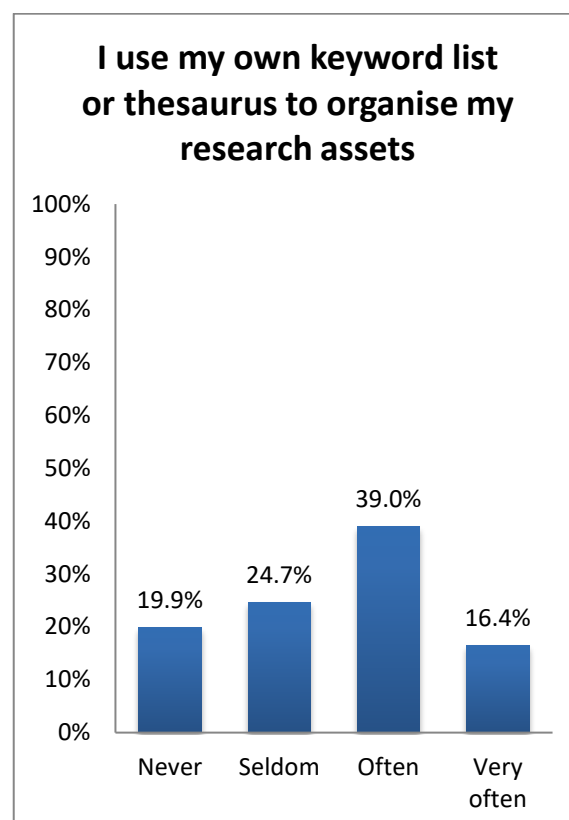
30.9% of the respondents access primary sources outside their country of residence often, and 16.8% very often, whereas 33.6% of the respondents seldom access primary sources outside their country of residence, and 18.8% say that they never do so (Figure 7.12). This is slightly lower than the use attested among respondents in the consolidated European dataset (never: 18.8%, seldom: 33.6%, often: 30.9%, very often: 16.8%), a result that could be attributed to the fact that the Polish dataset contains relatively more literary scholars and linguists, who may tend to work on local sources.

### 7.3.3.4 Using a standard keyword list or thesaurus to organise research assets

Most respondents report that they never (36.1%) or seldom (36.1%) use a standard keyword list or thesaurus to organise research assets, while 23.6% use them often, and 7.5% very often (Figure 7.13). These results are almost identical with the consolidated European dataset.



**Figure 7.13** Scholarly activities: frequency of using a standard keyword list or thesaurus to organise research assets, Polish dataset (N=147).



**Figure 7.14** Scholarly activities: frequency of using one's own keyword list or thesaurus to organise research assets, Polish dataset (N=146).

### 7.3.3.5 Using one's own keyword list or thesaurus to organise research assets

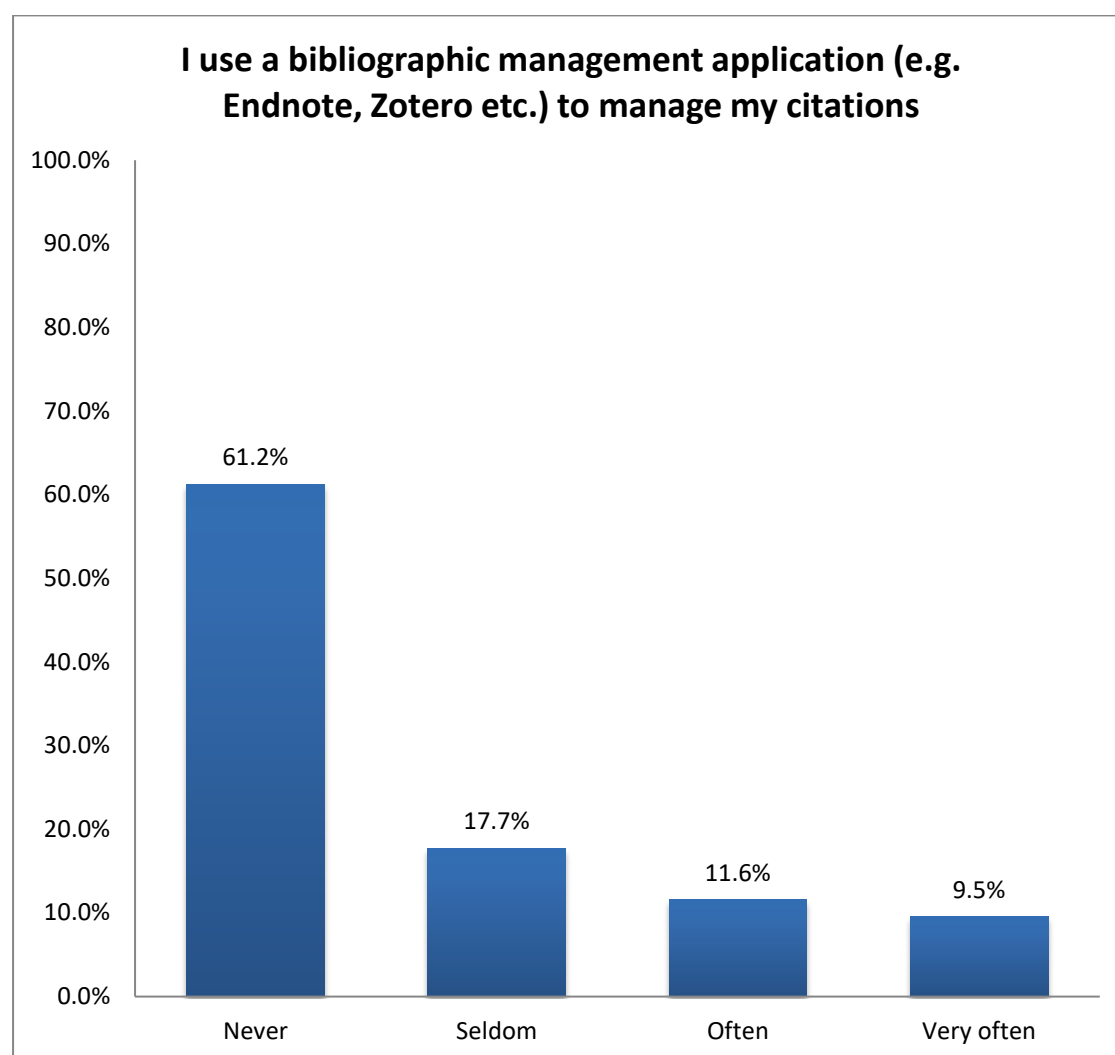
39% of respondents from Poland state that they often use their own keyword list or thesaurus to organise research assets, and 16.4% that they do so very often, whereas 24.7% say that they seldom use their own keyword list or thesaurus to organise research assets, and 19.9% that they never do (Figure 7.14). Those results are consistent with the European dataset.

Comparing with the frequency of use of a standard keyword list or thesaurus, almost two times as many researchers from Poland who responded to the survey report using their own keyword list or thesaurus (often 39% vs. 20.4%, and very often 16.4% vs. 7.5%, cf. Figure 7.14).

### 7.3.3.6 Using a bibliographic management application to manage citations

Only 11.6% of the respondents report that they often use a bibliographic management application to manage citations, and 9.5% that they very often do so (Figure 7.15). On the other hand, almost two thirds of the respondents (61.2%) state that they never use a bibliographic management application to manage citations, while 17.7% seldom use such an application. Respondents from Poland differ in that respect from the consolidated European dataset, in

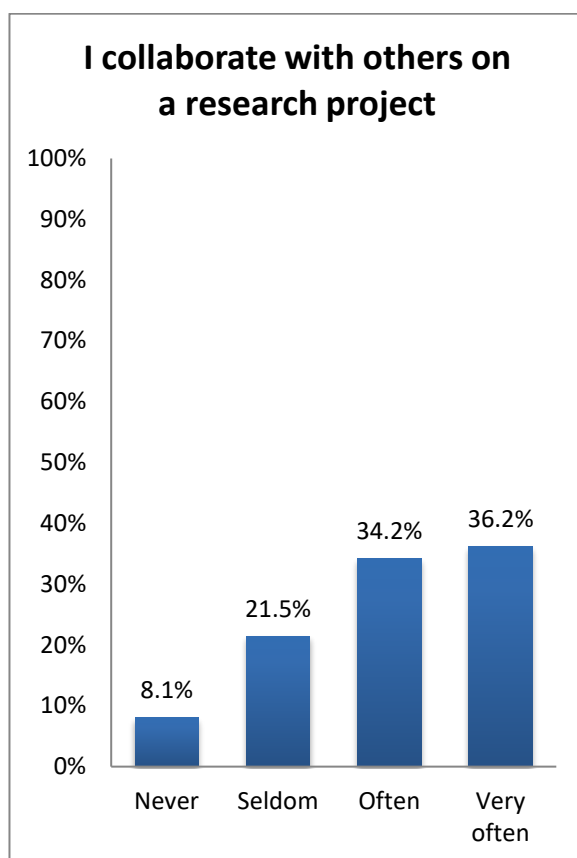
which while 15.9% of the respondents use such an application often and 20.7% very often, while less than half (45.2%) of the respondents report no use.



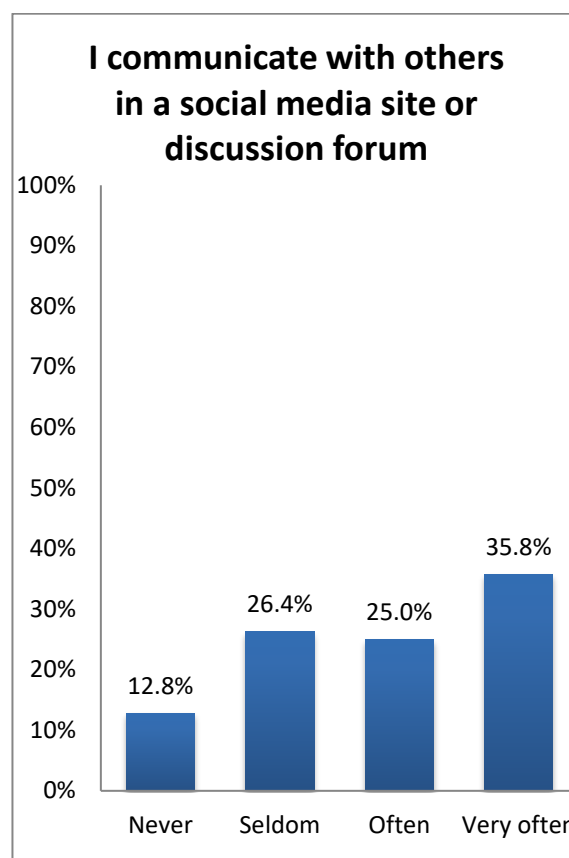
**Figure 7.15** Scholarly activities: frequency of use of bibliographic management applications to manage citations, Polish dataset (N=147).

### 7.3.3.7 Collaborating with others on a research project

Collaborating with others on a research project seems to be fairly common in the Polish dataset. Almost three out of four respondents reported they do so either very often (36.2%) or often (34.2%), while 21.5% state that they seldom collaborate and only 8.1% that they never do (Figure 7.16). Those results are consistent with those in the consolidated European dataset.



**Figure 7.16** Scholarly activities: frequency of collaborating with others on a research project, Polish dataset (N=149).



**Figure 7.17** Scholarly activities: frequency of communicating with others in a social media site or discussion forum, Polish dataset (N=148).

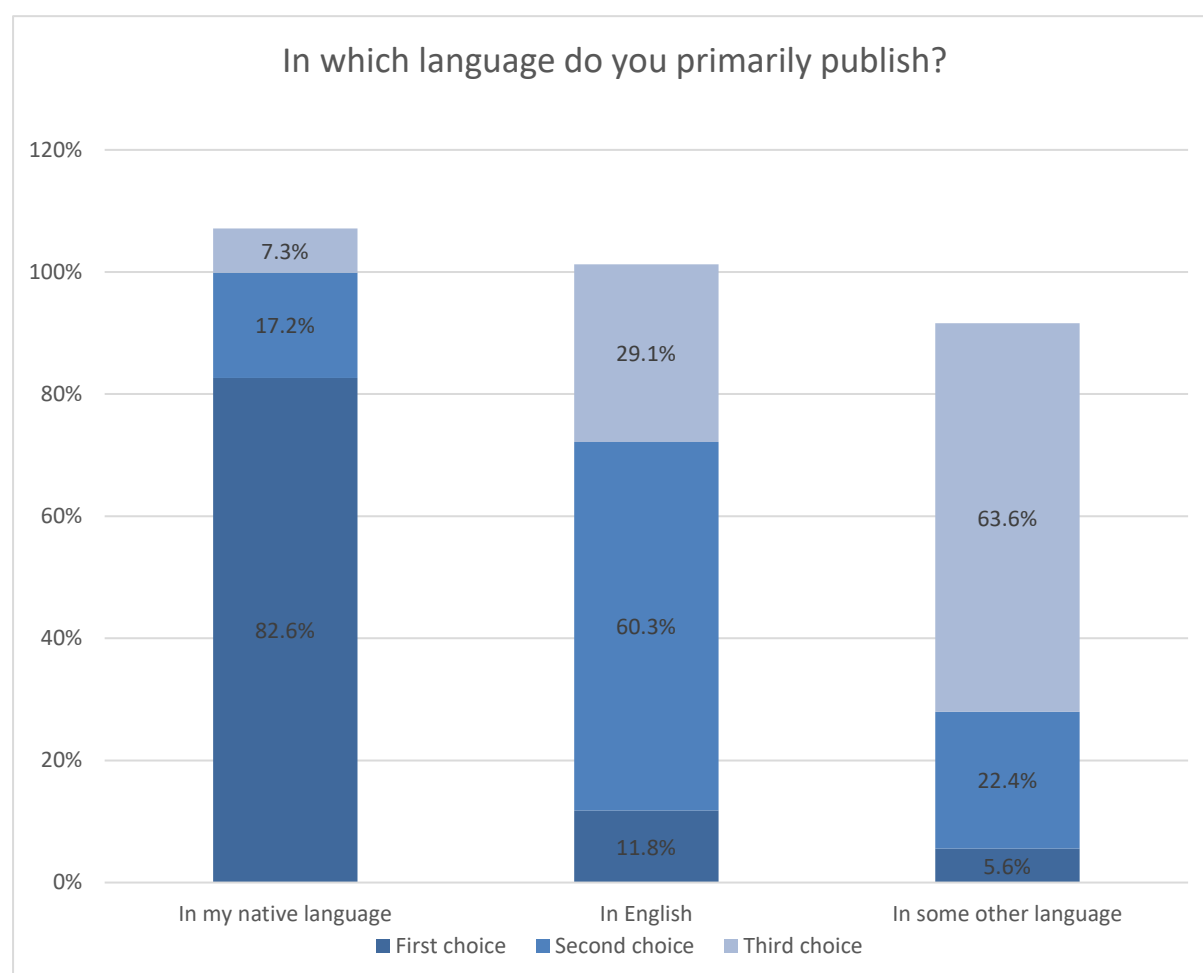
### 7.3.3.8 Communicating with others in a social media site or discussion forum

Only 12.8% of the respondents state that they never communicate with others in a social media site or discussion forum, while almost two thirds of respondents (60.8%) does so often (25%) or very often (35,8), and the remaining 26.4% communicates seldom. (Figure 7.17). Among respondents in the consolidated European dataset, the use of such tools seems to be less common. Although a similar percentage of respondents communicates often (24.7%), only 19.3% does so very often. The majority of European respondents either use those tools seldom (34.1%) or do not use them at all (22%). It seems that respondents from Poland incorporate social media more regularly within their research practice. It would be interesting to compare those results with specific countries from the consolidated European dataset.

## 7.4 Publication and dissemination of research results

### 7.4.1 Publishing language

The majority of respondents from Poland (82.6%) publish in their native language as a first choice, with 11.8% primarily publishing in English, and 5.6% in some other language. Publishing in English is the most popular second choice (60.3%) (Figure 7.18). In comparison, publishing primarily in the native language seems to be less common in the consolidated European dataset (71.1%).



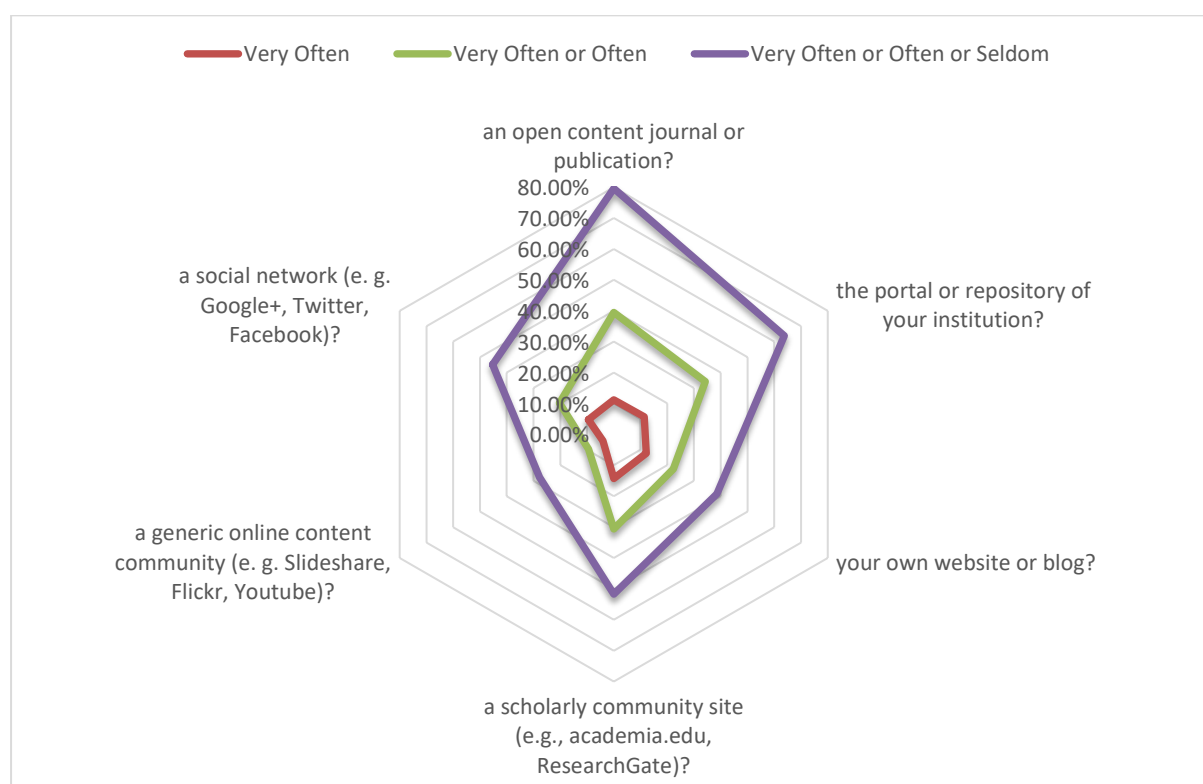
**Figure 7.18** Publishing language, Polish dataset (First choice N = 144; second choice N = 116. Third choice N = 55).



### 7.4.2 New channels of dissemination of scholarly work

Dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications) seems to be done by respondents from Poland more often through an open content journal or publication, as well as an institutional portal or repository. Less often, the work may be disseminated through a commercial scholarly content community site (e.g. *Academia*, *ResearchGate*). Other channels, like using one's own website or blog, disseminating work through a social network or a generic content community, seems to be rather rare (Figure 7.19). In this respect Polish responses are consistent with the results of the European dataset.

It seems that researchers in Poland are keen to adopt channels of dissemination which entail enhanced distribution of traditional scholarly content, such as research papers. More than three quarters of respondents (79.61%) use open content publications to disseminate their written work, and almost two thirds (63.76%) put their work into repositories. Roughly half of the respondents promote their work through commercial scholarly content community sites (51.7%), and social networks (45.27%). On the other hand, researchers from Poland seem to be mostly reluctant to use channels that involve not only disseminating their research manuscripts, but also creating new online content, such as on their own website or blog (38.5%), or within a generic online content community (27.7%). This could be attributed to a combination of factors such as lack of interest, time, or competencies.



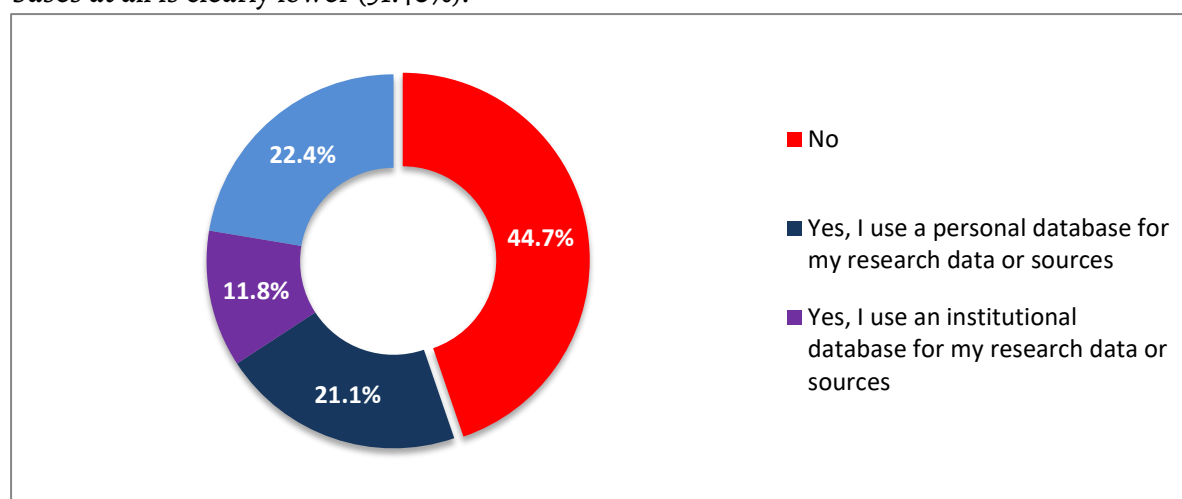
**Figure 7.19** New channels of dissemination of scholarly work, Polish dataset (N=152).

More specifically, dissemination through an open content journal or publication is performed very often by 11.2% of the respondents, often by 28.3% of the respondents, seldom by 40.1% of the respondents, and never by 20.4% of the respondents. Dissemination through the portal or repository of the researcher's institution is performed very often by 11.4% of the respondents, often by 22.8%, seldom by 29.5%, and never by 36.2% of the respondents. Dissemination through the researcher's web site or blog is performed very often by 12.2% of the respondents, often by 10.1%, seldom by 16.2%, and never by 61.5% of the respondents. Dissemination through a commercial scholarly content community site is performed very often by 14.3% of the respondents, it is often performed by 16.3%, it is seldom performed by 21.1%, and it is never performed by 48.3% of the respondents. Dissemination through a generic online content community is performed very often by 4.1% of the respondents, it is often performed by 5.4%, it is seldom performed by 18.2%, and it is never performed by 72.3% of the respondents. Finally, dissemination through a social network is performed very often by 9.5% of the respondents, it is often performed by 10.8%, it is seldom performed by 25%, and it is never performed by 54.7% of the respondents.

## 7.5 Software and services

### 7.5.1 Database use

The majority of respondents from Poland (55.3%) state that they use databases for their research data or sources: 11.8% use an institutional database, 22.1% use a personal database, while 22.4% use both (Figure 7.20). 44.7% of the respondents do not use a database for their research data or sources. in the consolidated European dataset, comparatively more researchers tend to use personal databases (35.5%), and the percentage of those who do not use databases at all is clearly lower (31.40%).

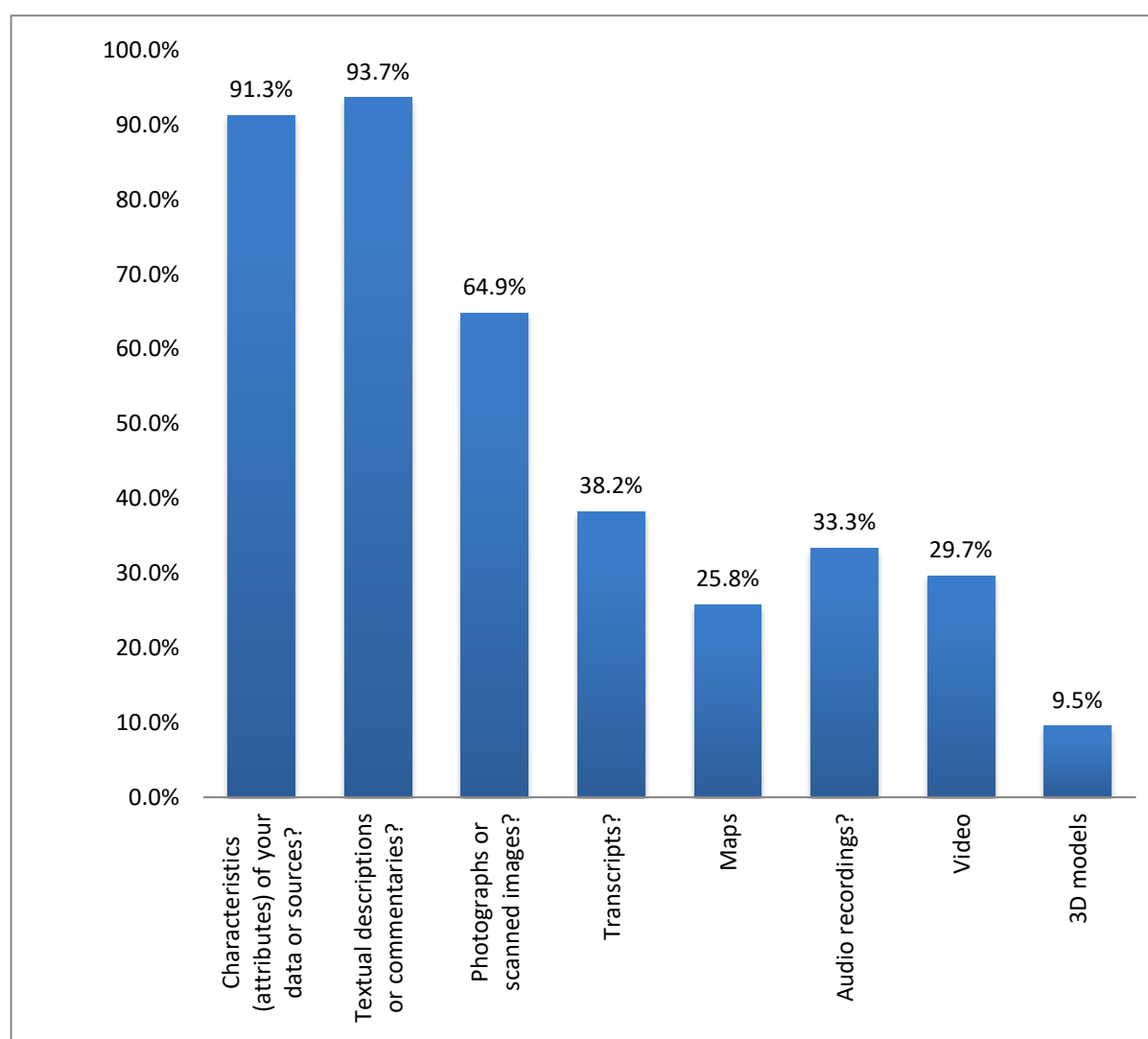


**Figure 7.20** Use of databases, Polish dataset (N=152).

### 7.5.1.1 Database content scope

Respondents from Poland who stated that they using a database were asked to indicate what kind of content is contained in their database, by selecting those that apply from the following options: (a) characteristics (attributes) of data or sources, (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models. Most respondents stated that their databases mainly contain textual descriptions or commentaries (93.7%), and characteristics or attributes of their data or sources (91.3%). Databases are also used by the majority of respondents from Poland to keep and manage photographs or scanned images (64.9%). Databases are used to a lesser extent for transcripts (38.2%), audio recordings (33.3%), video (29.7%), and maps (25.8%) (Figure 7.21).

The comparison with the European dataset shows many similarities, but also reveals that in the broader European context databases are used relatively more often to store transcripts (52.2%) and maps (34.4%).

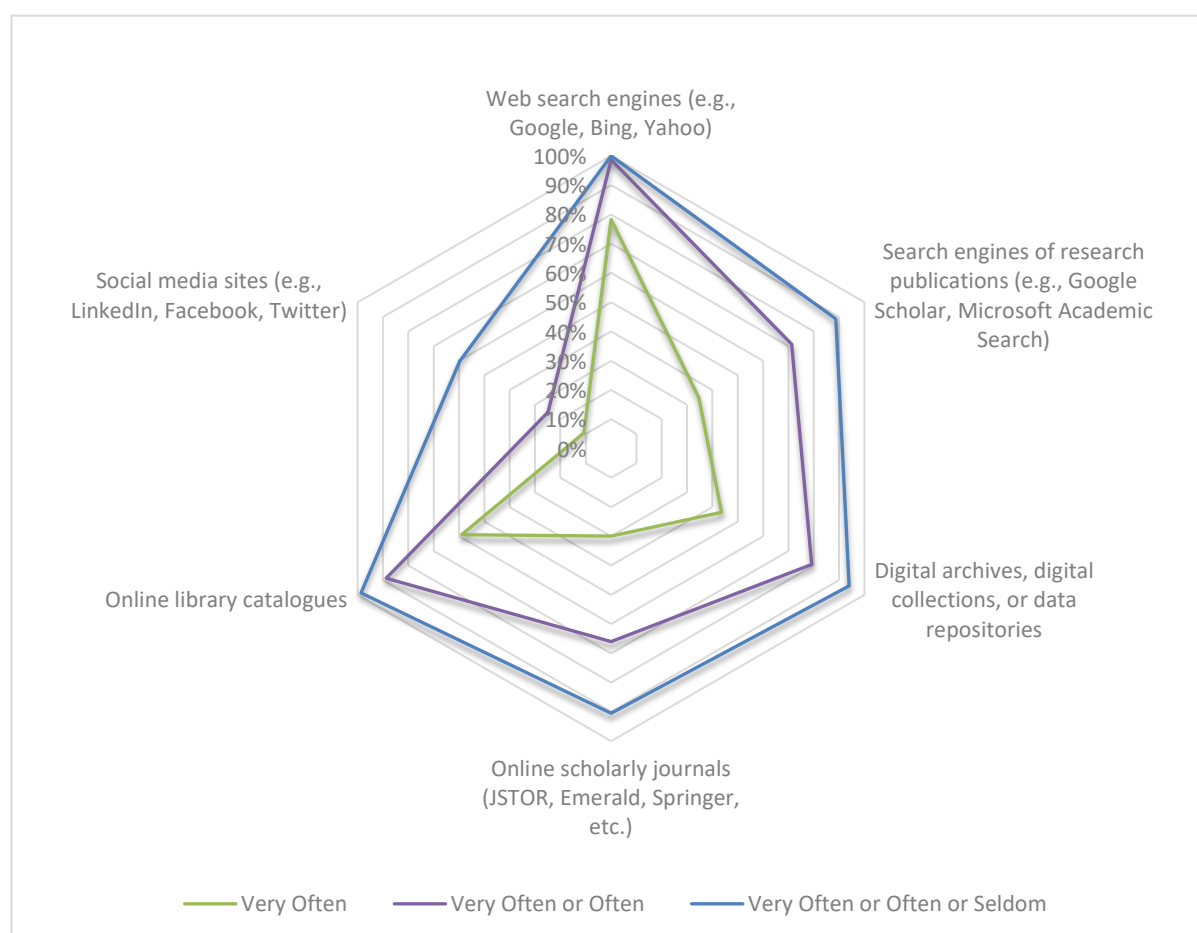


**Figure 7.21** Database content scope, Polish dataset (N=80).

## 7.5.2 Online services to access research assets

Respondents were asked how frequently they use the following kinds of online services to access research resources: web search engines (e.g. *Google*); search engines for research publications (e.g. *Google Scholar*); digital archives, collections, or data repositories; online library catalogues; and social networking sites (e.g. *LinkedIn*, *Facebook*).

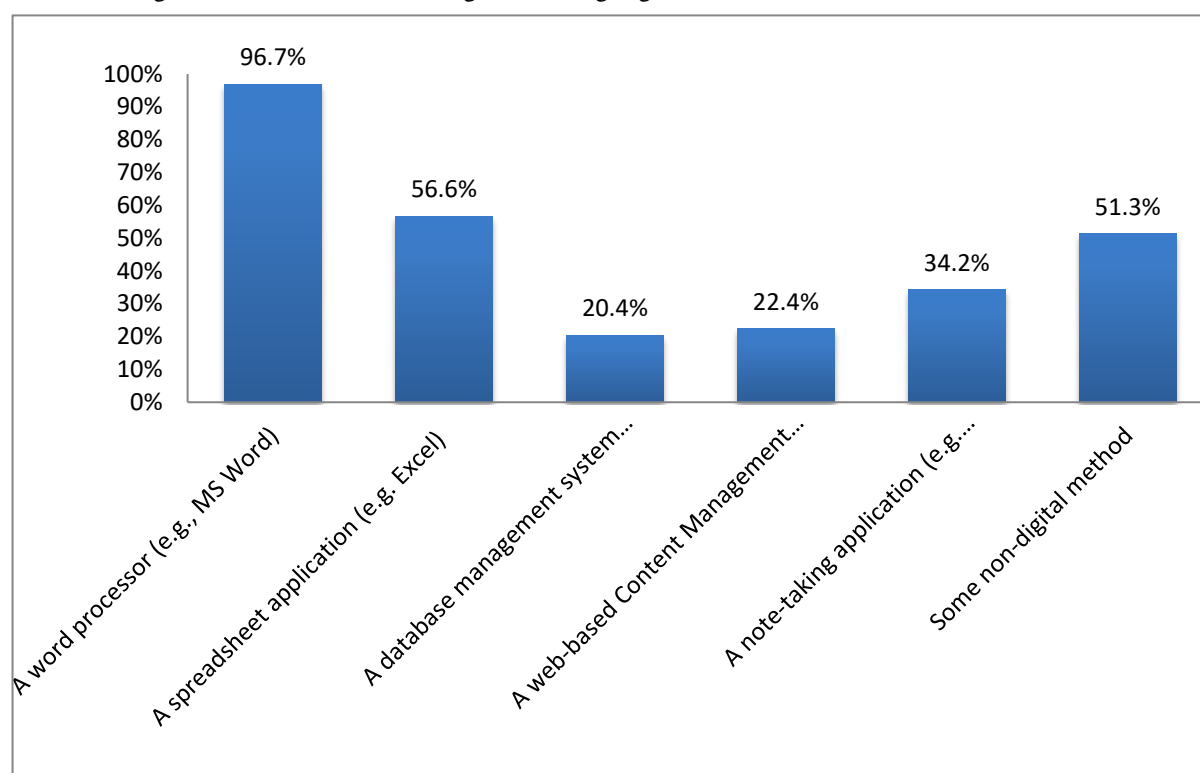
Respondents from Poland reported that they use very often the following kinds of services in order of frequency: web search engines (78.3% of the respondents), online library catalogues (58.9%) and digital collections (43.6%). Almost all respondents use different kinds of services to some extent (as shown by the cumulative ratio of those who stated that they use a service seldom, often or very often: ranging, in increasing order of frequency, from search engines for research publications (88.67% of the respondents), to online scholarly journals (90.48%), digital collections (93.96%), online library catalogues (98.68%) and web search engines (100%). The only exception is social media, which is never used by 40.3% of respondents from Poland to access research resources, while only a quarter state that they use social media often or very often (24.8%) (Figure 7.22). These results are consistent with the consolidated European data.



**Figure 7.22** Use of online services to access research resources, Polish dataset (N=152).

### 7.5.3 Research asset management applications

Respondents from Poland were asked to identify the applications they use to store and manage their research assets. Multiple response was allowed. Almost all respondents report that they use a word processor (e.g., *MS Word*) to store or manage research assets, while more than half (56.6%) mention using a spreadsheet application (e.g., *MS Excel*), and one third (34.2%) a note-taking application (e.g., *Evernote*) for this purpose. Only one fifth of the respondents from Poland report using database management system e.g. *Oracle*, *Access*, *MySQL*) or a web-based CMS (e.g. *Drupal*, *Wordpress*) to store or manage their research assets. Interestingly, more than a half of researchers from Poland (51.3%) report also using a non-digital method for storing or organising research assets (Figure 7.23). It is impossible to assess whether differences stem from the nature of research assets, or the competence and workflow followed of scholars. These results are rather consistent with the consolidated European dataset, where, however the use of databases seems to be more widespread (32.4%) and fewer scholars (38.3%) still use non-digital methods for storing or managing research assets.



**Figure 7.23** Use of applications to store or manage research assets, Polish dataset (N=152).

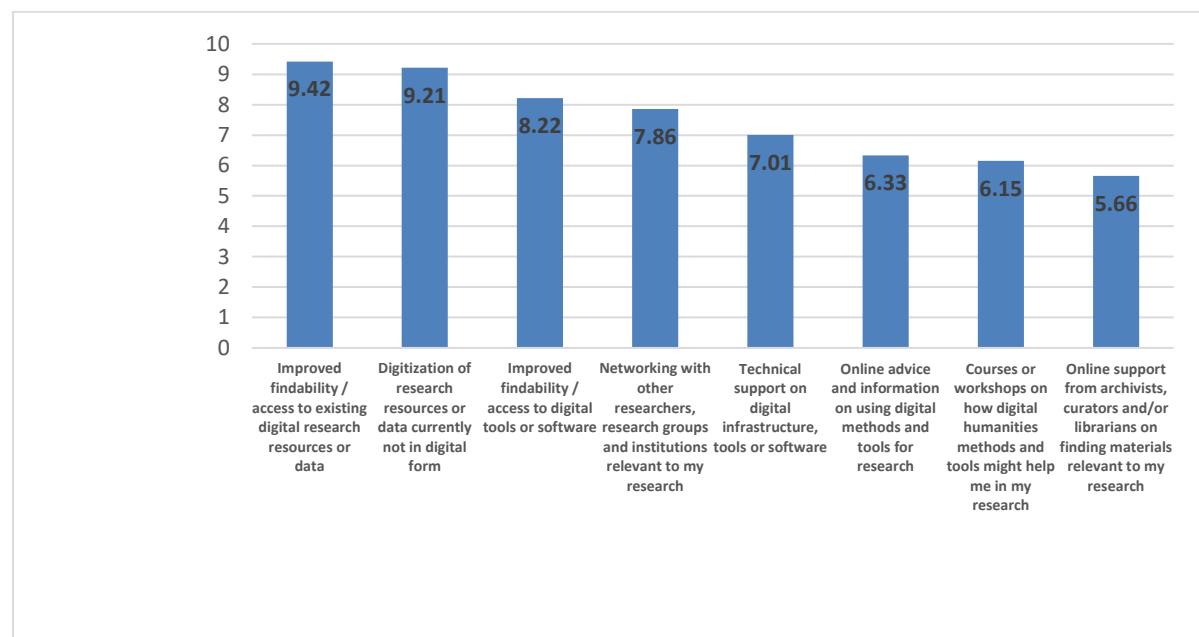
## 7.6 Assessment of researcher needs

Finally, respondents were asked to rate the importance of a series of statements regarding scholarly needs on a scale from 1 to 10, where 1 is the least important and 10 is the most important.

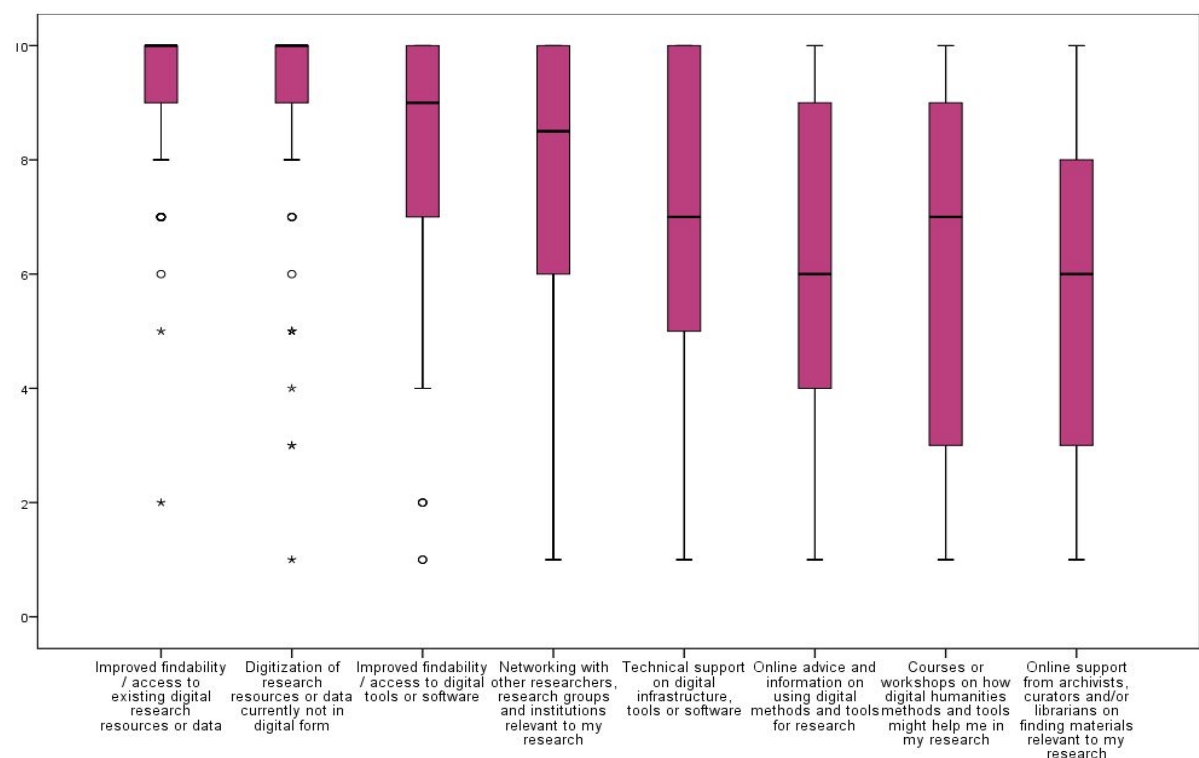
The highest-rated needs of respondents from Poland are improved findability or access to digital tools or software, networking with other researchers, research groups and institutions relevant to their research, and technical support on digital infrastructure, tools or software. Advice and information on using digital methods and tools for research, courses or workshops on how digital humanities methods and tools might help researchers in their research, and online support from archivists, curators and/or librarians on finding materials relevant to their research were considered less important.

Respondents from Poland almost unanimously agreed that most important for their research are improved findability and access to existing digital research resources or data (Mean=9.42), and digitisation of research resources or data currently not in digital form (Mean=9.21). High on the importance scale for respondents from Poland were also such needs as improved findability or access to digital tools or software (Mean=8.22), networking with other researchers, research groups and institutions relevant to their research (Mean=7.86), and technical support on digital infrastructure, tools or software (Mean= 7.01). Other needs were deemed by respondents to be slightly less important on average, namely, online advice and information on using digital methods and tools for research (Mean=6.33), courses or workshops on how digital humanities methods and tools might help researchers in their research (Mean=6.15), and online support from archivists, curators and/or librarians on finding materials relevant to their research (Mean=5.66) (Figure 7.24). There also seems to be a wider diversity among respondents from Poland concerning the importance of the latter three needs, as indicated by the broader spread of the box-and-whisker plot for these categories (Figure 7.25).

These results reveal a rather conservative attitude on average among respondents, who seem to be more interested in enhancing their existing research practices (improved access to the sources or software, networking), while many are less open to new methods and approaches (advice, courses, support options).



**Figure 7.24** Assessment of scholarly needs, Polish dataset (Mean scores).



**Figure 7.25** Assessment of scholarly needs, Polish dataset: box-and-whisker plot (outliers, quartiles, and medians).



## 7.7 Conclusions

This report is a snapshot of digital humanities in Poland in the early phase of institutionalisation, just right after establishing CLARIN-PL and during the DARIAH-PL formative phase. Thus, it provides an interesting overview of disciplinary shape of digital humanities in Poland, where linguists, literary scholars and historians are most active participants of initiatives in the field. Yet, given the recent momentum the digital methods recently gained, one could expect increasing interest of other disciplines. An earlier survey on the Polish digital projects in the humanities (Werla and Maryl 2014) shows similar tendencies and could provide better understanding of the actual work carried out by Polish researchers.

Comparisons between the European and Polish datasets yield many interesting results. Polish respondents on earlier career stages seemed to be keener to access books and archival holdings through a computer, but less keen to use databases for their research data and reporting greater use of social media for scholarly purposes.

The use of digital technology and media to consult research materials is a common practice among respondents from Poland who identify themselves as researchers in the human sciences. Most respondents suggest they prefer to use a desktop or laptop PCs to consult articles (in descending order of popularity) in scholarly journals or conference proceedings, archival holdings, images, maps, video and audio; more respondents, however, consult books in print (82.9%) rather than on the screen (75.7%), and print or analogue access remains important when it comes to articles in scholarly journals, conference proceedings and archival holdings. On the other hand, about a quarter of respondents from Poland (23.9%-30.9%) use mobile devices such as tablets or smartphones to consult research materials except for archival holdings (13.8%). The lower popularity of mobile devices in comparison to computers may stem from their relative novelty, yet it could be interesting to examine further in which situations either type of device proves to be more useful. They often collaborate with other researchers, and an impressive 35.8% (about double the European average) state that they use social media tools very often; this indicates that a higher ratio of respondents from Poland adopt social media as part of their research practice.

The most common purposes respondents from Poland state for using digital methods or tools are to discover, collect or create research assets, to organise, structure or manage their research assets, and to publish, disseminate or communicate about their research. Online services most frequently used to access research assets are web search engines, search engines for research publications, online library catalogues, digital collections, and online scholarly journals, whereas social media is rarely used for that purpose. The use of a database for managing research data and sources is fairly common, with more than half using at least either an institutional or personal database for their research. Databases are used mainly to store characteristic (attributes) of data and sources as well as textual descriptions or commentaries and, less frequently, to store photographs or scanned images. When compared to the European dataset, survey participants from Poland tend to use databases less often for storing

transcripts and maps. On the other hand, most respondents from Poland state that they use a word processor to store their research assets, while more than a half employ a spreadsheet application and one out of three a note-taking application. Among other tools, they mention using specific bibliographical databases, online catalogues of *offline* libraries, search engines, as well as digital libraries and archives, video content platforms, linguistic resources, and thematic portals, as well as corpus management tools, DBMS and text encoding tools. Interestingly, more than a half still also use non-digital methods for organising research assets. Compared to the European average, more respondents from Poland use databases for this purpose and fewer employ non-digital methods.

More than four out of five respondents from Poland preferably publish in their native language, with only one out of nine primarily publishing in English. Publishing in English is the most popular second choice. Digital dissemination beyond traditional channels (such as closed access journals) seems to be done most often through an open content journal or publication, or the portal or repository of respondent's institution. Less often the work is disseminated through a commercial scholarly content community site. Like in other European countries, using one's own website or blog, disseminating work through a social network or a generic content community seems to be rather rare. Survey participants from Poland mentioned that they use a variety of tools, from word processors to desktop publishing, blogging and presentation software, to publish and disseminate their work.

Finally, respondents from Poland almost unanimously agree that improved findability and access to existing digital research resources as well as further digitisation of research resources are most important for their research. Access to digital tools and software, as well as technical support on digital infrastructures, also quite highly rated needs. All in all, the question about needs revealed a rather conservative attitude among respondents from Poland, who appear to consider enhancing their existing research practice (improved access to sources or software, networking) as more important, while they attribute less importance to the adoption of new methods and tools related to receiving advice, online courses, and support options.

# Chapter 8

## Country profile: Serbia

*Toma Tasovac & Nephelie Chatzidiakou*

### 8.1 Introduction and respondent profile

The Serbian dataset originally consisted of 203 complete answers which were consequently categorized according to the discipline to which the respondents belong in order to create a homogenous sample which includes only researchers working in the humanities and social sciences (HSS). This filtering resulted in a new dataset, consisting of 182 answers.

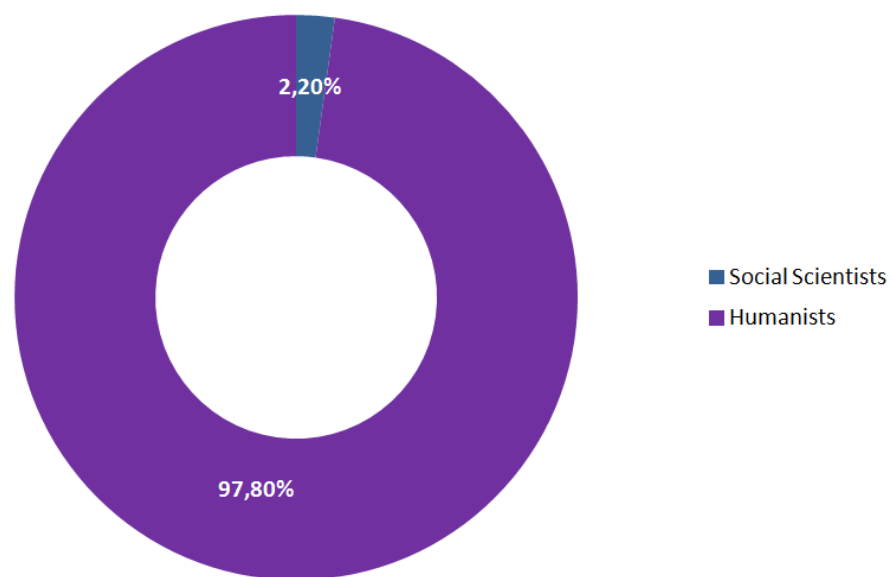
#### 8.1.1 Discipline

Almost all respondents in the Serbian dataset identified themselves as humanists (97.8%) and very few as social scientists. (Figure 8.1). The specific disciplines that the respondents are mainly working in are language and literature (46.9%), linguistics (30.3%), anthropology or ethnology (9.1%), and ethnic, gender and cultural studies (5.7%). Other disciplines represented in the sample include art, history of art or visual studies, museum studies, linguistics, drama, theatre or performance studies, music, folklore and theology or religious studies (Figure 8.2).

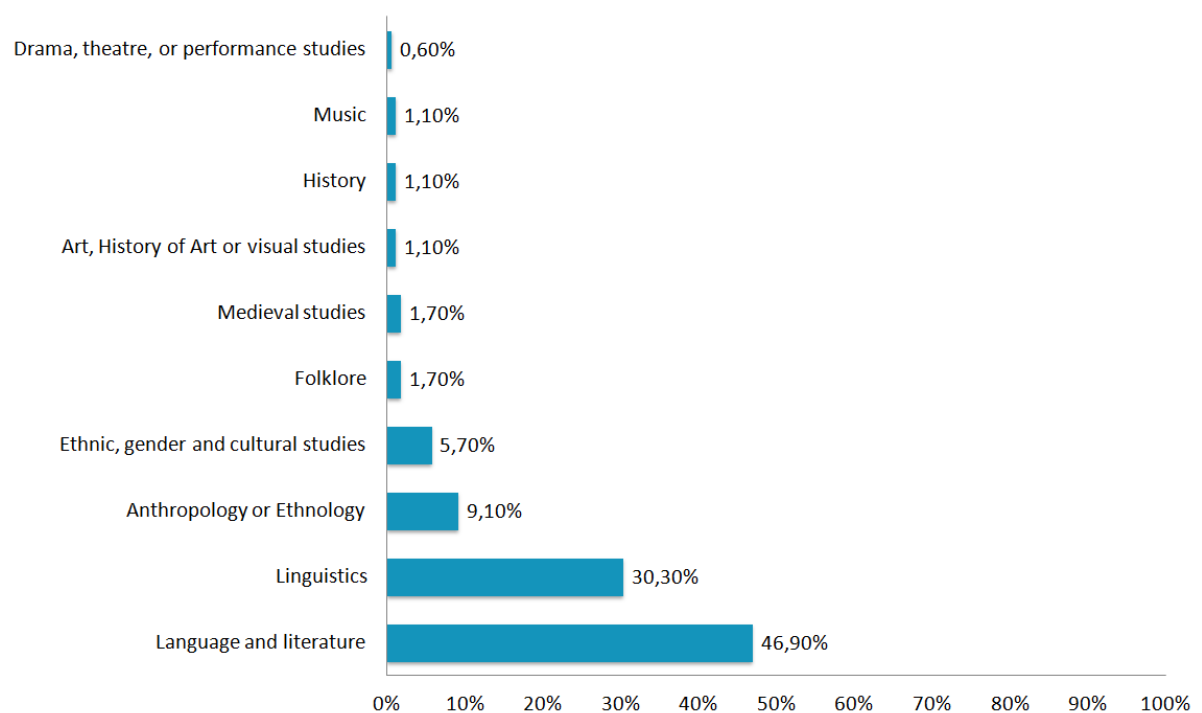
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Disciplines respondents from Serbia are affiliated with are mainly language and literature (46.9%), linguistics (30.3%), anthropology or ethnology (9.1%), and ethnic, gender and cultural studies (5.7%)

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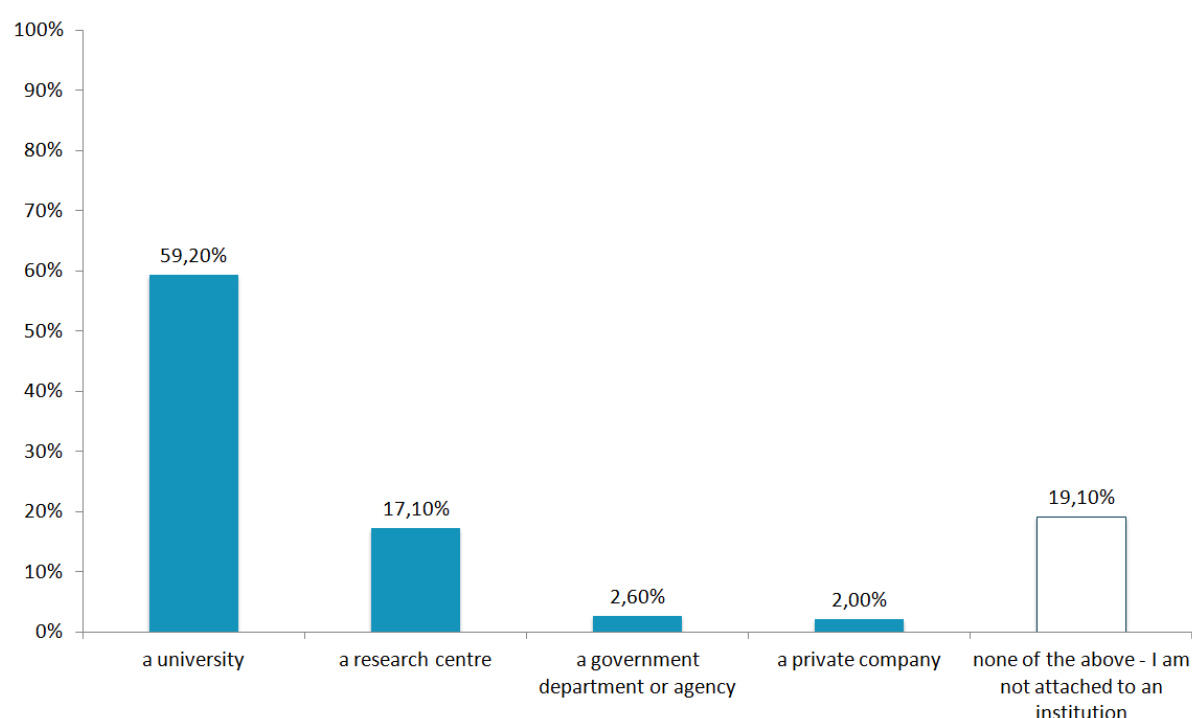
**Figure 8.1** Percentage of humanists and social scientists, Serbian dataset (N=175).



**Figure 8.2** Discipline, Serbian dataset (N=175).

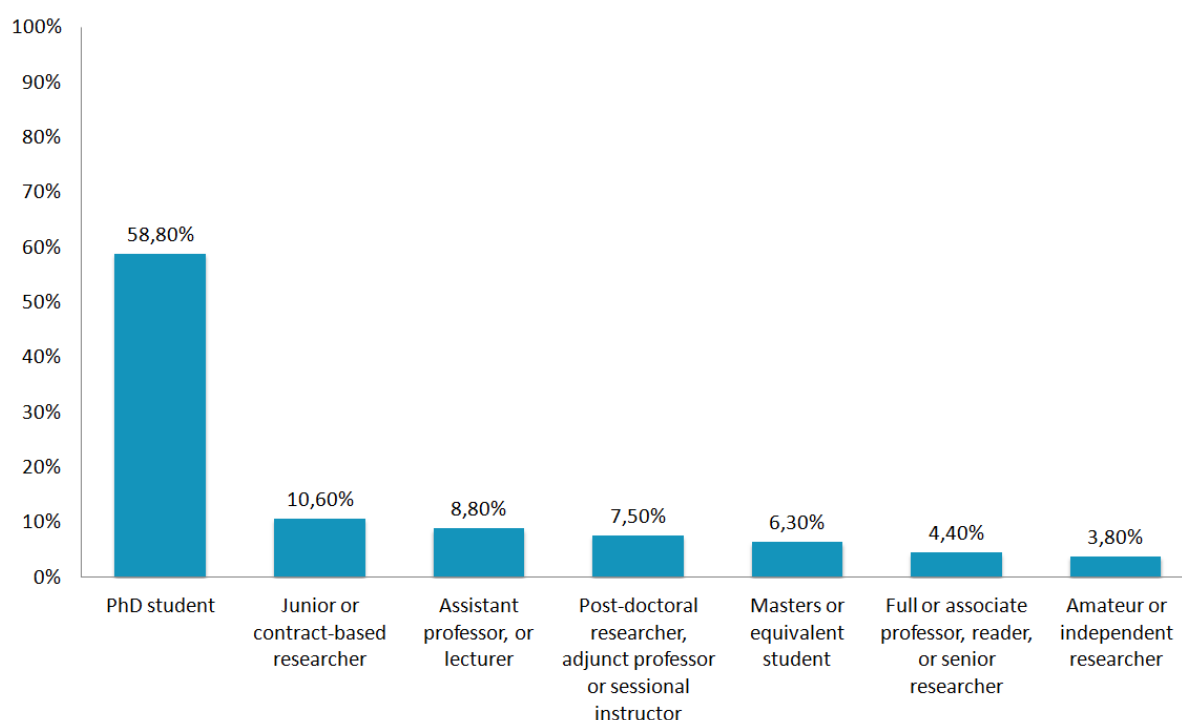
### 8.1.2 Professional affiliation and status

Most respondents from Serbia are affiliated with a university (59.2%) or a research centre (17.1%), while a small percentage is linked to a government department or agency (2.6%) or a private company (2%). 19.1% of the respondents state that they are not attached to an institution (see Figure 8.3). Regarding their professional status, most of the respondents are full or associate professors, readers or senior researchers (23.2%). Junior or contract-based researchers also represent an important percentage of the sample (21.6%). The majority of respondents in the Serbian sample are PhD students (59.2%), while the rest of the sample consists of junior or contract-based researchers (10.6%), assistant professors or lecturers (8.8%), post-doctoral researchers, adjunct professors or sessional instructors (7.5%), masters students (6.3%), full or associate professors, readers or senior researchers (4.4%) and amateur or independent researchers (3.8%) (Figure 8.4).



**Figure 8.3** Professional affiliation, Serbian dataset (N=152).

Three quarters of respondents from Serbia are students or early career researchers, including PhD students (59.2%), master's students (6.3%), and junior or contract-based researchers (10.6%).



**Figure 8.4** Professional status, Serbian dataset (N=160).

### 8.1.3 Years in research

The largest group of respondents from Serbia are not very experienced researchers, having worked for less than three years in research: in total, 52.4% of the respondents have worked in research for less than 3 years. A noteworthy percentage of the respondents (32%) have worked in research between three and ten years, whereas 15.5% of the respondents have been working in research for more than ten years (Figure 8.5).

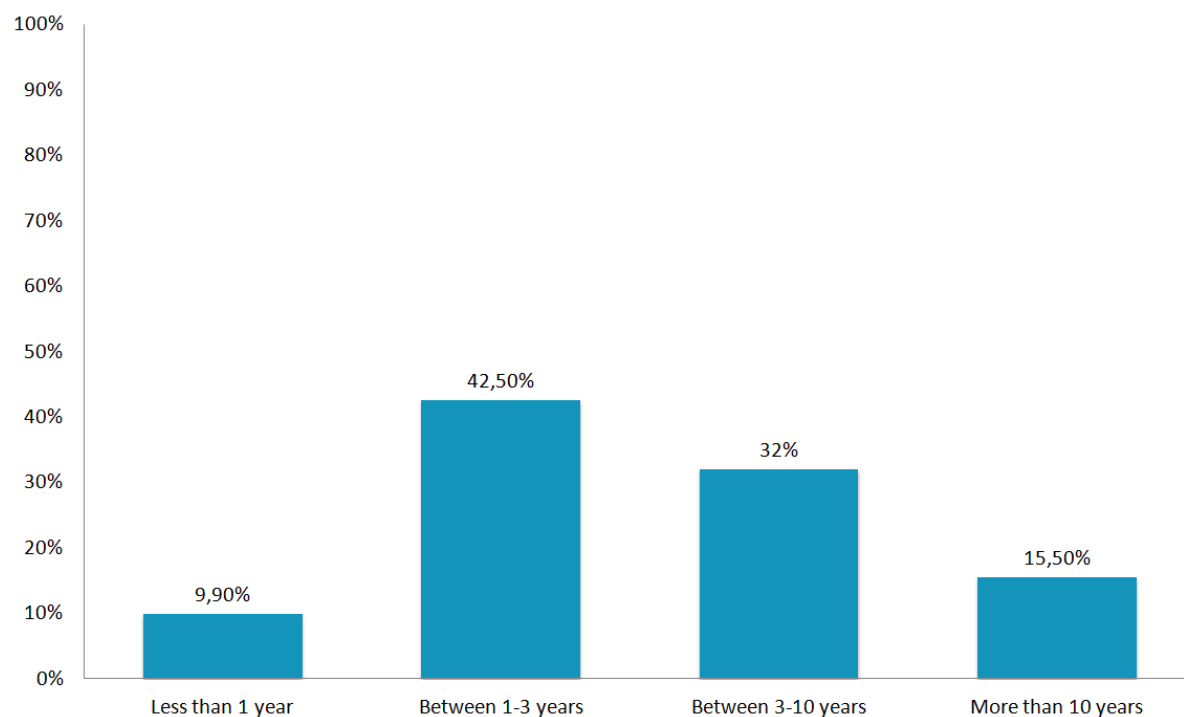
### 8.1.4 Age and gender

The largest group of respondents from Serbia (44.5%) are between 26 and 35 years old. 3.4% of the respondents are 36 to 50 years old, 15.4% of them are between 18 and 25 years old, while 7.7% are 51-65 years old. None stated to be over 65 years old (Figure 8.6). Finally, the majority of the respondents are female (83.5%), while 16.5% are male (Figure 8.7).

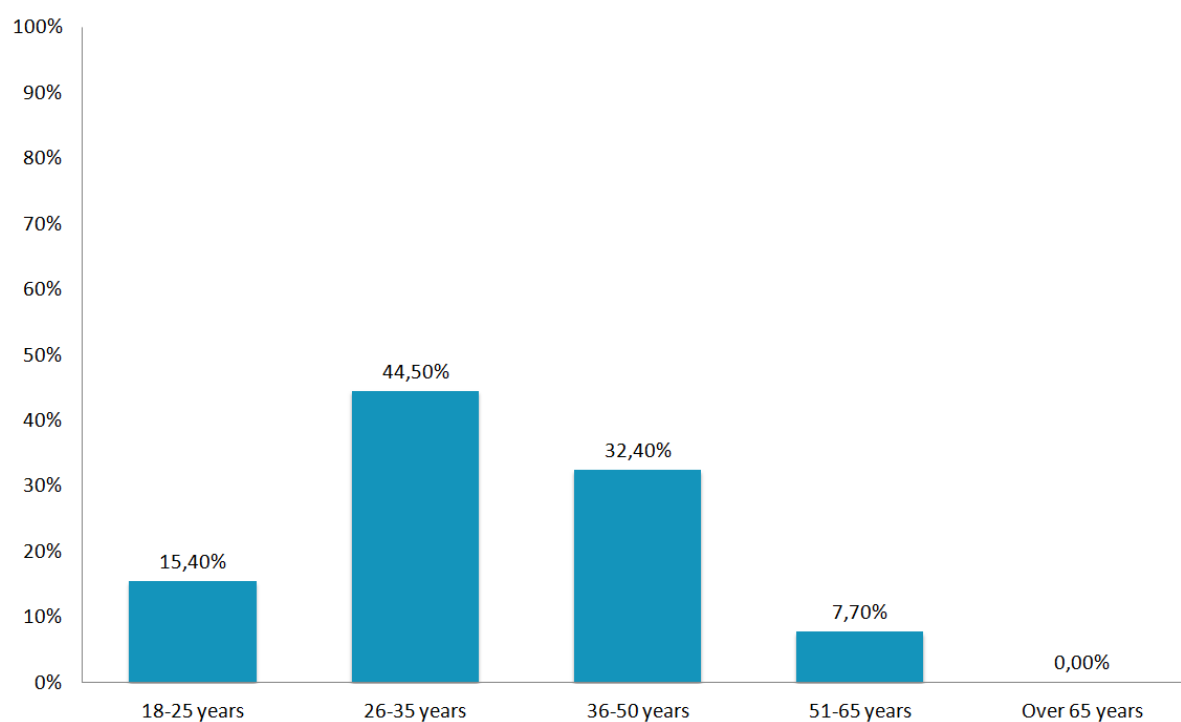
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**Three out of five respondents from Serbia are younger than 35 years, and half of the respondents have less than three years of research experience.**

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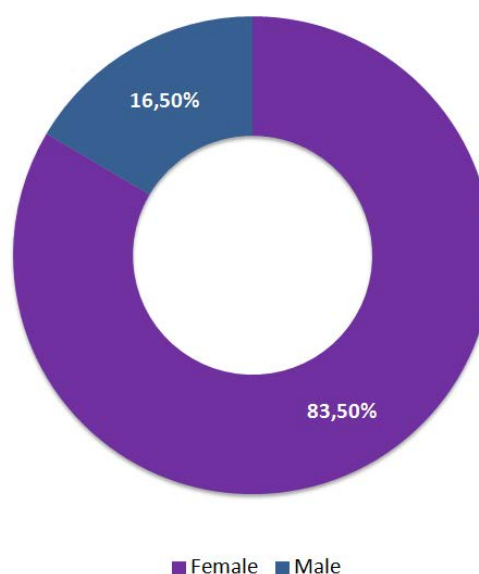


**Figure 8.5** Years in research, Serbian dataset (N=181).



**Figure 8.6** Age, Serbian dataset (N=182).

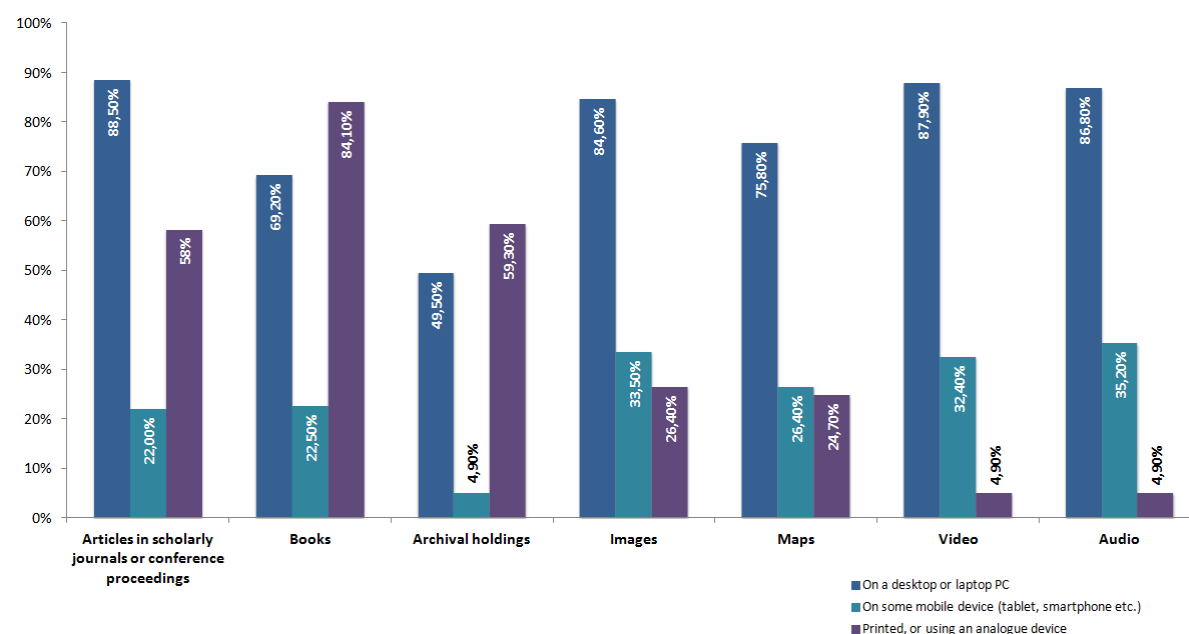




**Figure 8.7** Gender, Serbian dataset (N=182).

## 8.2 Research materials and digital access

The use of digital media for consulting research materials seems to be widespread amongst the Serbian researchers who participated in the survey. The respondents were asked to state where they consult materials such as articles in scholarly journals or conference proceedings, books, archival holdings, images, maps, video and audio. The available options were: (a) a desktop or laptop PC, (b) a mobile device, and (c) an analogue device or printed material. Multiple responses were allowed (Figure 8.8).



**Figure 8.8** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research material, Serbian dataset (N=182).

### 8.2.1 Articles in scholarly journals or conference proceedings

82.5% of the surveyed researchers in Serbia stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings, while 22% stated that they use a mobile device for the same purpose. 58% of the respondents stated that they use print or analogue media.

### 8.2.2 Books

69.2% of the respondents stated that they use a desktop or laptop PC to consult books, while 84.1% stated that they use a printed or analogue device for the same purpose. Finally, 22.5% of the respondents stated that they use a mobile device to consult books.

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**Except for books, a desktop or laptop PC is the preferred tool to access all other kinds of research resources.**

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### 8.2.3 Archival holdings

49.5% of the respondents stated that they use a desktop or laptop PC to consult archival holdings. Only 4.9% stated that they use a mobile device for the same purpose, while 59.3% stated that they use printed text or analogue media.

### 8.2.4 Images

84.6% of the respondents stated that they use a desktop or laptop PC to consult images. 26.4% stated that they use a mobile device for the same purpose, while 24.7% stated that they use printed or analogue media.

### 8.2.5 Maps

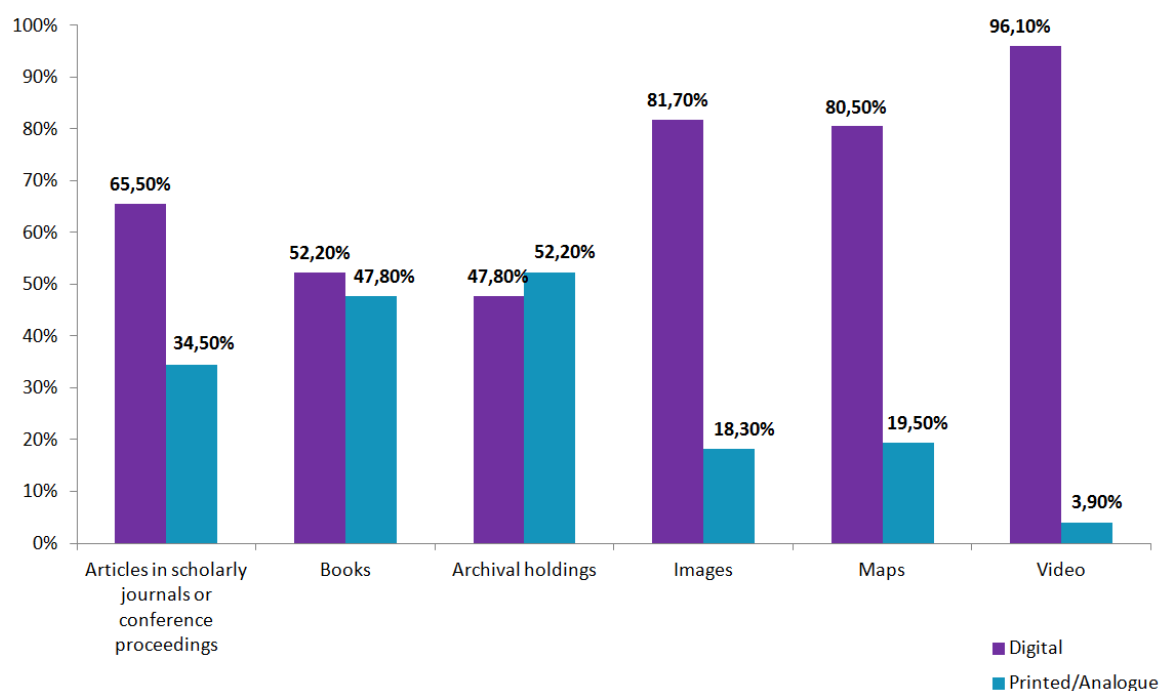
75.8 % of the respondents stated that they use a desktop or laptop PC to consult maps. 26.4% stated that they use a mobile device for the same purpose, while 24.7% stated that they use printed text or analogue media.

### 8.2.6 Video

87.9% of the respondents stated that they use a desktop or laptop PC to watch video materials. 32.4% stated that they use a mobile device for the same purpose, while 4.9% stated that they use print or analogue media.

### 8.2.7 Audio

86.8 % of the respondents stated that they use a desktop or laptop PC to consult some audio related to their research. 35,2% stated that they use a mobile device for the same purpose, while 4,9% state that they use printed text or analogue media.



**Figure 8.9** Use of digital and printed/analogue media to consult research materials, Serbian dataset (N=182).

Figure 8.9 showcases the overall use of digital media (based on desktop or laptop PC and mobile devices) as compared to the use of print or analogue media. The frequencies on the responses and not on the respondents were used in this graph. The use of digital media is greater than the use of print/analogue ones in almost all cases, with the exception of archival holdings. On the other hand, articles in scholarly journals or conference proceedings, images, maps and video are mainly consulted digitally. Finally, books are mainly consulted in digital form, but the use of printed books is also widespread.

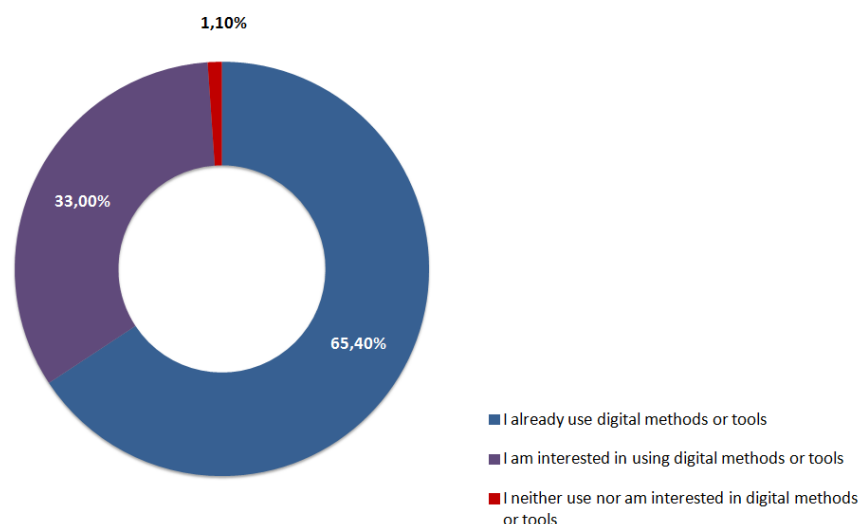
### 8.3 Scholarly activities, methods or tools

Respondents were asked whether they use or are interested in using digital methods or tools for their research. More than two out of three of the surveyed researchers from Serbia (65.4%) stated that they already use digital methods or tools in the course of their research, which is still almost 20% less than those in the overall European results (83.3%). 33% of the respondents said that they do not use but are interested in using digital methods or tools, while a negligible percentage (1.1%) say that they neither use nor are interested in using digital methods or tools (Figure 8.9).

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**Two out of three respondents from Serbia state that they already use digital methods or tools for research.**

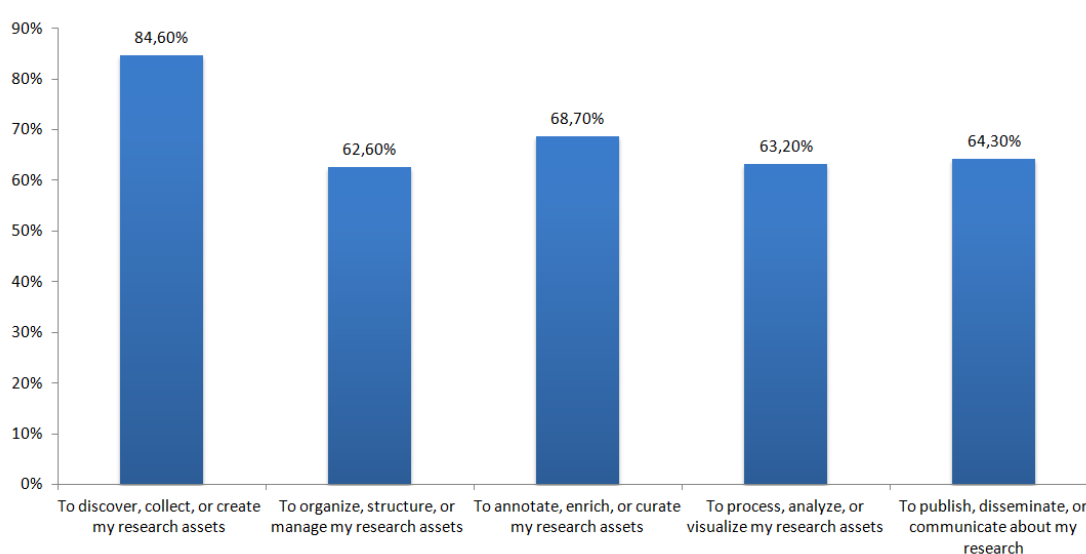
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**Figure 8.9** Interest in using digital methods or tools, Serbian dataset (N=182).

### 8.3.1 Purpose of use of digital methods or tools

In a subsequent filter question, the respondents who stated that they already use digital methods and tools in their research were asked to specify the purpose for which they use them. Respondents were asked to affirm if they use digital methods or tools in relation to five different aspects of the scholarly information lifecycle: (a) to discover, collect or create their research assets; (b) to organise, structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse or visualise research assets; and (e) to publish, communicate or disseminate their research. The majority (62%) of Serbian respondents stated that they use digital methods or tools for all five purposes, the first activity (discovering, collecting, or creating research assets) is clearly more widespread than the rest (Figure 8.10).



**Figure 8.10** Purpose of use of digital methods or tools, Serbian dataset (N=182).

### 8.3.2 Specific digital methods or tools used

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to specify these in an open, free-text response. Spontaneous responses thus collected provide useful insights into the particular way respondents use, or are interested in using, digital methods or tools.

The responses were categorized firstly according to the particular functionality or research activity they refer to, and, secondly, according to the aspect of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organise structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualise research assets; and, (e) to publish, disseminate or communicate about research. As methods and tools related to organising and curating research aspects are often overlapping, categories (c) and (d) were merged. Furthermore, since many responses cut across the research lifecycle and could be assigned to multiple (if not all) categories, a separate category was created to accommodate them.

Given the qualitative nature of this question, the wide range of responses received and especially the difficulty of interpreting the meaning of non-response, no quantitative comparisons based on frequencies were made beyond confirming that, like in the previous question, the notion of digital methods and tools remains mostly associated with facilitating access to digitised assets.

#### 8.3.2.1 To discover, collect or create research assets

In order to discover and collect research assets, the respondents state that they access digital library catalogues and repositories, as well as online thesauri and databases. Most repositories and databases mentioned by name are national, such as *KOBSON*, while international repositories and databases are also mentioned, e.g. *JSTOR*, *Perseus* etc. Search engines are also mentioned by the respondents, mainly Google Search as well as more specialized Google products such as *Google Scholar* and *Google Books*. In order to capture data, the respondents often state that they use scanning and recording devices (Table 8.1).

**Table 8.1** Specific digital methods or tools used - Discovering, collecting, or creating research assets, Serbian dataset

Discover, collect, create research assets	
Activity	Examples mentioned
Scanning	-
Digital photography	-
Audio/Video recording	-
Access to digital repositories and library catalogues	Kobson, Jstor, Google Books, Google Scholar, Perseus, Cobiss, the websites of institutional libraries
Search engines	Google search

### 8.3.2.2 To organise, structure or manage research assets

Relatively little information is provided by the respondent regarding the specific digital methods or tools they use in order to organise, structure or manage their research material. The use of databases is mentioned, as well as the development of databases for this purpose. The use of citation programs is also mentioned but not often. Finally, in one instance cloud storage is pointed out (see Table 8.2).

**Table 8.2** Specific digital methods or tools used - Organising, structuring or managing research assets, Serbian dataset.

Organise, structure or manage research assets	
Activity	Examples mentioned
Use / development of databases	-
Use of citation programmes	-
Online storage	Cloud storage
Language corpora	Serbian language resources

### 8.3.2.3 To annotate, enrich or curate research assets

In order to annotate, enrich or curate their research assets, the respondents state that they digitise assets and use citation programmes (Table 8.3).

**Table 8.3** Specific digital methods or tools used- Annotating, enriching or curating research assets, Serbian dataset.

Annotate, enrich or curate research assets	
Activity	Examples mentioned
Digitisation (of manuscripts)	-
Use of citation programmes	Evernote, Mendeley, Citavi, Zotero

### 8.3.2.4 To process, analyse, or visualise research assets

The respondents identified a number of services and tools they use in order to process, analyse or visualise their research assets. The activities mentioned include image processing, text processing, presentation, data analysis and audio processing.

**Table 8.4** Specific digital methods or tools used - Processing, analysing or visualising research assets, Serbian dataset.

Process, analyze, or visualise research assets	
Activity	Examples mentioned
Statistical analysis	SPSS
Presentation	MS Powerpoint, Prezi
Analysis	MS Excel

Image processing	Photoshop, Corel
Translation	Google Translate, use of online dictionaries
Text processing	MS Word

### 8.3.2.5 To publish, disseminate or communicate about research

Serbian scholars who responded to the survey state that they use a variety of tools and services to publish and disseminate their work and to communicate about their research. They use social networks and e-mail accounts to communicate, mailing lists, blogs and applications for online collaboration.

**Table 8.5** Specific digital methods or tools used – Publication, dissemination and communication about research, Serbian dataset

Publish, disseminate and communicate about research	
Activity	Examples mentioned
Communication	e-mail accounts, Google apps for remote collaboration
Presentation	MS Powerpoint, Prezi
Dissemination	Blogs, Facebook, Youtube
Teaching	Moodle

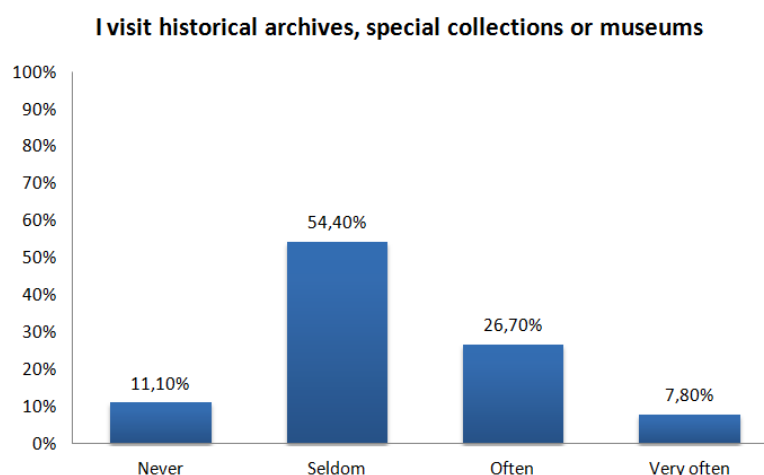
## 8.3.3 Selected scholarly activities in focus

The next set of questions was related to scholarly activities of interest for this study, and how often they are performed by scholars in the course of their research. The activities examined were: (a) visiting historical archives, special collections, or museums, (b) seeking information or advice from archivists, subject librarians, or collection curators, (c) accessing primary sources outside one's country of residence, (d) using a standard keyword list or thesaurus to organise research assets, (e) using one's own keyword list or thesaurus to organise research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, (h) communicating with others in a social media site or discussion forum.

### 8.3.3.1 Visiting historical archives, special collections, or museums

11.1% of respondents from Serbia state that they never visit historical archives, special collections and museums; 54.4% state that they seldom visit historical archives, special collections and museums; 26.7% state that they often visit historical archives, special collections and museums; and, finally, 7.8% state that they very often visit such institutions (Figure 8.11). Overall, the most frequent answer (mode) to this question is 'seldom'.

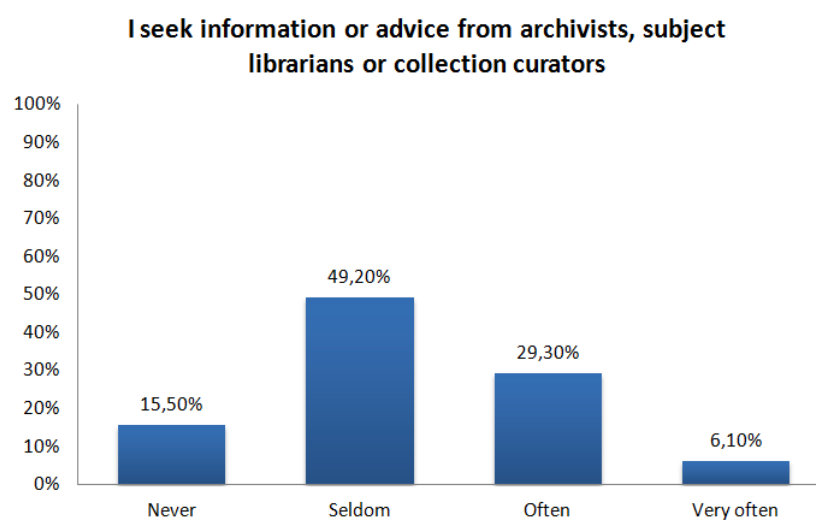




**Figure 8.11** Scholarly activities - Frequency of visiting historical archives, special collections, or museums, Serbian dataset (N=180)

### 8.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

15.5% of the respondents state that they never seek information or advice from archivists, subject librarians, or collection curators; while 49.2% state that they seldom seek such information or advice. 29.3% state that they often seek information or advice from archivists, subject librarians, or collection curators; while only 6.1% state that they seek such information or advice very often (Figure 8.12). The most frequent answer (mode) to this question is 'seldom'.

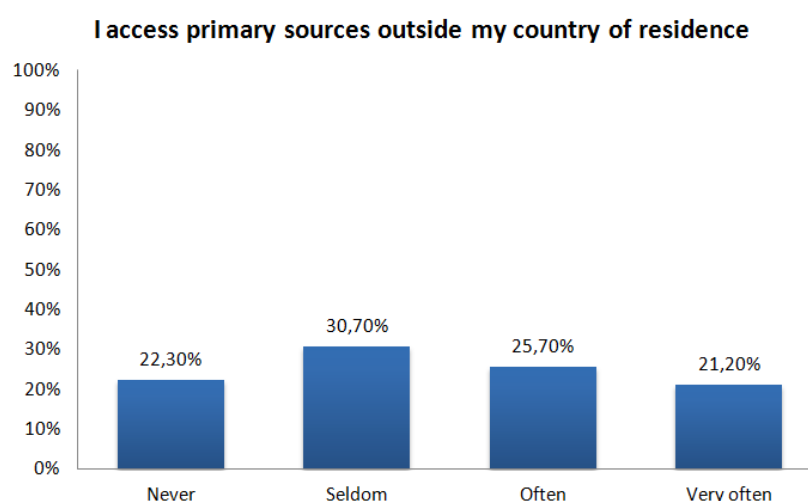


**Figure 8.12** Scholarly activities - Frequency of seeking information from archivists, subject librarians, or collection curators, Serbian dataset (N=181).

### 8.3.3.3 Accessing primary sources outside one's country of residence

22.3% of the respondents state that they never access primary sources outside their country of residence; 30.7% say that they seldom access primary sources outside their country of residence; 25.7% say that they often access primary sources outside their country of residence; whereas 21.2% say that they very often access primary sources outside their country of residence (Figure 8.13). This is slightly lower than the use attested among respondents in the consolidated European dataset (never:18.8%, seldom: 33.6%, often: 30.9%, very often: 16.8%). The most frequent answer (mode) to this question is 'seldom'.

**Almost half of respondents from Serbia access primary sources outside their country of residence often or very often.**

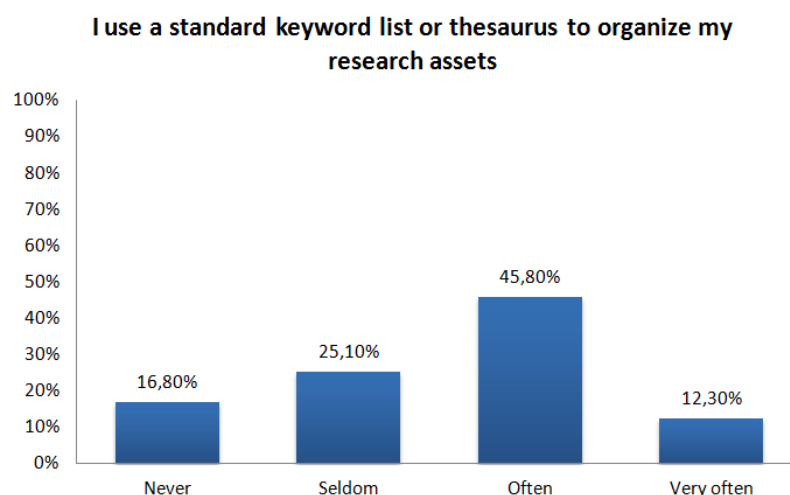


**Figure 8.13** Scholarly activities – Frequency of accessing primary sources outside one's country of residence, Serbian dataset (N=179).

### 8.3.3.4 Using a standard keyword list or thesaurus to organise research assets

16.8% of the respondents state that they never use a standard keyword list or thesaurus to organise their research assets; 25.1% state that they seldom use a standard keyword list or thesaurus; 45.8% state that they often use a standard keyword list or thesaurus; and 12.3% state that they use a standard keyword list or thesaurus to organise their research assets very often (Figure 8.14). The most frequent answer (mode) to this question is 'often'.

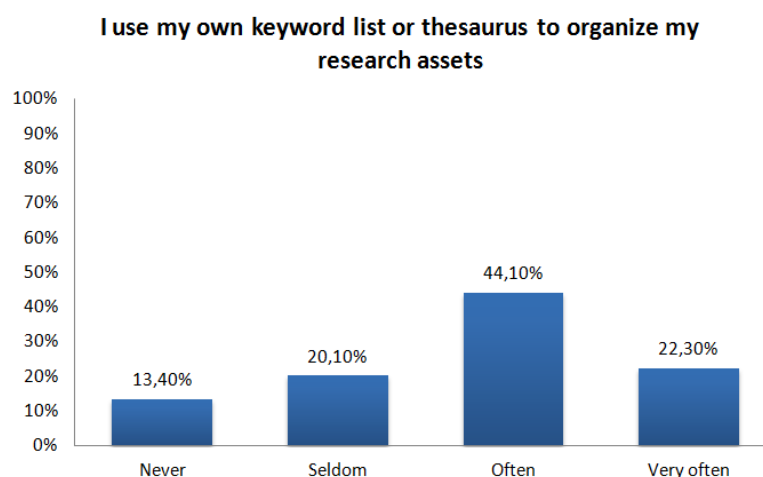
**Three out of five respondents from Serbia use a standard keyword list or thesaurus often or very often.**



**Figure 24** Scholarly activities - Frequency of using a standard keyword list or thesaurus to organise research assets, Serbian sample (N=179).

#### 8.3.3.5 Using one's own keyword list or thesaurus to organise research assets

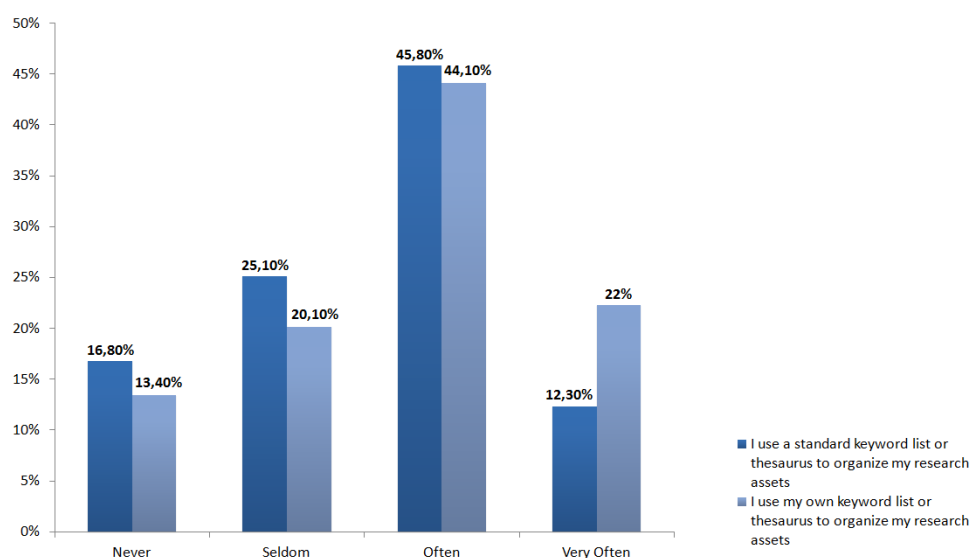
13.4% of the respondents state that they never use their own keyword list or thesaurus to organise research assets; 20.1% say that they seldom use their own keyword list or thesaurus to organise research assets; 44.1% say that they often use their own keyword list or thesaurus to organise research assets; whereas 22.3% say that they use their own keyword list or thesaurus to organise research assets very often (Figure 8.15). Overall, the most frequent answer (mode) to this question is 'often'.



**Figure 25** Scholarly activities - Frequency of using one's own keyword list or thesaurus to organise research assets, Serbian dataset (N=179).

Overall, the use of keyword lists seems to be widespread amongst the surveyed Serbian scholars. It is noteworthy that, compared to the rest of activities measured in this question, the questions about keyword lists are the only ones for which the prevalent mode is 'often'. The researchers seem to use both standard and custom keyword lists and thesauri,

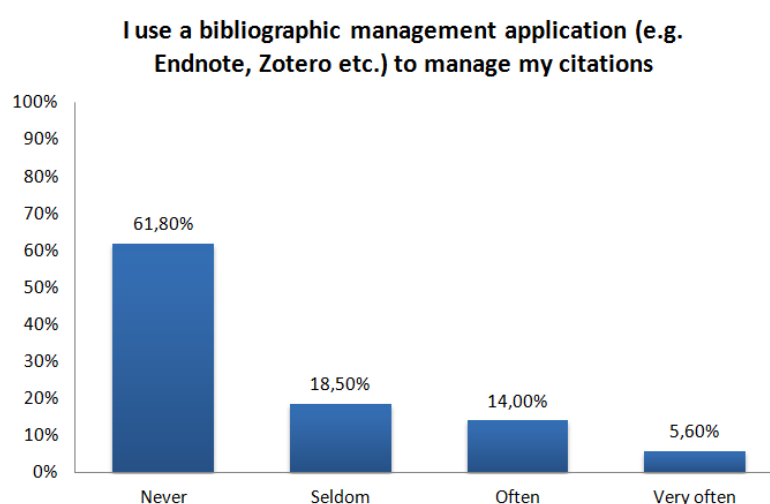
while those who use such lists very often seem to mainly use their own keyword list and thesauri (Figure 8.16).



**Figure 8.16** Scholarly activities - Frequency of using one's own or a standards keyword list or thesaurus in order to organise research assets, Serbian dataset.

### 8.3.3.6 Using a bibliographic management application to manage citations

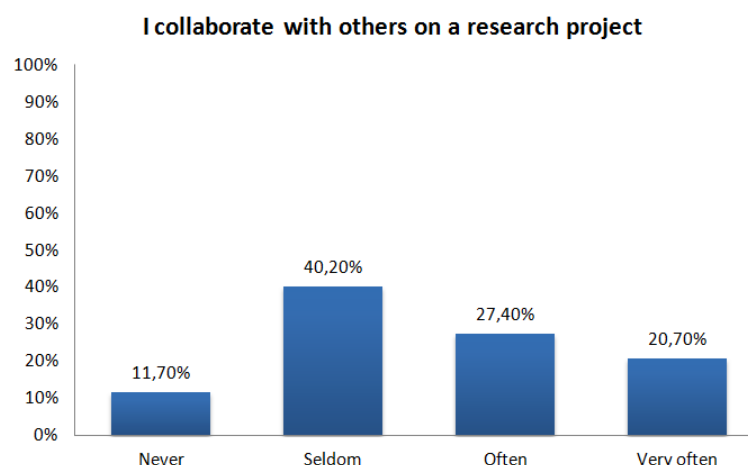
More than half of the respondents from Serbia (61.8%) state that they never use a bibliographic management application to manage citations, while 18.5% say that they seldom use a bibliographic management application to manage citations; 14% state that they use often such applications; and, finally, a small percentage (5.6%) say that they use such applications very often (Figure 8.17). Respondents from Serbia differ from the consolidated European dataset, in which 15.9% of the respondents use such an application often and 20.7% very often, while less than half (45.2%) of the respondents report no use. Overall, the most frequent answer (mode) to this question is 'never'.



**Figure 26.** Scholarly activities - Frequency of use of bibliographic management applications to manage citations, Serbian dataset (N=178).

### 8.3.3.7 Collaborating with others on a research project

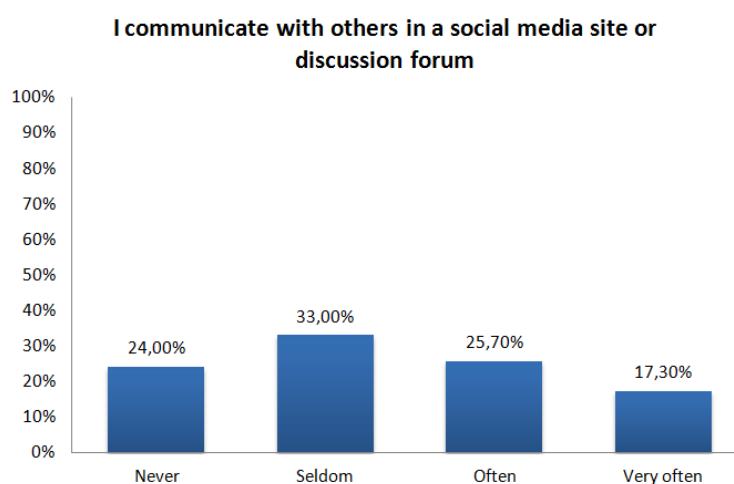
11.7% of the respondents state that they never collaborate with others on a research project; 40.2% state that they seldom collaborate with others on a research project; 27.4% say that they collaborate with others on a research project often; and 20.7% say that they collaborate with others on a research project very often (Figure 8.18). Overall, the most frequent answer (mode) to this question is 'seldom'.



**Figure 8.17** Scholarly activities - Frequency of collaborating with others on a research project, Serbian dataset (N=179).

### 8.3.3.8 Communicating with others in a social media site or discussion forum

24% of the respondents state that they never communicate with others in a social media site or discussion forum; 33% state that they seldom communicate with others in a social media site or discussion forum; 25.7% state that they communicate with others in a social media site or discussion forum often; while 17.3% state that they communicate with others in a social media site or discussion forum very often (see Figure 8.18). Overall, the most frequent answer (mode) to this question is 'seldom'.

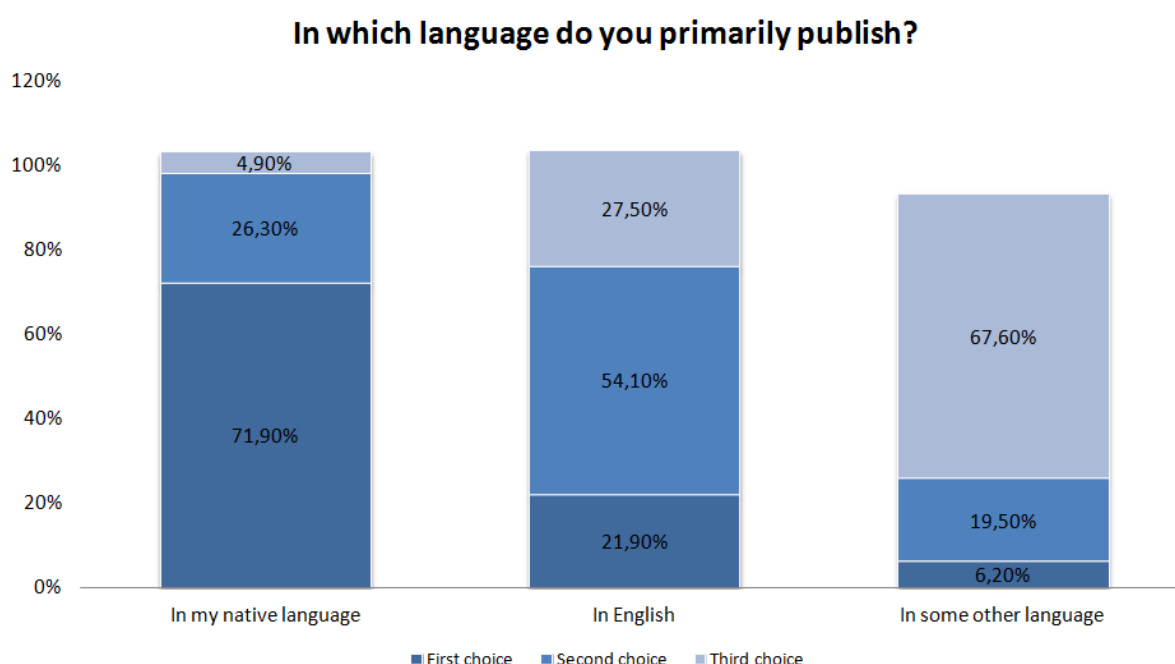


**Figure 8.18** Scholarly activities - Frequency of communicating with others in a social media site or discussion forum, Serbian dataset (N=179).

## 8.4 Publication and dissemination of research results

### 8.4.1 Publishing language

In a subsequent question, the scholars were asked to state in which language they primarily publish. The first choice for 71.9% of the respondents is their native language, while 21.9% of the respondents stated that they primarily publish their work in English, and 6.2% stated that they primarily publish their work in some other language. The second choice for most of the respondents was English (54.1%), while the third choice for most of the respondents (67.6%) was some other language (Figure 8.19).

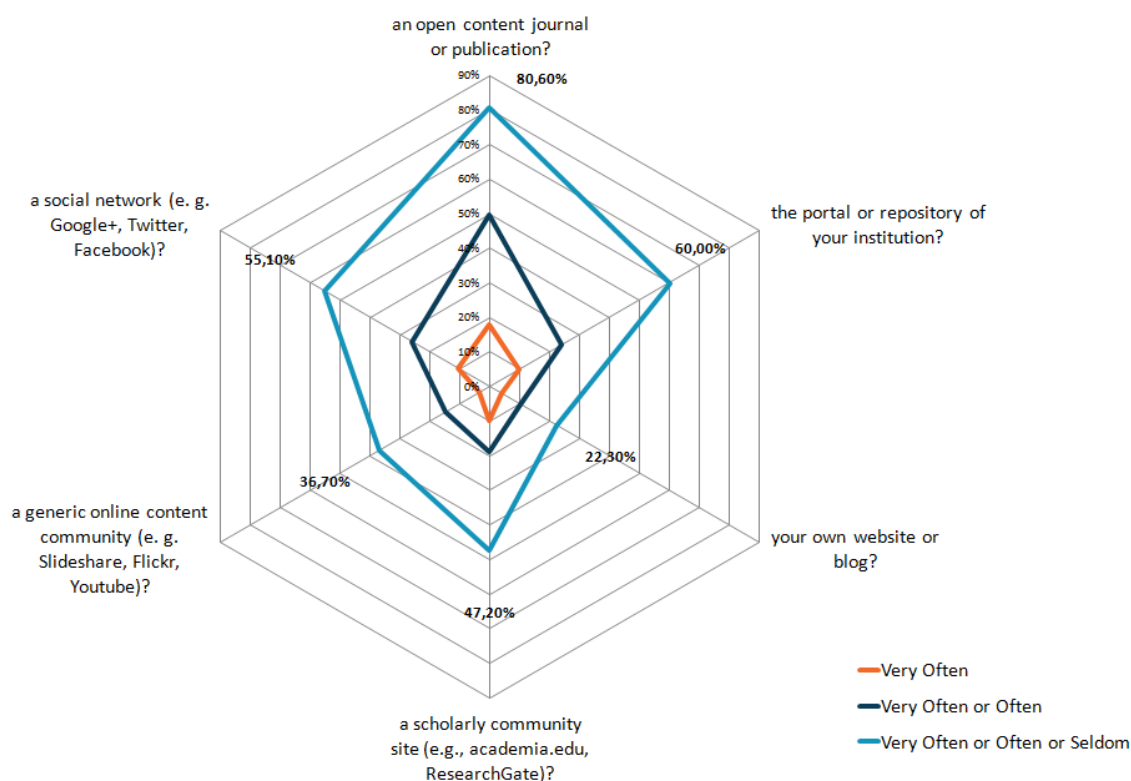


**Figure 8.19** Publishing language, Serbian Dataset  
(N for first choice = 146, N for second choice = 133, N for third choice = 102).

### 8.4.2 New channels of dissemination of scholarly work

Dissemination of scholarly work beyond traditional channels (such as closed access journals and print publications) seems to be performed by respondents from Serbia more often through open content journals or publications, as well as via institutional portals or repositories. Less often, the work may be disseminated through social networks (e.g. Google+, Twitter, Facebook) or scholarly community sites (e.g. Academia.edu, ResearchGate). On the other hand, the respondents are much less inclined to disseminate their work through generic online content communities or the researchers' own websites (Figure 8.20).

**Non-traditional dissemination of scholarly work is more often through open content journals or publications, as well as via institutional portals or repositories.**



**Figure 8.20** Means of dissemination of scholarly work, Serbian dataset (N=180).

More specifically, **dissemination through an open content journal or publication** is performed never by 19.4 % of the respondents, seldom by 31.1% of the respondents, often by 31.7% of the respondents and very often by 17.8% of the respondents.

**Dissemination through the portal or repository of the researcher's institution** is performed never by 40 % of the respondents, seldom by 36% of the respondents, often by 14.3% of the respondents and very often by 9.7% of the respondents.

**Dissemination through the researcher's web site or blog** is performed never by 77.7% of the respondents, seldom by 12% of the respondents, often by 6.3% of the respondents, and very often by 4% of the respondents.

**Dissemination through a scholarly community site** is performed never by 52.8% of the respondents, seldom by 28.4% of the respondents, often by 9.1% of the respondents and very often by 9.7% of the respondents.

**Dissemination through a generic online content community** is performed never by 63.2% of the respondents, seldom by 21.8% of the respondents, often by 11.5% of the respondents and very often by 3.4% of the respondents.

Finally, **dissemination through a social network** is never performed never by 44.9% of the respondents, seldom by 29% of the respondents, often by 15.3% of the respondents and very often by 10.8% of the respondents.

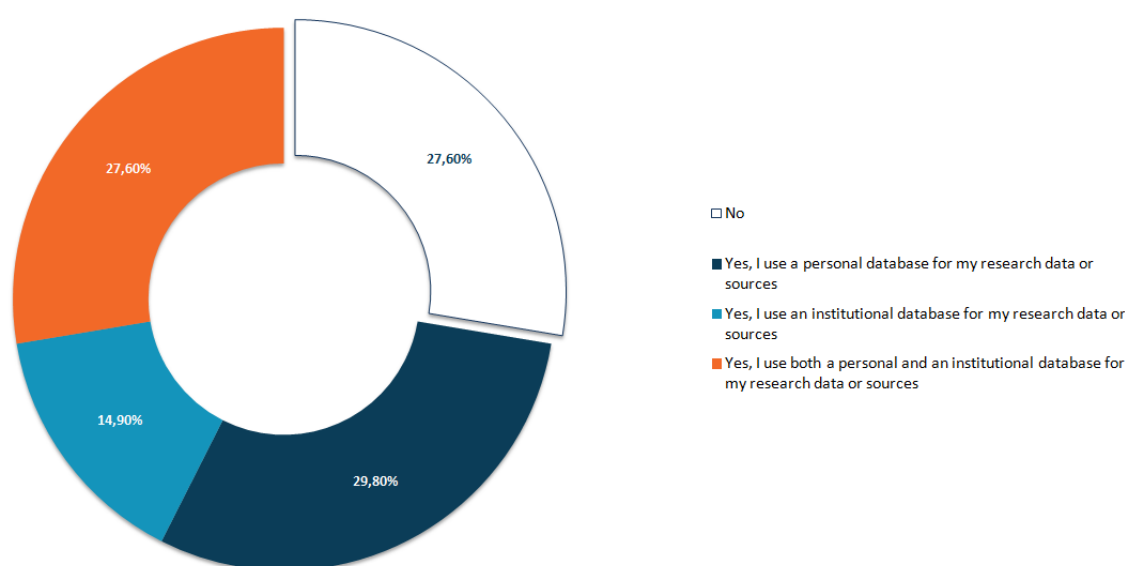


## 8.5 Software and services

### 8.5.1 Databases

29.8% of respondents from Serbia state that they use only a personal database for their research data or sources. 27.6% of the respondents state that they do not use a database, 14.9% state that they use an institutional database, while 27.6% state that they use both an institutional and a personal database for their research data or sources.

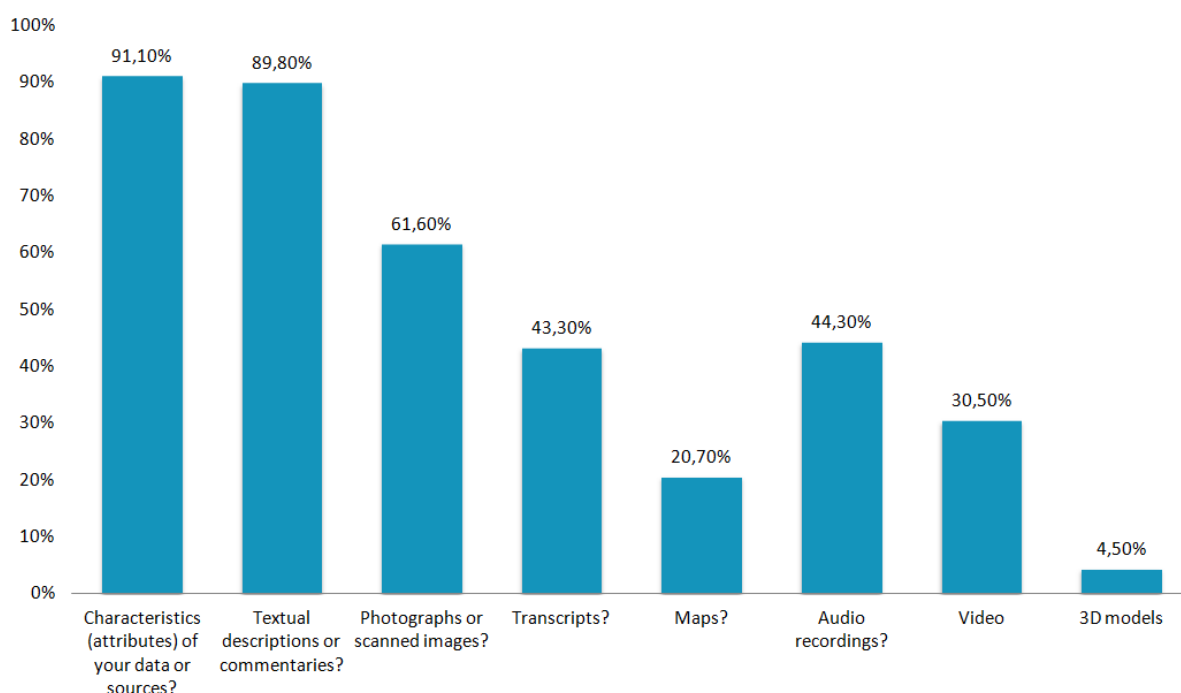
**Three out of five respondents from Serbia use a personal database, either on its own or in combination with an institutional database.**



**Figure 8.21** Use of databases, Serbian dataset (N=181).

#### 8.5.1.1 Database content

Respondents from Serbia who stated that they use databases were asked in a filter question to indicate what kind of objects are stored in those databases by selecting those that apply from the following options: (a) characteristics (attributes) of data or sources, (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models. Most respondents stated that their databases mainly contain characteristics or attributes of their data or sources (91.1%) and textual descriptions or commentaries (89.8%). Databases are also used to keep and manage photographs or scanned images (61.6%), audio recordings (44.3%), transcripts (43.3%) and video (30.5%). Databases are used to a lesser extent for maps (20.7%) and rarely for 3D models (4.5%), (Figure 8.22).

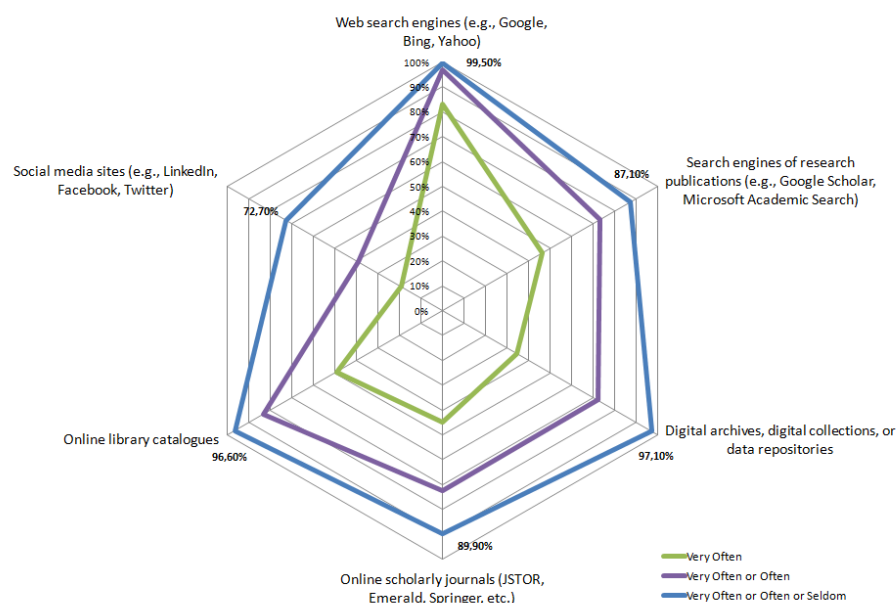


**Figure 8.22** Database contents, Serbian dataset (N=128)

### 8.5.2 Online services to access research assets

Respondents were asked how frequently they use the following kinds of online services to access research resources: (a) web search engines (e.g. *Google*); (b) search engines for research publications (e.g. *Google Scholar*); (c) digital archives, collections, or data repositories; (d) online library catalogues; and (e) social networking sites (e.g., *LinkedIn*, *Facebook*).

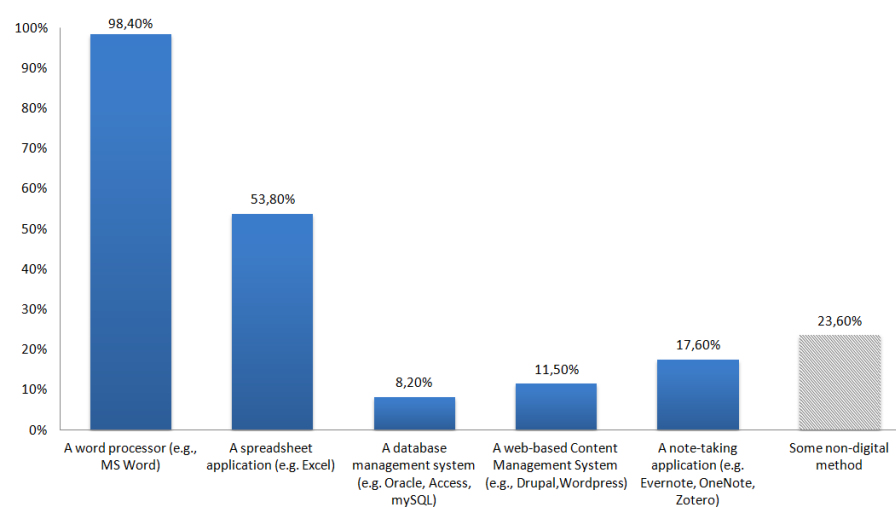
Virtually all respondents from Serbia (99.5%) reported that they use web search engines in different degrees of frequency (seldom, often and very often). The use of search engines for research publications, such as *Google Scholar* or *Microsoft Academic Search*, is also frequent, with 46.1% of the respondents stating that they use such search engines very often, 27% state that they use them often, 14% state that they use them seldom, while 12.3% state that they never use such search engines. Digital archives, digital collections or data repositories are very often used by 34.6% of the respondents, while 37.4% state that they use them often, 25.1% state that they use them seldom and finally 2.8% state that they never use digital archives, digital collections or data repositories. The use of online journal repositories, such as *JSTOR*, *Emerald* or *Springer* also seems to be widespread, with 44.7% of the respondents stating that they use these services very often, 27.9% often, 17.3% seldom use them and 10.1% never. Online library catalogues are used very often by 49.4% of the respondents, often by 33.9% of the respondents, seldom by 13.3% and never by 3.3% of the respondents. Finally, social media sites seem to be less used, with only 19.4% of the respondents stating that they use them very often for research purposes, 20% state that they use them often, 33.3% state that they use them seldom and a notable 27.2% state that they never use social media sites for research purposes (Figure 8.23).



**Figure 8.23** Frequency of use of services, Serbian dataset (N=181).

### 8.5.3 Research asset management applications

Almost all researchers state that they use a word processor to store and manage their research assets (98.4%). Apart from the use of a word processor, the rest of the available answers do not seem to be especially widespread among the respondents. Approximately one half of them (53.8%) use spreadsheet applications (such as *Excel*) to store and manage their research assets, 17.6% state that they use a note-taking application (e.g. *Evernote*), 11.5% state that they use a web-based content management system (e.g. *Drupal*, *Wordpress*), and only 8.2% state that they use a database management system such as *Oracle*, *MySQL* or *MS Access*. Finally 23.6% of the respondents state that they use some non-digital method to store and manage their research assets (Figure 8.24).



**Figure 8.24** Use of applications, Serbian dataset (N=182).

## 8.6 Assessment of researcher needs

Respondents were asked to rate the importance of a series of statements regarding their needs on a scale from 1 to 10, where 1 is the least important and 10 is the most important. Improved findability and access to existing digital research resources or data are the most important aspect according to the respondents from Serbia, as most of them (77%) rate it with 10 points in a scale of 10. Digitisation of research resources or data currently not in digital form follows with a similarly high rate, as for this element as well the median is 10. Access to digital tools or software and networking with other researchers, research groups and institutions are also considered very important, as with 75% of the respondents rating them with 8 points or more. The rest of the available answers are also rated favorably on the whole, but present a greater range. Consequently 75% of the respondents rate online advice and information on using digital methods and tools for research with 7 points or more, while technical support on digital infrastructure, tools or software, online support from archivists, curators and/or librarians and courses or workshops on how digital humanities methods and tools help on one's research are rated by 75% of the respondents with 6 points or more.

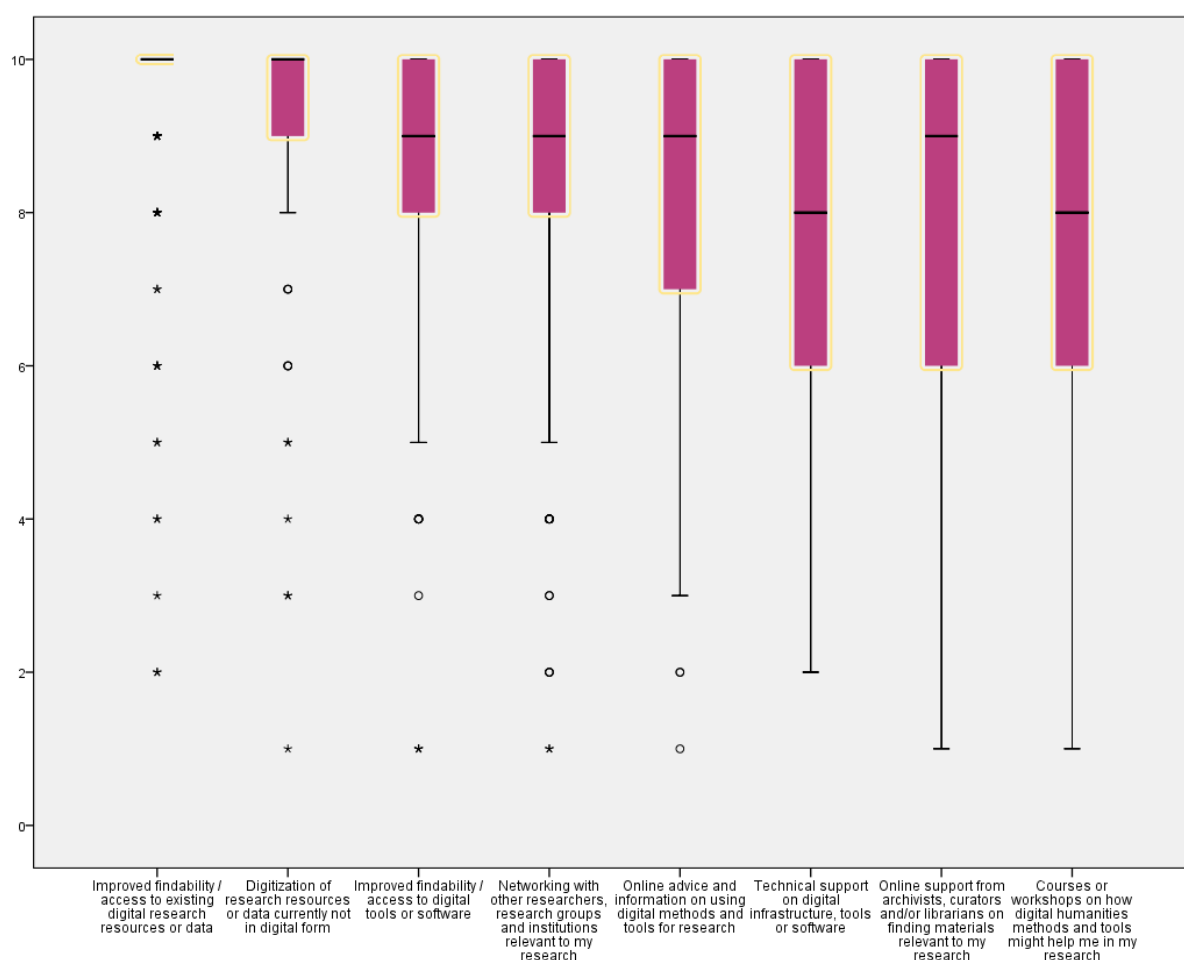


Figure 8.25 Importance of researcher needs (N=175).

## 8.7 Conclusions

The Serbian dataset consisted of scholars who are either already using digital methods and tools in their research, or are interested in using them. Compared to the overall European sample, though, the Serbian sample includes fewer researchers who stated that they already use digital methods and tools. This percentage is 83.3% for the overall European sample and 65.4% for the Serbian sample. Nevertheless, more than 80% of Serbian respondents use a desktop or laptop PC in order to consult research materials, especially articles in scholarly journals or conference proceedings, to consult audio and video material and to view images. The use of mobile devices to consult research material is also not unimportant, as about one third of the respondents use them for video and audio files as well as for viewing images.

When working on their research, humanities researchers in Serbia mention that they often use digital tools and services to process, analyse or visualise their research material. More specifically, they point out the use of statistical analysis software, presentation tools, e-dictionaries, spreadsheet analysis, image processing, translation and text processing. They also mention the use of a variety of online services to discover, collect or create research assets, such as *Kobson*, *Jstor*, *Google Books*, *Google Scholar*, *Perseus*, *Cobiss*, and the websites of their institutional libraries. To publish and disseminate their work and to communicate about their research, they mention that they use applications for remote collaboration, in addition to the 'traditional' e-mail account, presentation tools and services such as *MS PowerPoint* and *Prezi*, blogs, social media and online platforms. Finally, they mention the use of annotation programmes, language corpora and online cloud storage for the organisation, structure and management of their research material and the digitisation of manuscripts for the processing, analysis and visualisation of the research material.

Generally speaking, the Serbian dataset follows the same pattern as the results of the overall European sample regarding scholarly activities and how often they are performed by scholars in the course of their research. Some minor differences can, nevertheless, be observed. For instance, the findings suggest that Serbian scholars tend to visit historical archives, special collections, or museums less often: 53% of the Serbian sample state that they visit historical archives, special collections, or museums seldom or never, compared to 43.5% in the European sample. On the other hand, the use of keyword lists (standard or one's own) seem to be more widespread in the Serbian sample, while the use of bibliographic management applications seems to be less common. Finally, collaboration with others on a research project also appears to be less frequent as 51.9% of the Serbian respondents states that they never or that they seldom collaborate with others on a research project, compared to only 29% of the overall sample that make the same statement.

Most of the respondents primarily publish in Serbian (71.9%), while 26.3% state that they publish their work primarily in English, which follows the same pattern on the European level. Regarding the dissemination of their work, the researchers who responded to the survey

mainly use open content journals or publications and their institutional portals or repositories, while they use much less frequently other dissemination channels such as social networks, scholarly community websites, generic online content communities or their own website or blog. One interesting finding is related to the use of social networks, which seems, in two instances, to be more widespread among the Serbian respondents in comparison to the overall European sample. Thus 72.7% of the Serbian respondents (as opposed to 54.3% of the overall European sample) state that they use social media sites for research purposes, and, in another case, 55.1% of the Serbian respondents (as opposed to 41.4% of the overall European sample) state that they disseminate their work through a social network.

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### The use of social networks seems to be more widespread among respondents from Serbia in comparison to the European average.

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Almost three quarters of the respondents state that they make use of a database, personal, institutional or both) for their research data or sources. Regarding their contents, databases mainly contain characteristics (attributes) of data and sources as well as textual descriptions or commentaries. Almost half of the databases contain also photographs or scanned images, audio recordings and transcripts. Video material, maps and 3D models are far less frequently present in databases.

The use of digital services seems to be widespread among Serbian scholars in the Humanities according to the findings of the survey. Virtually all respondents stated that they use web search engines, digital archives collections or repositories and online library catalogues. Regarding the use of applications, as expected, the use of a word processor seems to be extensive. On the other hand, the use of other applications such as spreadsheet applications, note-taking applications, web-based content management systems and database management systems are far less widespread. Finally, almost one fourth of the participants state that they use some non-digital method. As mentioned above, compared to the overall European sample, the Serbian respondents make considerably less use of database management systems and note-taking applications.

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### Compared to the European average, Serbian respondents make considerably less use of database management systems and note-taking applications.

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The Serbian researchers in the humanities who responded to the survey seem to believe that it is very important to have improved access to existing digital research resources or data and to digitise more research resources and data that are not available in digital form. These two

needs are also rated as the most important suggestions of the provided list in the overall European findings. Furthermore, the Serbian respondents stress the importance of other issues such as the improved access to digital tools or software as well as the networking with other researchers, research groups and institutions relevant to their research.

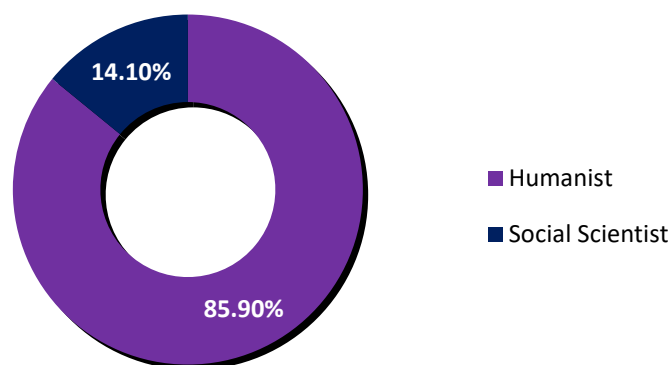
# Chapter 9 Country profile: Switzerland

*Beat Immenhauser*

## 9.1 Introduction and respondent profile

The Swiss dataset consists of 184 respondents to the survey who identified themselves as working in the humanities and social sciences (HSS) and Switzerland as their country of residence.

### 9.1.1 Discipline



**Figure 9.1** Percentage of humanists and social scientists, Swiss dataset (N=184).

In the Swiss dataset, 85.9% of respondents identified themselves as humanists while 14,1% as social scientist (Figure 9.1). Half of the researchers in the former group said they were either historians (20%), or representatives of linguistics (19.3%) and language and literature (15.3%), due to the disciplinary anchoring of the digital humanities in Switzerland. The disciplines of archaeology, philosophy, anthropology / ethnology, art, history of art or visual studies, medieval studies, theology or religious studies and classics are also adequately represented (4.7–6.7%), while drama, theatre, or performance studies, music, folklore and ethnic, gender and



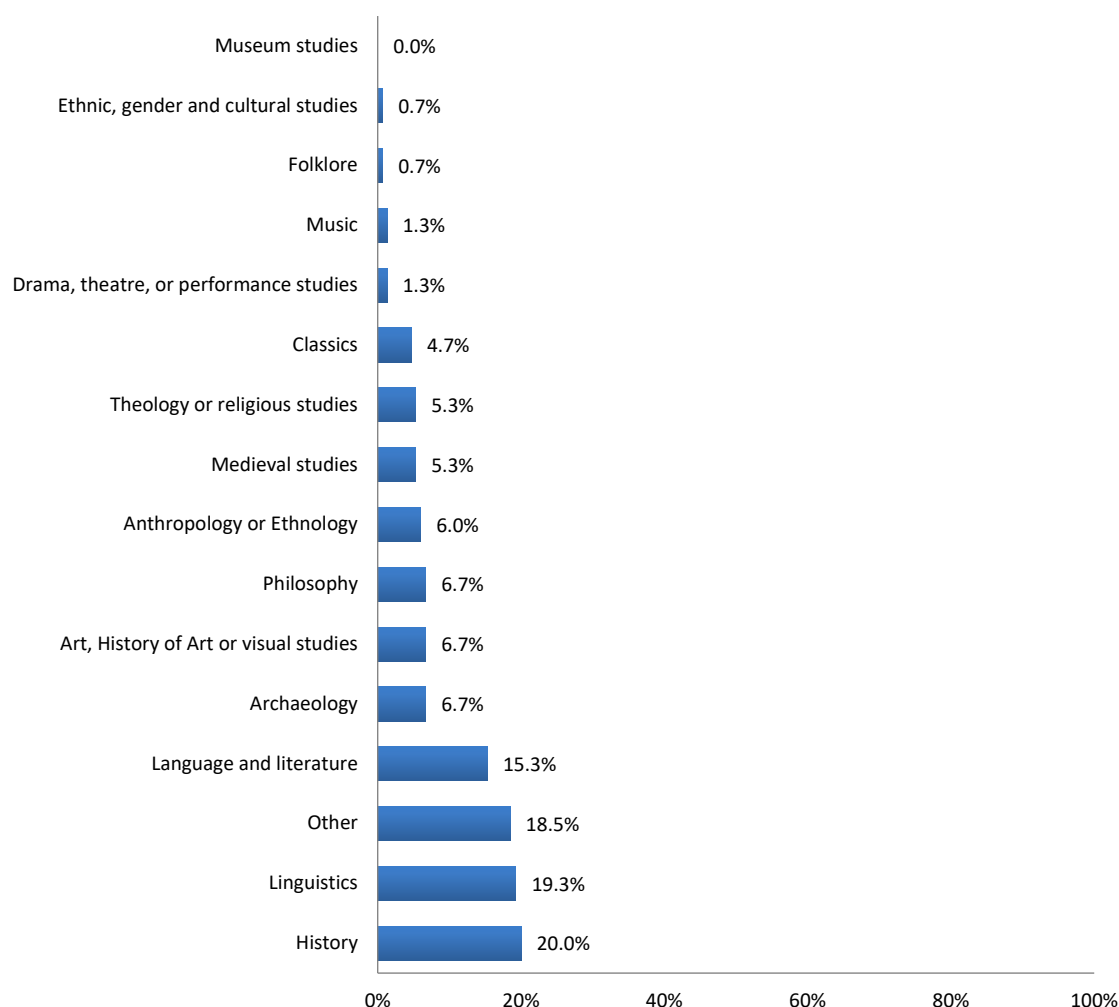


Figure 9.2 Discipline, Swiss dataset (N=150).

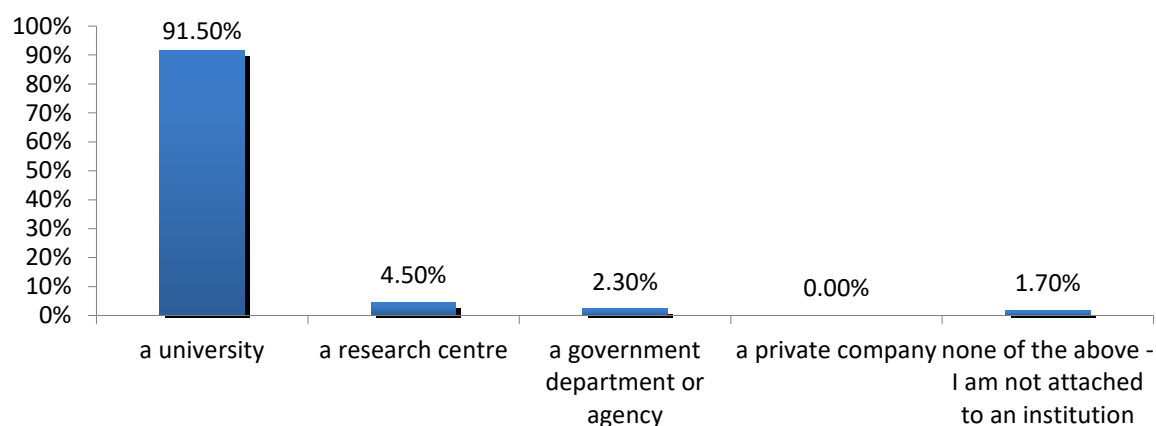
Half of the sample consists of historians (20%), representatives of linguistics (19.3%) and language and literature (15.3%); this is due to the disciplinary anchoring of the digital humanities in Switzerland.

cultural studies reflect their disciplinary distribution at the Swiss universities (0.7–1.3%). Other disciplines (18.5%) represented in the dataset include sociology, Middle East and Asian studies, law, economics, educational sciences, geography, or psychology (Figure 9.2).

### 9.1.2 Professional affiliation and status

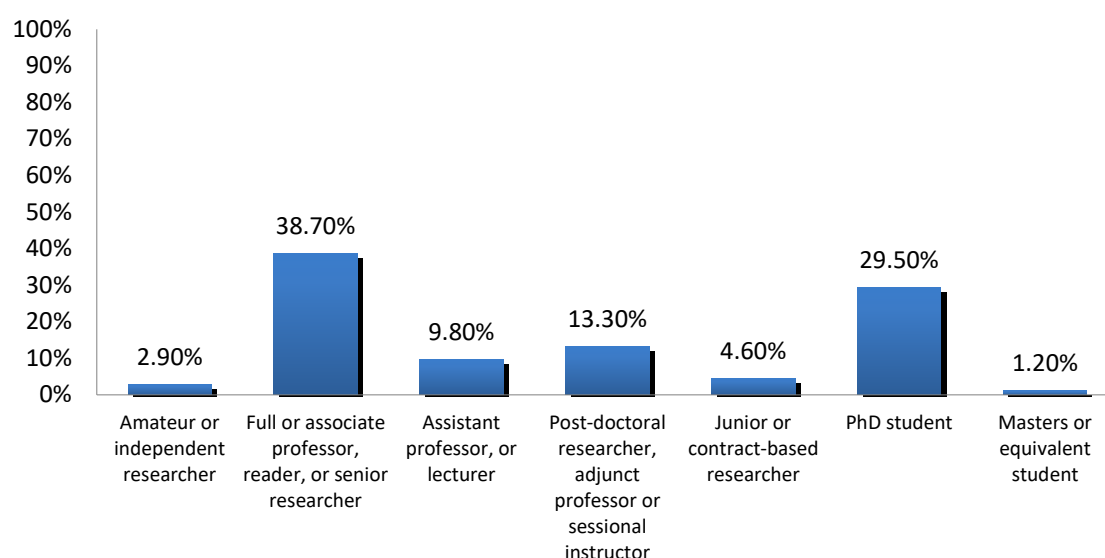
The vast majority of respondents is attached to a university (91.5%), while only few are affiliated to a research centre (4.5%), a government department (2.3%) or are not attached to any

institution (1.7%) at all. The private sector doesn't play any role regarding to the professional affiliation (Figure 9.3).



**Figure 9.3** Professional affiliation, Swiss dataset (N=177).

Regarding their professional status, most of the respondents are full or associated professors, readers, or senior researchers (38.7%), while the mid-level academic positions like assistant professors, lecturers (9.8%) or post-doctoral researchers (13.3%) include almost a quarter of the dataset. PhD students represent an important percentage of the sample (29.5%), whereas amateur / independent researchers (2.9%), junior researchers (4.6%) and master students (1.2%) constitute only a small proportion of the dataset (Figure 9.4).

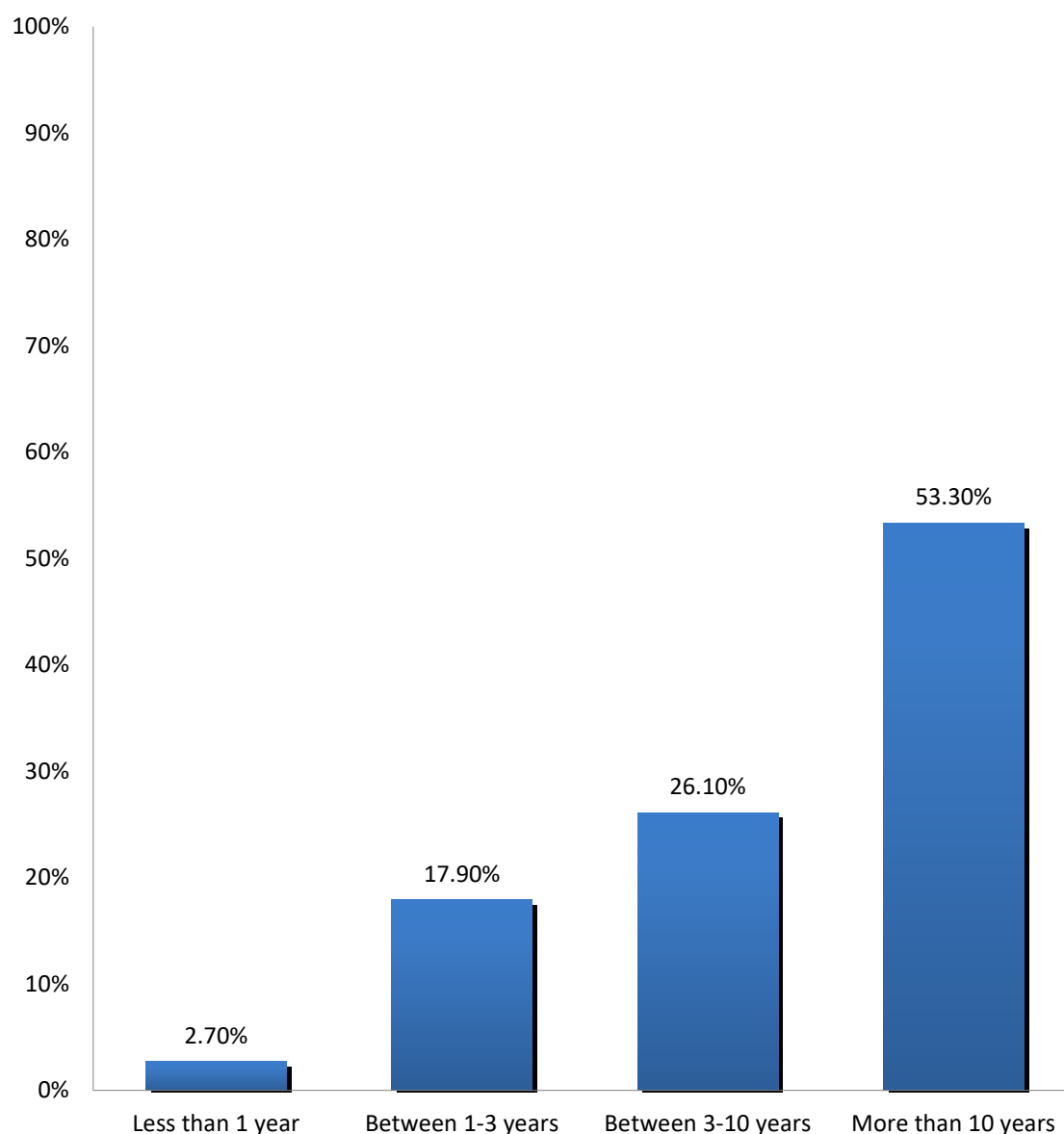


**Figure 9.4** Professional status, Swiss dataset (N=173).

### 9.1.3 Years in research

The majority of respondents from Switzerland (53.3%) are experienced researchers and have been working for more than 10 years in research, while 26.1% of the respondents have been

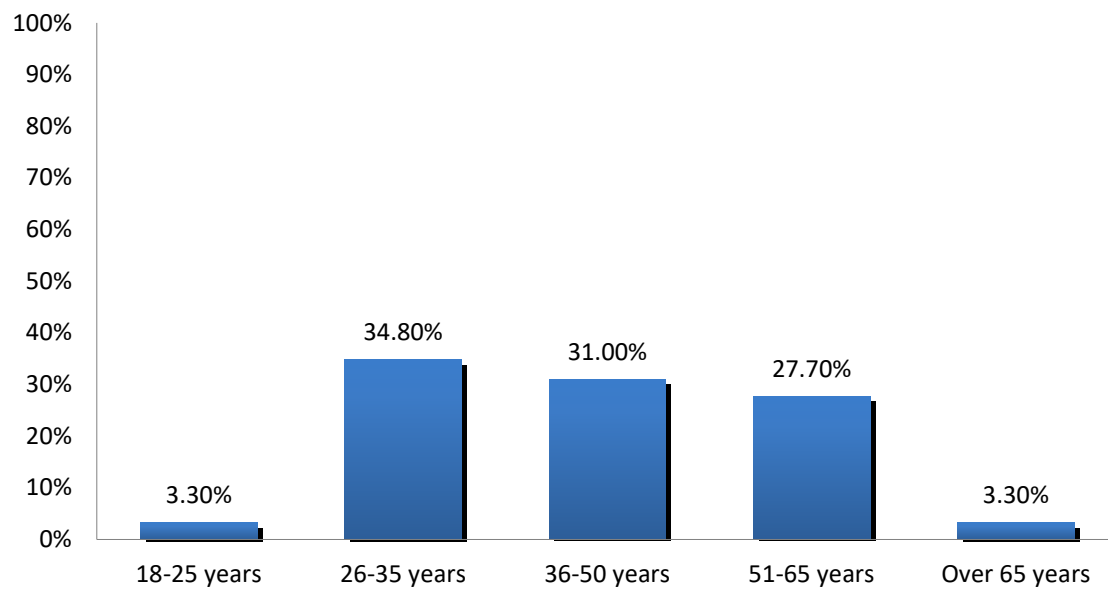
working as researchers between 3 and 10 years. No fewer than 17.9% of the respondents started their research careers only 1 to 3 years ago, while 2.7% have been working less than a year as researchers (Figure 9.5).



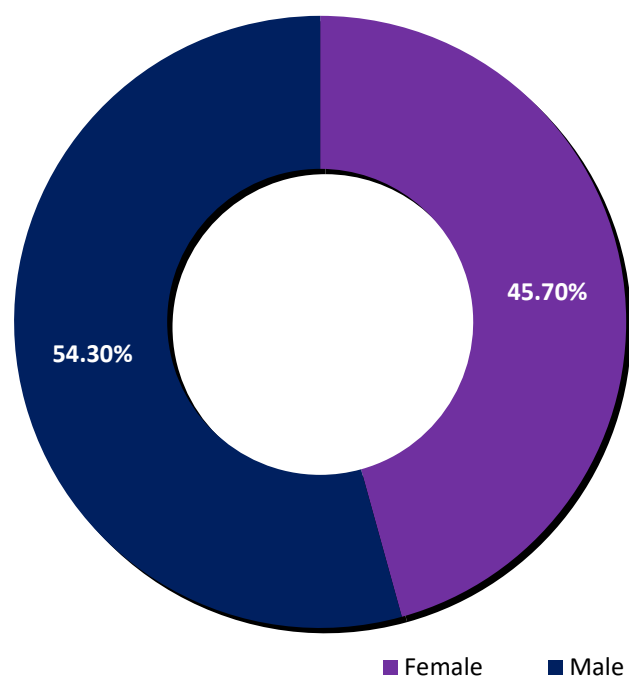
**Figure 9.5** Years in research, Swiss dataset (N=184).

#### 9.1.4 Age and gender

The age group of relatively young researchers of 26 to 35 years form the major part of respondents (34.8%), followed by researchers of 36 to 50 (31%) and 51 to 65 (27.7%) years of age. Very young researchers (3.3%) and respondents older than 65 years (3.3%) are represented less within the Swiss dataset (Figure 9.6). Finally, the majority of respondents is male (54.3%) (Figure 9.7).



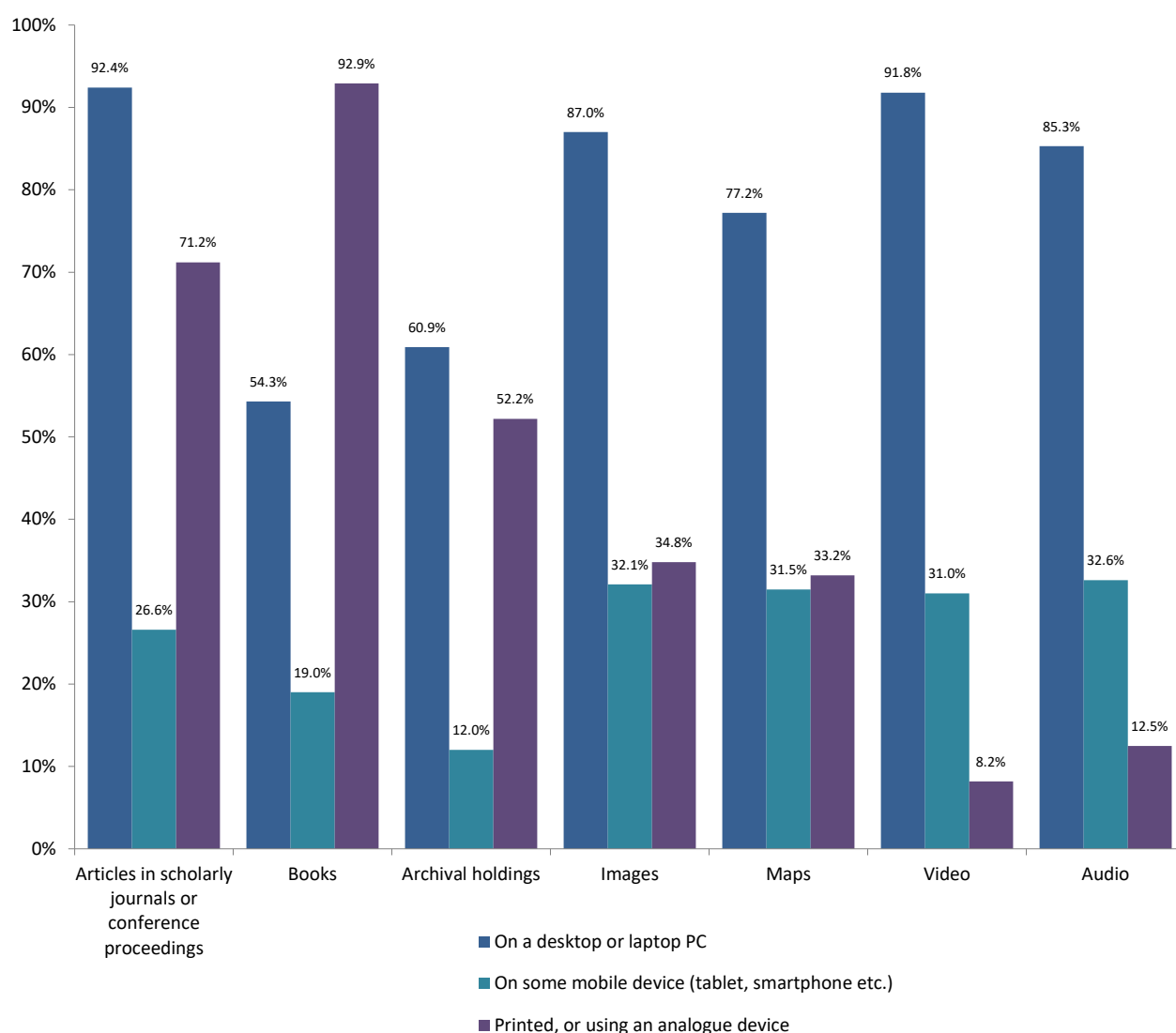
**Figure 9.6** Age, Swiss dataset (N=184).



**Figure 9.7** Gender, Swiss dataset (N=184).

## 9.2 Research materials and digital access

The use of digital media in order to consult research materials seems to be quite common among researchers in Switzerland. Respondents were asked to state how they consult materials such as articles in scholarly journals or conference proceedings, books, archival holdings, images, maps, video and audio. They furthermore were asked if they use a desktop or laptop PC, some mobile device and / or if they use an analogue device to study the above-mentioned resources. Multiple responses were allowed (Figure 9.8).



**Figure 9.8** Use of desktop/laptop PC, mobile devices and printed or analogue devices to consult research materials, Swiss dataset (N=184).

### 9.2.1 Articles in scholarly journals or conference proceedings

92.4% of the respondents stated that they use a desktop or laptop PC to consult articles in scholarly journals or conference proceedings. 26.6% indicated that they use a mobile device for the same purpose, while 71.2% still use printed text or an analogue device.

### 9.2.2 Books

54.3% of the respondents stated that they use a desktop or laptop PC to consult books, while 92.9% indicated that they use printed copies for the same purpose. Books are the only case in which the use of printed / analogue devices is more widespread than the use of digital devices. 19% of the respondents stated that they use some mobile devices to consult books.

### 9.2.3 Archival holdings

60.9% of the respondents stated that they use a desktop or laptop PC to consult archival holdings. A minority of 12% indicated that they consult archival holdings by using some mobile devices, while 52.2% stated that they use printed or analogue media for the same purpose.

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**Books are the only case in which the use of printed / analogue devices is more widespread than the use of digital devices.**

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### 9.2.4 Images

Images are consulted primarily using a desktop or laptop PC (87%), whereas the use of mobile devices (32.1%) doesn't differ much from the use of printed or analogue media (34.8%).

### 9.2.5 Maps

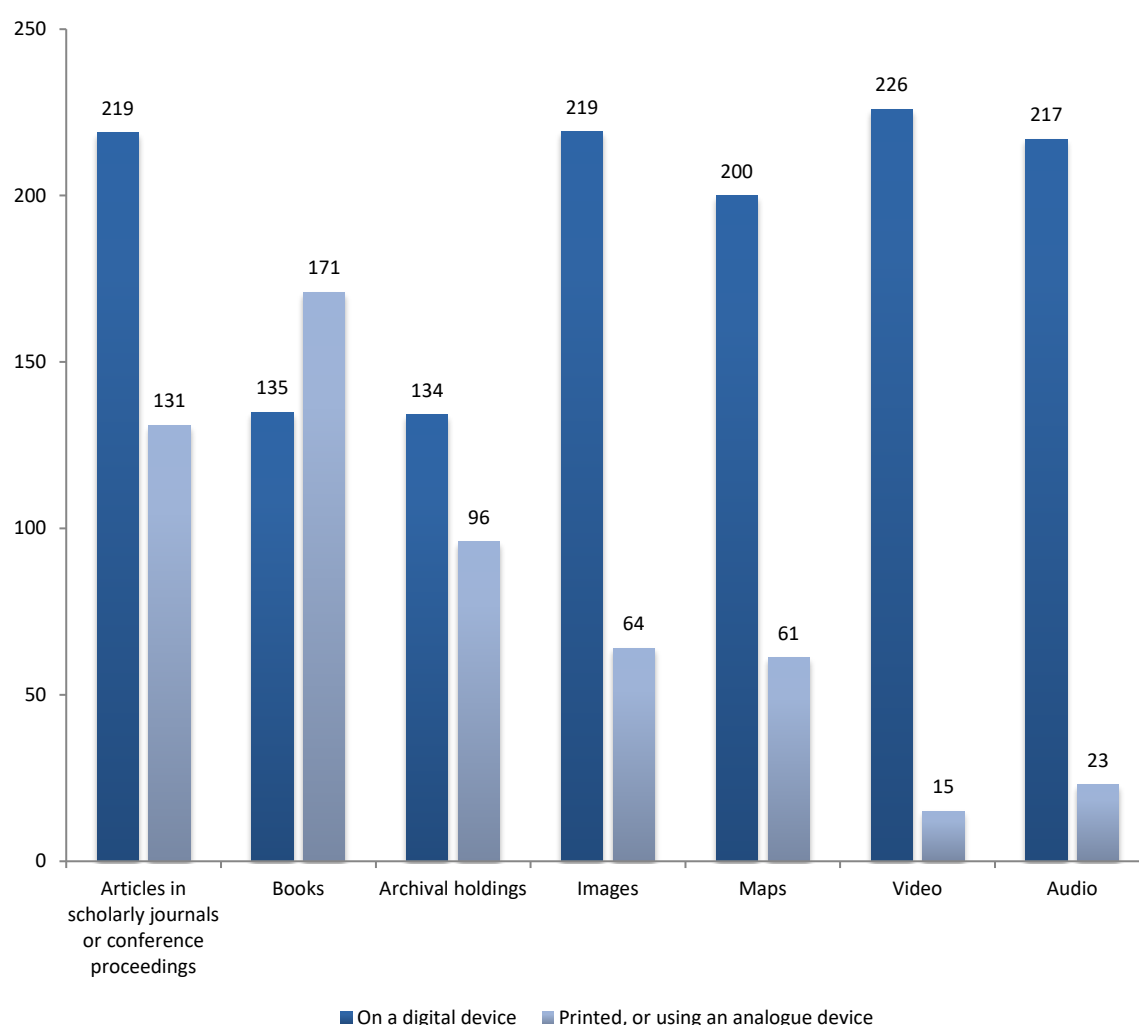
The use of mobile devices (31.5%) or printed / analogue media (32.2%) for consulting maps corresponds to the above-mentioned percentages for images. Here again the use of a desktop or laptop PC is the most frequent answer (77.2%).

### 9.2.6 Video

The vast majority of 91.8% uses a desktop or laptop PC to watch video. 31% stated that they use a mobile device for the same purpose, while 8.2% stated that they use analogue media.

### 9.2.7 Audio

85.3% of respondents stated that they use a desktop or laptop PC to listen to some audio related material for their research. Almost one third (32.6%) uses a mobile device for the same purpose, while 12.5% stated that they use analogue media.



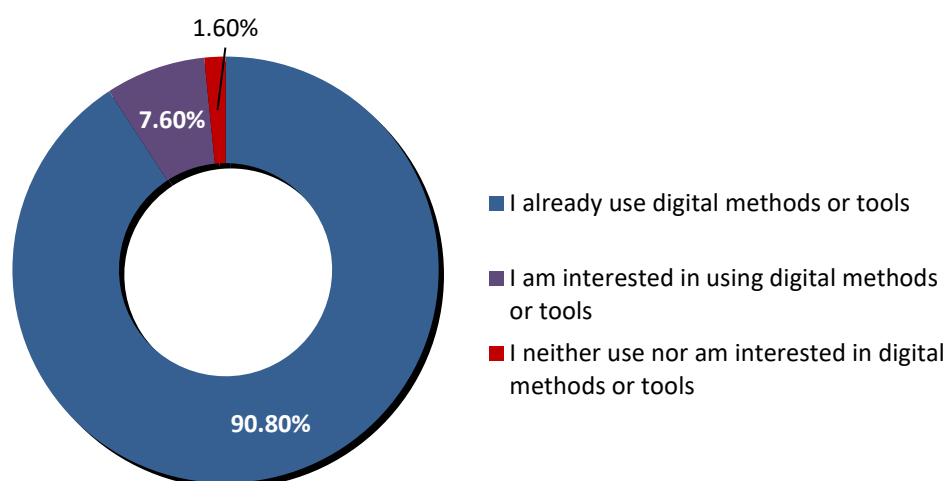
**Figure 9.9** Use of digital and printed / analogue media to consult research materials, Swiss dataset (N=184).

Figure 9.9 illustrates the overall use of digital media (based on desktop or laptop PC and mobile devices) compared to the use of printed or analogue media. In almost all cases, digital media are more often used than printed or analogue ones, except for books. Printed books are still more often used than digital copies, whereas digital devices are clearly the preferred way to work with images, maps, video, or audio. The use of digital and analogue media is more balanced for articles in scholarly journals and archival holdings, the digital approach however exceeds the analogue one.

The use of mobile devices, such as tablets and smartphones, is supposed to be growing as the percentage fluctuates already between one quarter to one third for the consultation of articles, images, maps, video, and audio.

### 9.3 Scholarly activities, methods, and tools

Respondents of the survey were asked whether they use or are interested in using digital methods or tools for their research. The large majority (90.8%) stated that they already use digital methods or tools for their research. 7.6% of the persons surveyed indicated that they are interested in using digital methods or tools, while only three (1.6%) respondents said that they neither use nor are interested in using digital methods or tools (Figure 9.10).



**Figure 9.10** Use of digital methods or tools, – Swiss dataset (N=184).

#### 9.3.1 Purpose of use of digital methods or tools

Respondents who stated that they already use digital methods or tools were then asked, in a filter question, to indicate for what purpose they use them. Five answers were available, and respondents could enter multiple responses. Their answers indicate that all five purposes proposed are relevant. More specifically, more than 69% of the persons surveyed state that they use digital methods or tools to (a) discover, collect or create their research assets, (b) organize, structure or manage their research assets, (c) annotate, enrich or curate their research assets, (d) process, analyse, or visualize their research assets, and (e) publish, disseminate or communicate about their research. Of these activities, the first two (to discover, collect or create

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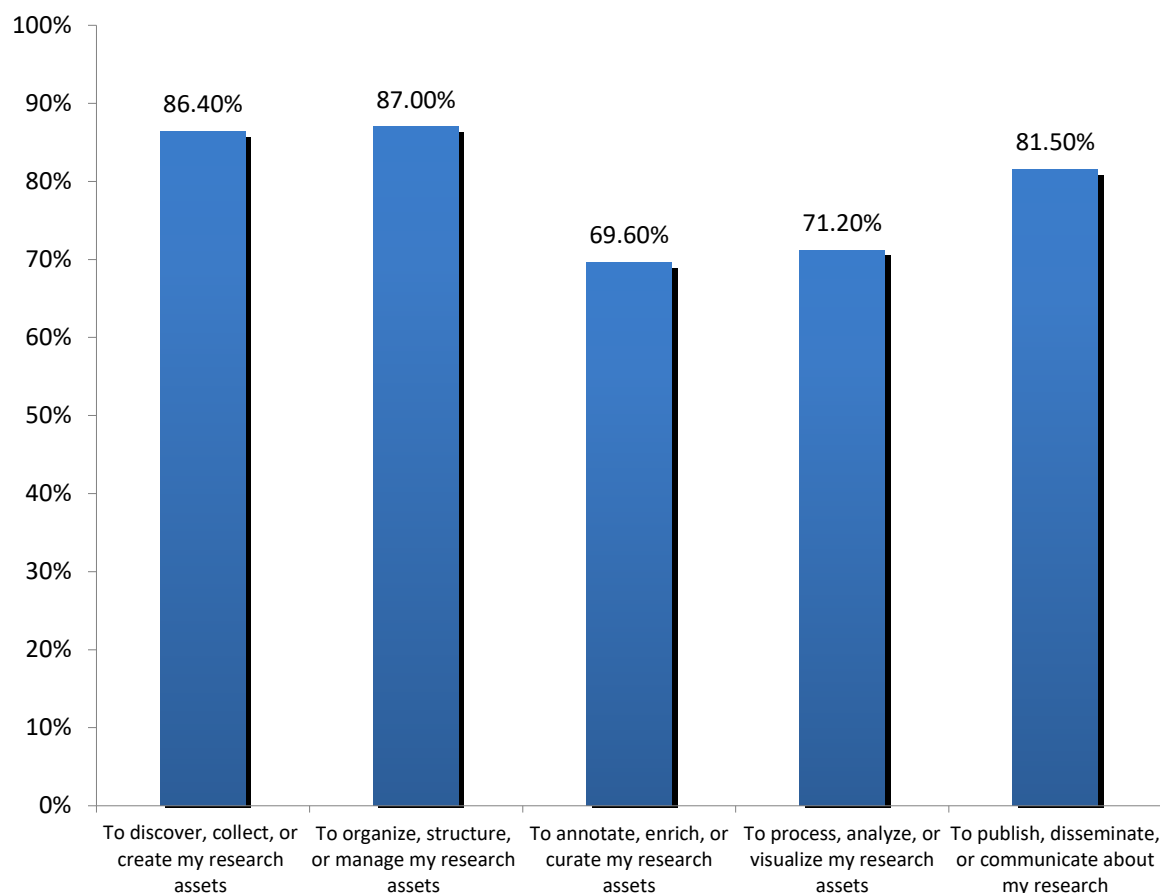
**The use of digital methods is relevant for the entire research process of digital humanities researchers in Switzerland.**

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research assets and to organize, structure or manage research assets) and the last one (publish, disseminate, or communicate about their research) seem to be more widespread (Figure



9.11). On the other hand, the use of digital methods or tools for annotating, enriching or curating research assets seems to be less frequent (69.6%).



**Figure 9.11** Purpose of use of digital methods or tools, Swiss dataset (N=184).

### 9.3.2 Specific digital methods and tools reported

Respondents who stated that they already use or are interested in using digital methods or tools were also asked to identify these digital methods or tools through an open, free text response. Spontaneous responses thus collected provide useful insights on the particular way respondents use, or are interested in using, digital methods or tools.

To assist interpretation of findings, responses were categorized firstly according to the particular functionality or research activity they refer to, and secondly according to the aspect of the scholarly information lifecycle they are related to, i.e.: (a) to discover, collect or create research assets; (b) to organize structure or manage research assets; (c) to annotate, enrich or curate research assets; (d) to process, analyse, or visualize research assets; and (e) to publish, disseminate or communicate about research. Since respondents identified both activities and examples of applications, their specific responses within each category were further classified accordingly, and examples of applications were matched with activities they support. The findings presented below do not account for the frequency of a specific answer, since it is the

qualitative dimension of uses, activities, and services or tools used that is showcased in this section.

### 9.3.2.1 To discover, collect or create research assets

In order to discover and collect research assets respondents state that they access digital repositories and library catalogues. The repositories listed represent a wide variety of data collections in numerous disciplines and are mainly available online; most of them are international repositories, while a small number of Swiss collections is also mentioned (Table 9.9a). For the creation of research assets respondents name methods like scanning / digitisation, audio-capturing and other data-harvesting methods.

**Table 9.1** Specific digital methods or tools used – Discovering, collecting or creating research assets, Swiss dataset.

Discover, collect, create research assets	
Activity	Examples mentioned
Digitisation of manuscripts	-
Surveys, data collection	LimeSurvey, Qualtrics, SurveyMonkey
Dictionaries	Merriam Webster, Linguee, TLG-online
Web / media monitoring	Netvibes, feedly
Transcription of audio-files	f4QDA, f4analysis, sonal
Access to digital repositories and library catalogues	<p><b>International:</b></p> <p>Social Sciences Research Network, Gallica.fr, Google, Google Books, Google Scholar, Ina.fr, NO-DO, Luce, Archive.org, Gutenberg, JSTOR, Project Muse, Abell, MLAIB, Britannica online, Fweet.org, Dyabola, Persée, research catalogue of the Society of Artistic Research, Karlsruher virtueller Katalog KVK, SUDOC, Electronic research management (ERM), Frontiers, Cosmas, DWDS, eLexico, Cairn, CrossAsia, Philpapers.org, Wiley Online, FRANTEXT, Loeb Classical Library online, Musisque deoque, Perseus, Brepolis, THEOLDI, New Pauly, ScienceDirect, Thesaurus Linguae Aegyptiae, Centre National de Ressources Textuelles et Lexicales (CNRTL), Giza Archives, Europeana, Modern Language Association MLA Bibliography, Stanford Encyclopedia of Philosophy</p> <p><b>National (Swiss)::</b></p> <p>Swiss Archives, e-codices, e-rara, Bibliographie biblique informatisée de Lausanne BiBIL, SERVAL, Scriptorium, retro.seals.ch, RERO, swisslex</p>

### 9.3.2.2 To organize, structure or manage research assets

In order to organize, structure or manage their research assets respondents state that they use a variety of tools like databases, reference management tools like *Zotero*, *Citavi*, *Endnote*, etc. (Table 9.2). Project management tools are also quite often used as well as collaboration,

storage and sharing software like *Skype*, *Dropbox* and *WeTransfer*. The use of social media tools like *Twitter* and *Academia* is equally pointed out by researchers in Switzerland. *Salsah / DaSCH* ([www.dasch.swiss](http://www.dasch.swiss)) is on the edge of becoming an important platform for a virtual research environment.

**Table 9.2** Specific digital methods or tools used – Organizing, structuring or managing research assets, Swiss dataset.

Organize, structure or manage research assets	
Activity	Examples mentioned
Wikis	-
Social Bookmarking	-
Use of databases	Filemaker, MS Access, PHP, MySQL, PubMed
Use of reference management tools	Endnote, Zotero, Citavi, Evernote, diigo, Delicious Library, BibTeX, BibDesk, Mendeley
Project management	GanttProject, Jira, Merlin, PBWorks
Collaboration	Realtime Board, Skype, doodle
Storage, sharing	Dropbox, SlideShare, ResearchGate, OJS, Calibre, Wettransfer
Virtual research environment (VRE)	Salsah / DaSCH
Social Media	Academia, Twitter, Facebook, LinkedIn

### 9.3.2.3 To annotate, enrich or curate research assets

In order to annotate, enrich or curate research assets respondents state that they use tools like *ELAN* for text annotation (Table 9.3). Other tools like *Dropbox* can be used for managing and curating purposes. The Swiss web service *Metagrid* ([www.metagrid.ch](http://www.metagrid.ch)) is a promising tool for online networking of humanities resources that is already used by a number of research infrastructures.

**Table 9.3** Specific digital methods or tools used – Annotating, enriching or curating research assets, Swiss dataset.

Annotate, enrich or curate research assets	
Activity	Examples mentioned
video / film annotation	-
metadata enriching	-
Text annotation	ELAN, MMAX2, ANNIS2
Data linking	Metagrid.ch
E-Learning	Chamilo

### 9.3.2.4 To process, analyse, or visualize research assets

Respondents identified a lot of tools, services, and software to process, analyse or visualise research assets. The activities mentioned and the tools used include text processing (*LaTeX*,

Word etc.) and different kinds of text and data analysis (*Wordle*, *MAXQDA*, *SPSS*, *NVivo* etc.). Image and audio processing and all kinds of visualisation are activities that are mentioned quite often as well (Table 9.4).

**Table 9.4** Specific digital methods or tools used – Processing, analysing or visualising research assets, Swiss dataset.

Process, analyse, or visualize research assets	
Activity	Examples mentioned
Creating websites	HTML-editor
Web mapping / visualising	NetDraw
Text encoding	TEI
Presentation	Acrobat, Freemind, PowerPoint, Prezi
Text processing / publishing	LaTeX, TexShop, OpenOffice, MSword, LyX, LibreOffice, TUSTEP, WordPress, Scrivener
Text analysis / mining	Praat, ANNIS2, MAXQDA, Tesseract, Alceste, CAQDAS tools, Atlas.ti, Wordle, Word Count Tool
Text recognition	Dragon speaking
Data analysis	SPSS, SAS JMP, R Project, Excel, Sofastats, Sphinx, NVivo
Geovisualisation	QGis, WebGis
Image editing	Photoshop, Adobe Illustrator, Macromedia Fireworks
Video editing	Screenflow
Programming	Python
Audio processing	Audacity, Express scribe

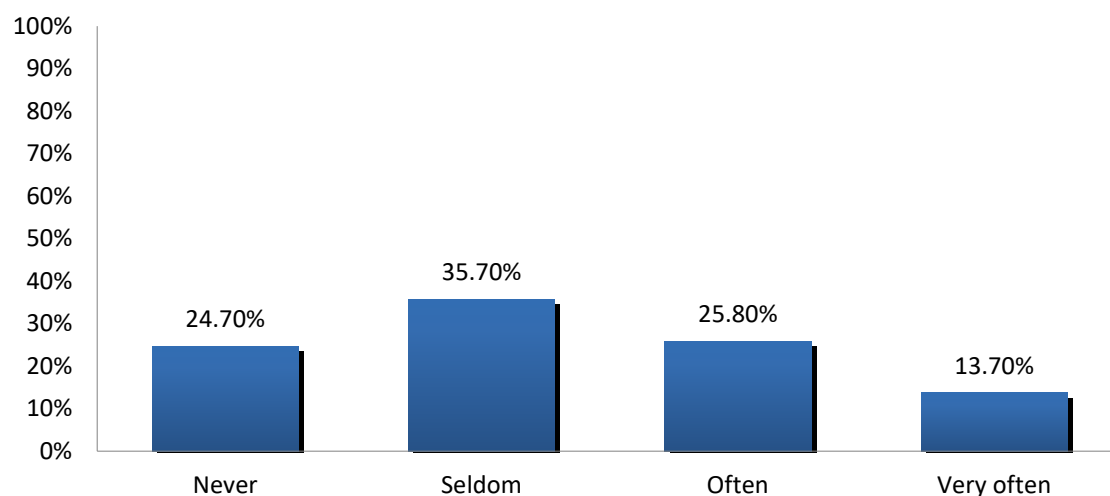
### 9.3.3 Selected scholarly activities in focus

Respondents were asked if they engage in specific activities which were considered to be of particular interest to the research focus of this study. More specifically, they were asked how frequently they are: (a) visiting historical archives, special collections or museums, (b) seeking information or advice from archivists, subject librarians or collection curators, (c) accessing primary sources outside their country of residence, (d) using a standard keyword list or thesaurus to organize research assets, (e) using their own keyword list or thesaurus to organize research assets, (f) using a bibliographic management application to manage citations, (g) collaborating with others on a research project, and (h) communicating with others in a social media site or discussion forum. This section summarizes the answers of respondents from Switzerland to these questions.

#### 9.3.3.1 Visiting historical archives, special collections, or museums

Nearly 40% of respondents state that they visit historical archives, special collections, or museums very often (13.7%) or often (25.8%). The majority, however, indicated that they visit these institutions seldom (35.7%) or never (24.7%) (Figure 9.12).

### I visit historical archives, special collections or museums

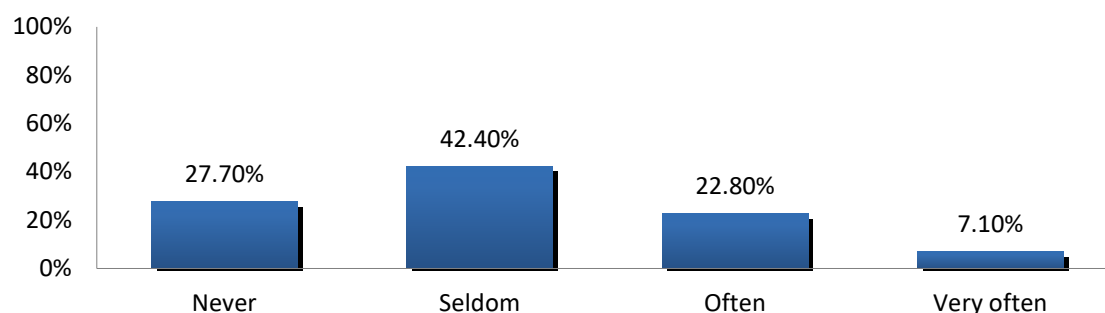


**Figure 9.12** Scholarly activities; frequency of visiting historical archives, special collections or museums, Swiss dataset. (N=184).

#### 9.3.3.2 Seeking information or advice from archivists, subject librarians, or collection curators

A minority of 30% of respondents states that they seek information or advice by the help of archivists, subject librarians or collection curators often (22.8%) or even very often (7.1%), whereas 70 % seldom (42.4%) or never (27.7%) seek information or advice from these experts (Figure 9.13).

### I seek information or advice from archivists, subject librarians or collection curators

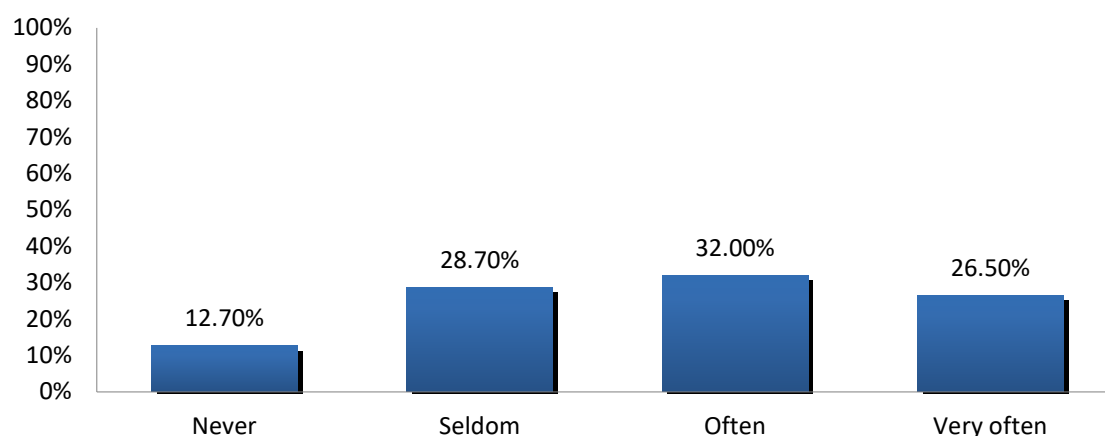


**Figure 9.13** Scholarly activities; frequency of seeking information from archivists, subject librarians or collection curators, – Swiss dataset (N=184).

#### 9.3.3.3 Accessing primary sources outside one's country of residence

Almost 60% of respondents state that they often (32%) or even very often (26.5%) access primary sources outside their country of residence. On the other hand, 41% of the persons surveyed indicated that they focus their research on primary sources in their country of residence and therefore seldom (28.7%) or never (12.7%) access sources abroad (Figure 9.14).

### I access primary sources outside my country of residence

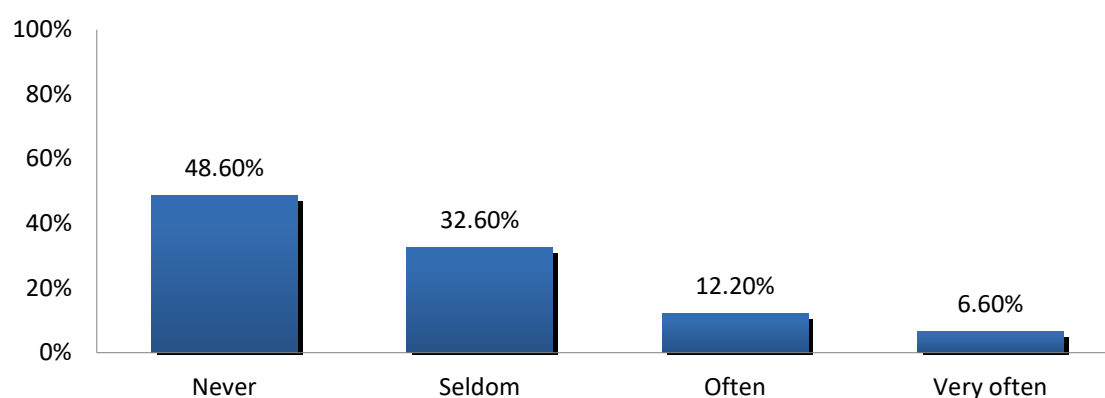


**Figure 9.14** Scholarly activities; frequency of accessing primary sources outside one's country of residence, Swiss dataset (N=181).

#### 9.3.3.4 Using a standard keyword list or thesaurus to organize research assets

Using a standard keyword list or thesaurus to organize research assets seems to be an activity that most respondents never (48.6%) or seldom (32.6%) perform. 12.2% of the respondents, on the other hand, indicate that they often – 6.6% very often – use a standard keyword list or thesaurus (Figure 9.15).

### I use a standard keyword list or thesaurus to organize my research assets

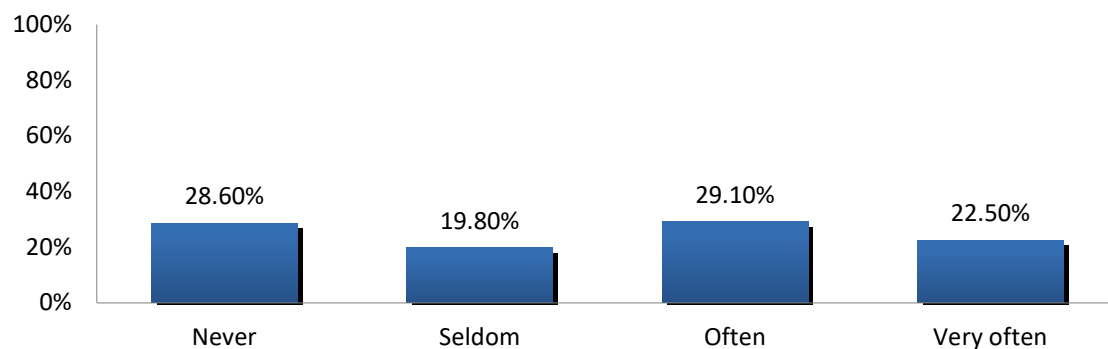


**Figure 9.15** Scholarly activities; Frequency of using a standard keyword list or thesaurus to organize research assets, Swiss dataset (N=181).

#### 9.3.3.5 Using one's own keyword list or thesaurus to organize research assets

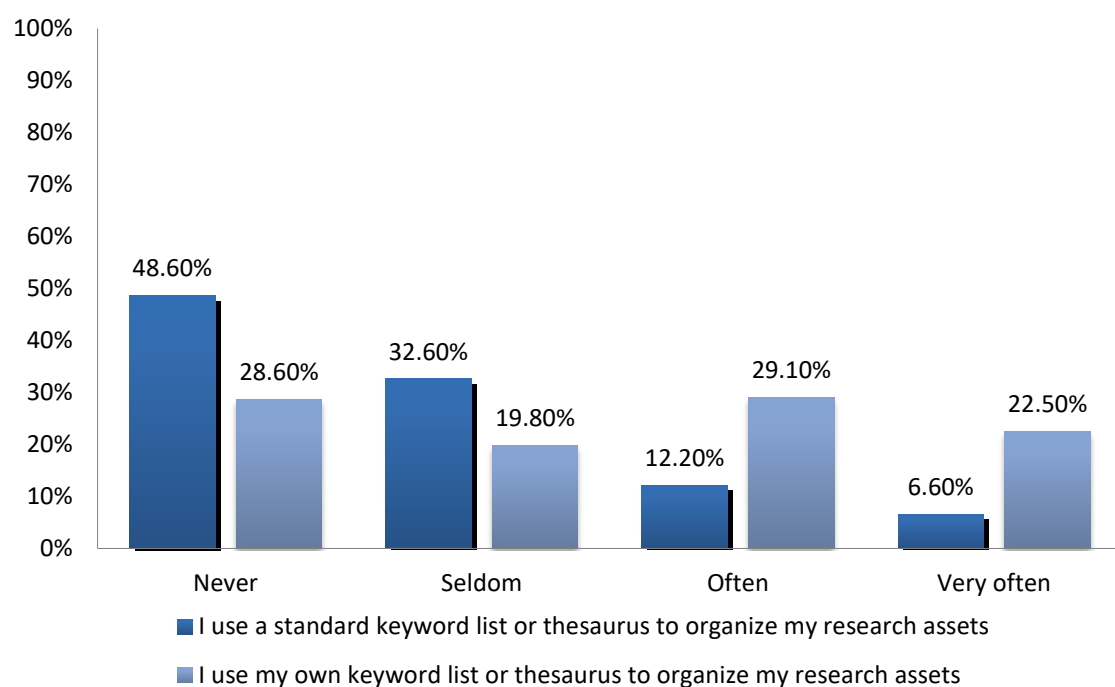
The responses to this statement show that more than half of the interviewees use their own keyword list or thesaurus to organize their research assets (29.1% often and 22.5% very often), whereas 28.6% never and 19.8% seldom create their own keyword list or thesaurus (Figure 9.16).

### I use my own keyword list or thesaurus to organize my research assets



**Figure 9.16** Scholarly activities; frequency of using one's own keyword list or thesaurus to organize research assets, Swiss dataset (N=182).

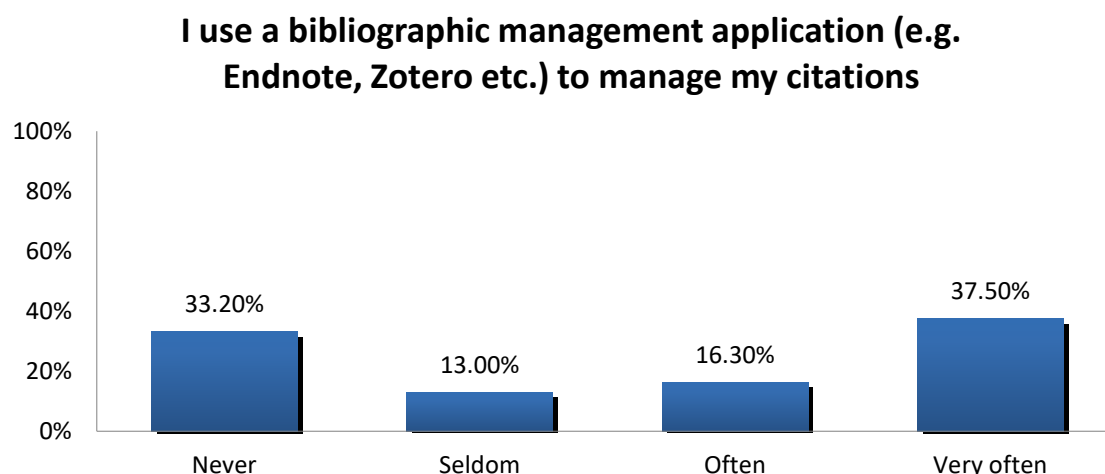
Overall, the researchers seem to use their own keyword lists more than some standard keyword lists, even those who state that they use such lists very often (Figure 9.17).



**Figure 9.17** Scholarly activities; frequency of using one's own or a standard keyword list or thesaurus to organize research assets, Swiss dataset (N=182).

### 9.3.3.6 Using a bibliographic management application to manage citations

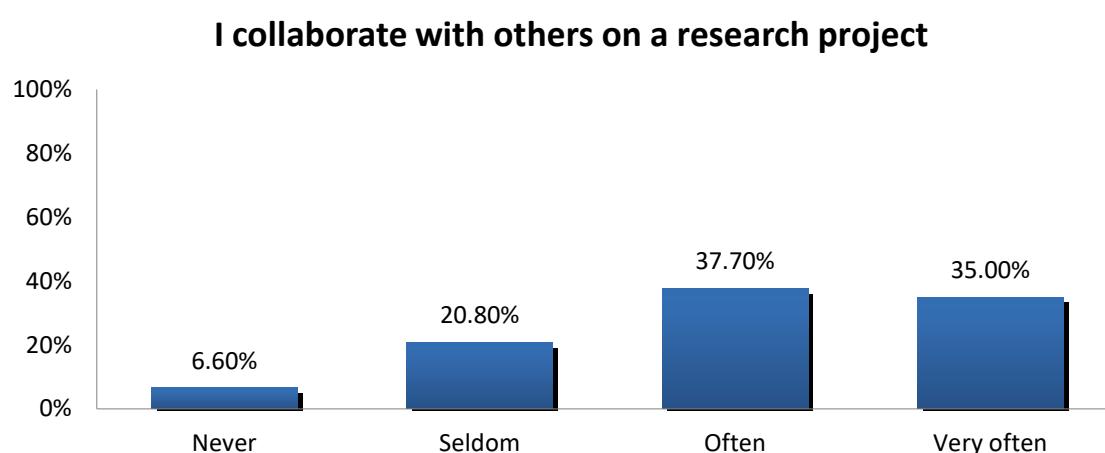
Using a bibliographic management application seems to be a quite widespread way to manage citations, as 37.5% of respondents specified the frequency of use as 'very often' and a further 16.3% as 'often'. On the other hand, one third (33.2%) of respondents never uses such tools, 13% seldom (Figure 9.18).



**Figure 9.18** Scholarly activities; frequency of use of bibliographic management applications to manage citations, Swiss dataset (N=184).

### 9.3.3.7 Collaborating with others on a research project

According to the statements, three quarters of respondents prefer collaborating with others on a research project, as 37.7% practice this often and 35% very often, whereas only 6.6% never and 20.8% seldom collaborate with other researchers on projects (Figure 9.19).

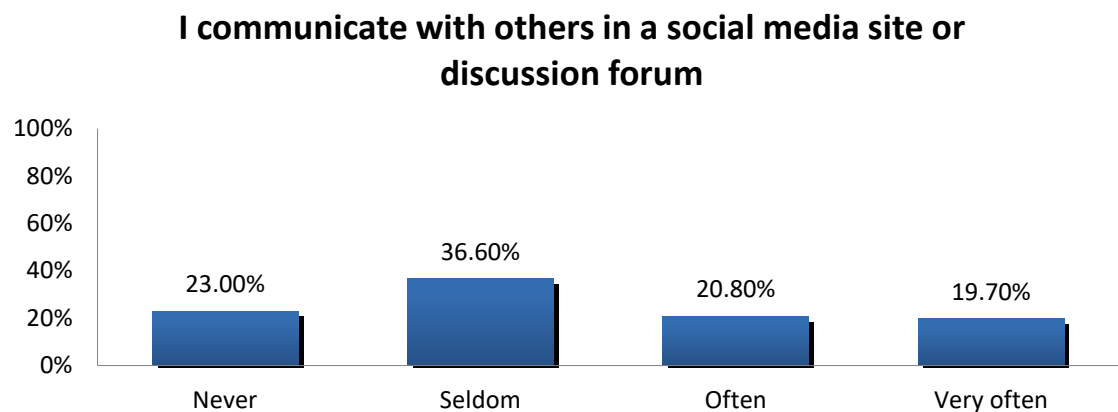


**Figure 9.19** Scholarly activities; frequency of collaborating with others on a research project, Swiss dataset (N=183).



### 9.3.3.8 Communicating with others in a social media site or discussion forum

A minority of 40% of respondents prefers communication with others in a social media site or discussion forum often (20.8%) or very often (19.7%). One quarter (23%) never communicates with their peers by social media, one third (36.6%) seldom (Figure 9.20).

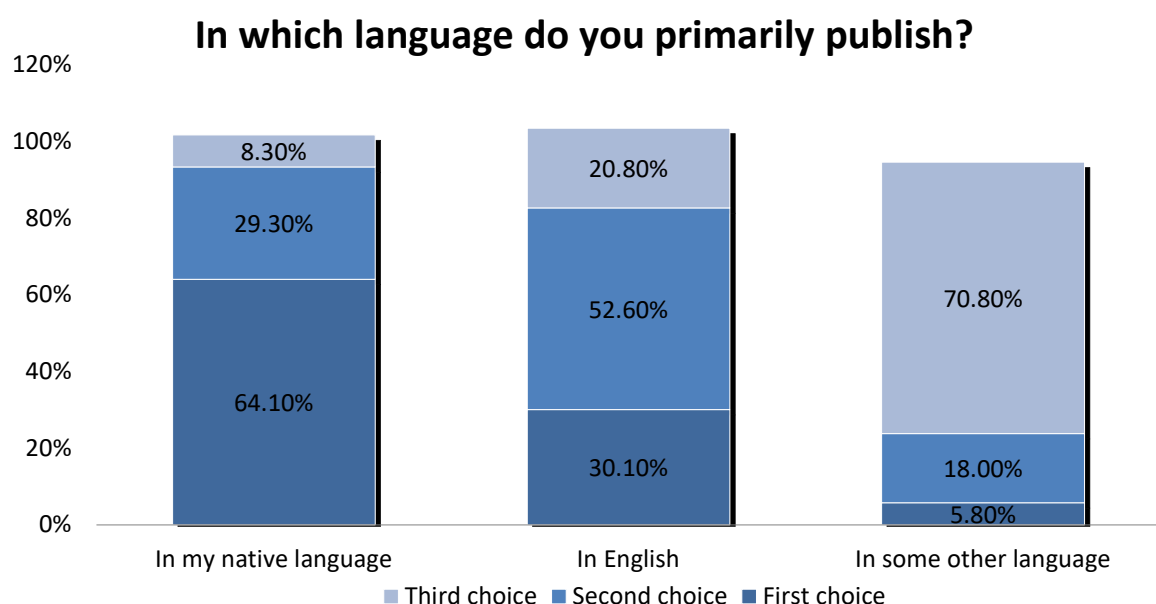


**Figure 9.20** Scholarly activities; frequency of communicating with others in a social media site or discussion forum, Swiss dataset (N=183).

## 9.4 Publication and dissemination of research results

### 9.4.1 Publishing language

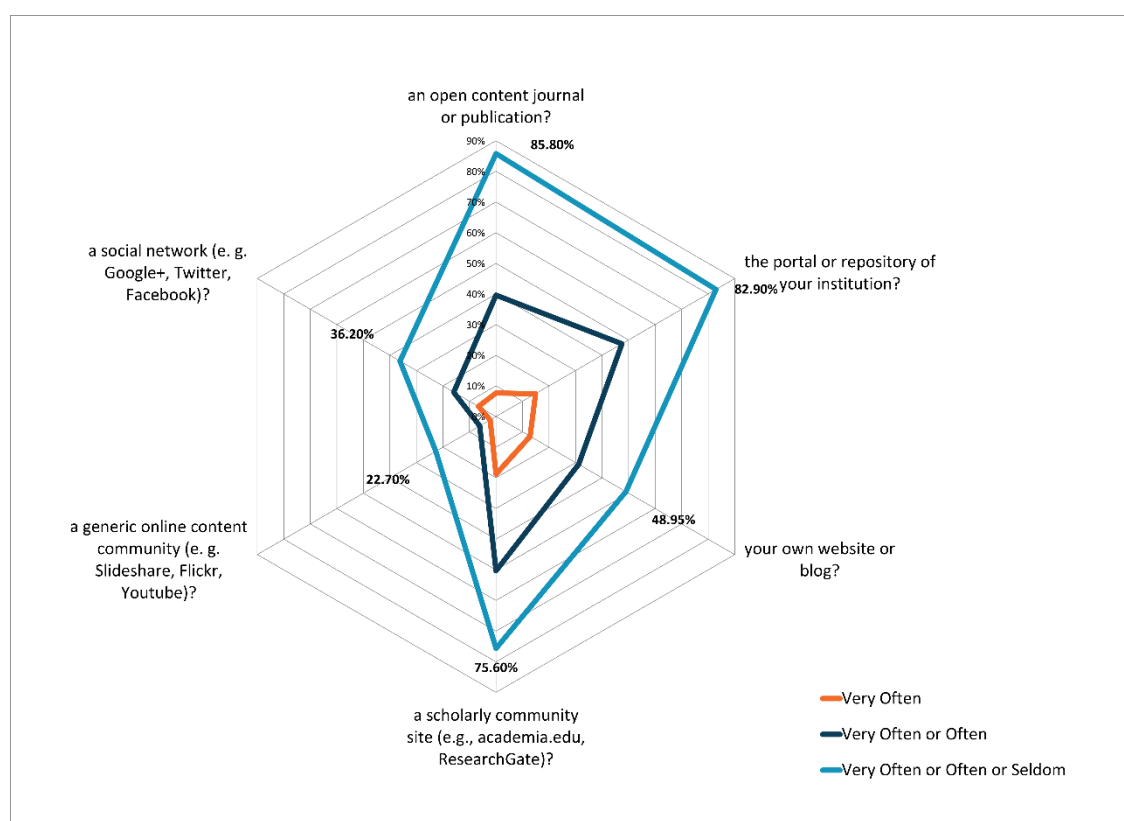
64.1% of respondents from Switzerland state that they primarily publish in their native language, while 30.1% state that they primarily publish in English and 5.8% state that they primarily publish in some other language (Figure 9.21).



**Figure 9.21** Publishing language, Swiss dataset (N=184).

### 9.4.2 New channels of dissemination of scholarly work

When it comes to the dissemination of scholarly work beyond traditional channels (such as closed access journals and printed publications), researchers in Switzerland chose more often a commercial scholarly content community site, the portal or repository of the researchers' institution, an open content journal or publication or their own website or blog. Less often dissemination is done through a social network, while dissemination through a generic online content community is rarely chosen by researchers in the human sciences residing in Switzerland (Figure 9.22).



**Figure 9.22** New channels of dissemination of scholarly work, Swiss dataset (N=182)

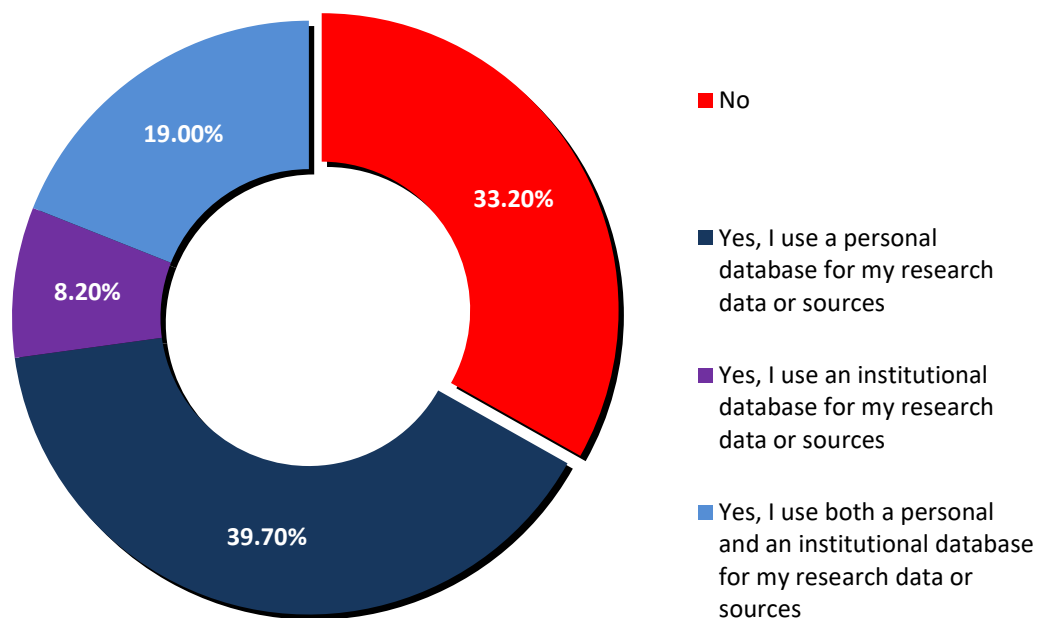
More specifically, dissemination through an open content journal or publication is seldom performed by 46.2%, often by 31.9 and very often by 7.7% of respondents. Dissemination through the portal or repository of the researcher's institution is seldom performed by 35.4%, often by 32.6%, and very often by 14.9% of respondents. Dissemination through the researcher's web site or blog is performed never by 51.9%, seldom by 17.8%, often by 18.3%, and very often by 12.85 of respondents. Dissemination through a commercial scholarly content community site is performed seldom by 25.3%, often by 31.5%, and very often by 18.8% of respondents. Dissemination through a generic online content community is performed never by 73.3%, seldom by 16.6%, often by 3.9%, and very often by 2.2% of respondents. Dissemination

through a social network is performed never by 63.8%, seldom by 20.3%, often by 9.3%, and very often by 6.6% of respondents.

## 9.5 Software and services

### 9.5.1 Databases

The largest group of respondents (39.7%) state that they use a personal database for their research data or sources. One third (33.2%) of respondents indicate that they do not use a database. 19% of respondents say that they use both an institutional and a personal database for their research data or sources, while 8.2% exclusively use an institutional database (Figure 9.23).

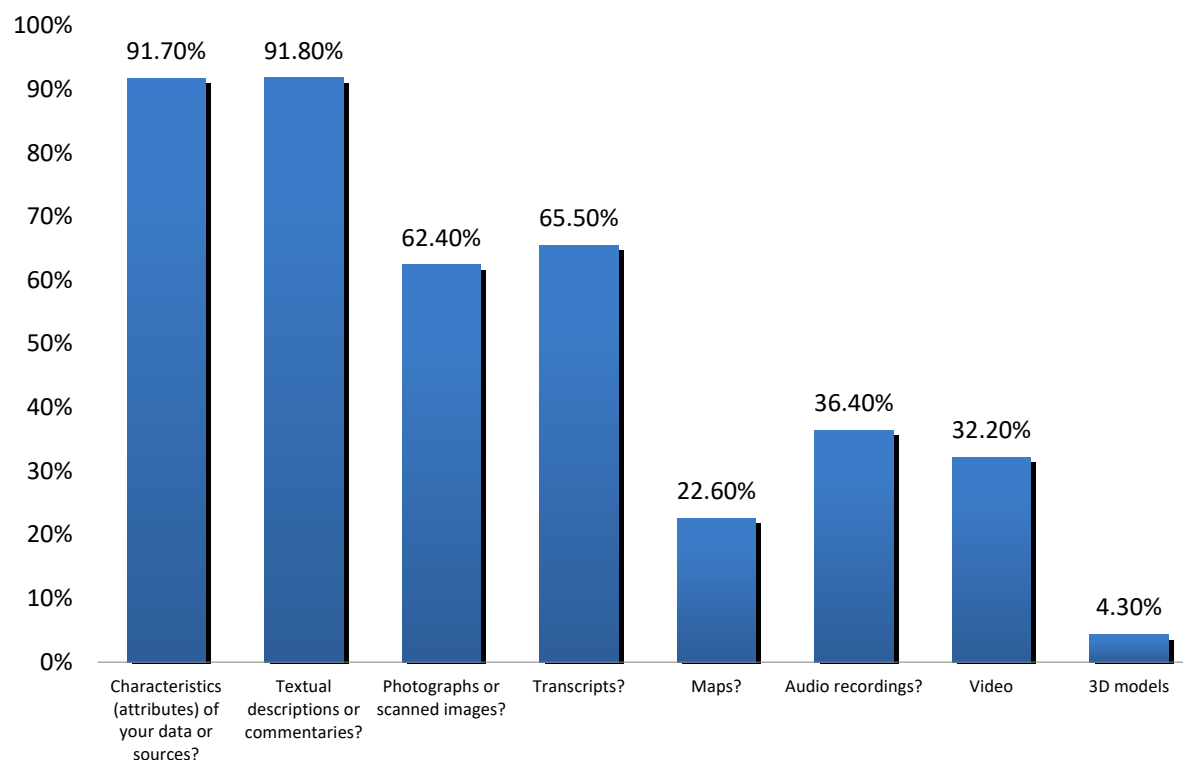


**Figure 9.23** Use of databases, Swiss dataset (N=184).

#### 9.5.1.1 Database content scope

The researchers using databases were asked in a filter question to indicate what types of objects are contained in those databases. They could choose among eight kinds of objects: (a) characteristics (attributes of data or sources), (b) textual descriptions or commentaries, (c) photographs or scanned images, (d) transcripts, (e) maps, (f) audio recordings, (g) video, and (h) 3D models. According to the answers of the researchers residing in Switzerland, their databases mainly contain textual descriptions or commentaries (91.8%) and characteristics or

attributes of their data or sources (91.7%). Databases are also used to keep and manage transcripts (65.5%), photographs or scanned images (62.4%), audio recordings (36.4%), video (32.2%), maps (22.6%) and 3D models (4.3%) (Figure 9.24).

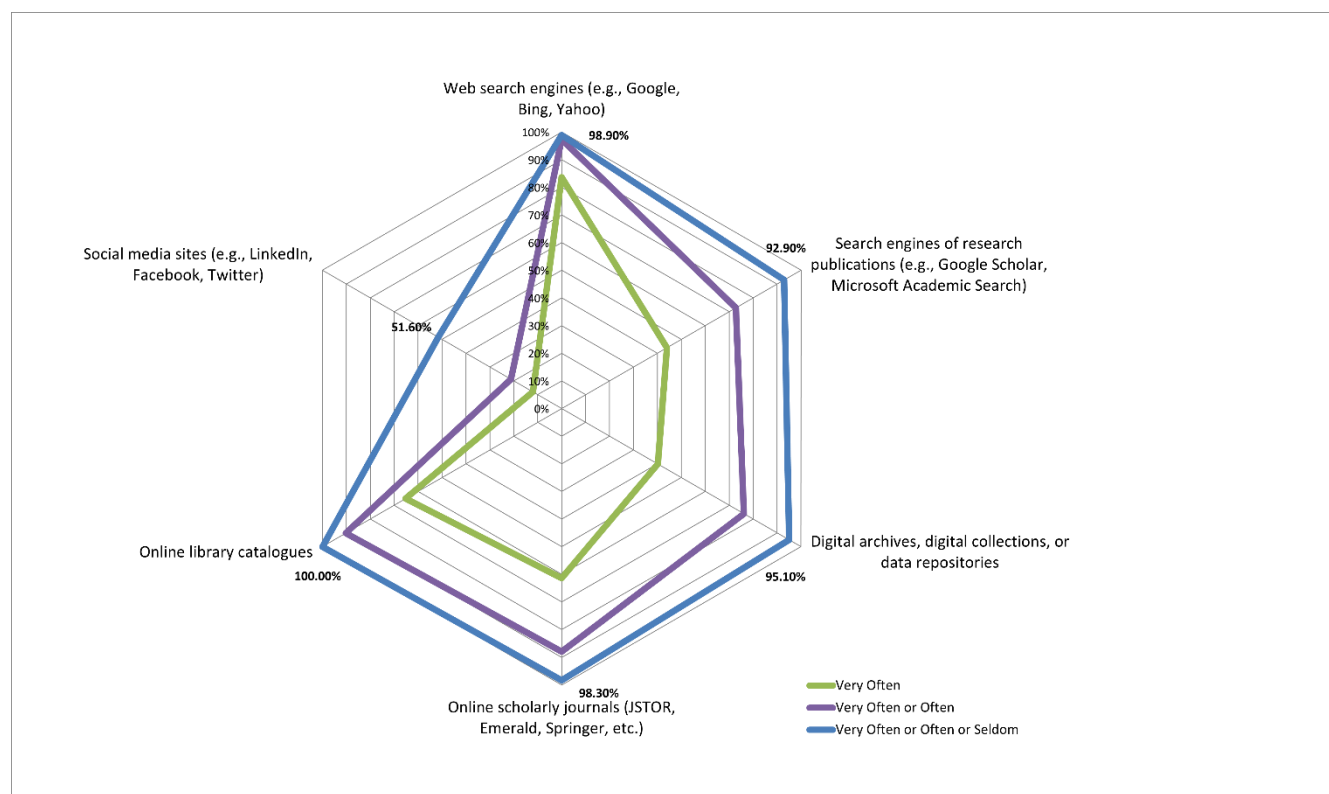


**Figure 9.24** Database contents, Swiss dataset (N=122).

### 9.5.2 Online services to access research assets

The vast majority of respondents (between 90 and 100%) use some kind of digital services for their research activities. Only the use of social media tools is not (yet) very widespread. More specifically, this question produced the following results: Most respondents (83.7%) state that they use web search engines very often or often (13.6%), while only a few researchers say that they use them seldom (1.6%) or never (1.1%). The use of search engines of research publications, such as *Google Scholar* or *Microsoft Academic Search*, is also frequent. 44% state that they use such search engines very often, 28.8% often and still 20.1% seldom.

**The vast majority of respondents are using some kind of online service for their research activities, whereas the use of social media is not (yet) very widespread.**

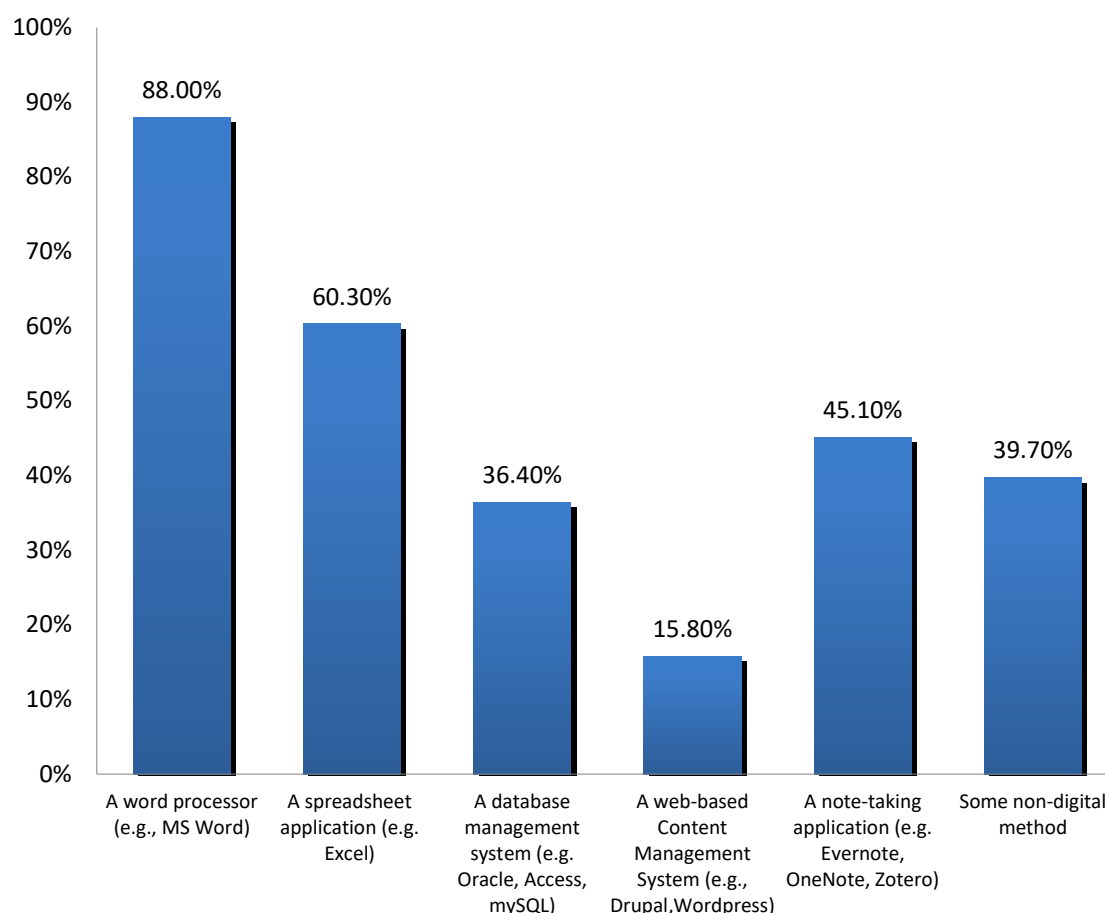


**Figure 9.25** Frequency of use of services, Swiss dataset (N=184).

Only 7.1% indicate that they never use such tools. Digital archives, digital collection or data repositories are very often used by 40.2%, while 35.9% state that they use them often, 19% indicate that they seldom use them and finally only 4.9% state that they never use such collections. The use of online scholarly journals, such as *JSTOR*, *Emerald* or *Springer* seems to be widespread, with 61.4% of respondents stating that they use these services very often. One quarter (26.6%) of respondents says that they use them often, 10.3% state that they seldom use them and 1.7% state that they never use such services. No respondents state that they never use online library catalogues, whereas 65.2% indicate that they use them very often and still 25% often. Online library catalogues are seldom used by 9.8% of respondents. Finally, social media sites seem to be less used compared to the services mentioned, as only 12% use them very often, 9.2% often and 30.4% seldom. Almost half of respondents (48.4%) never uses social media sites for research purposes (Figure 9.25).

### 9.5.3 Research asset management applications

Most researchers state that they use a word processor to store and manage their research assets (88%) and spreadsheet applications (60.3%). 45.1% indicate that they make use of a note-taking application, 36.4% of a database management system and 15.8% of a web-based content management system, while 39.7% say that they use some other non-digital methods for their research (Figure 9.26).



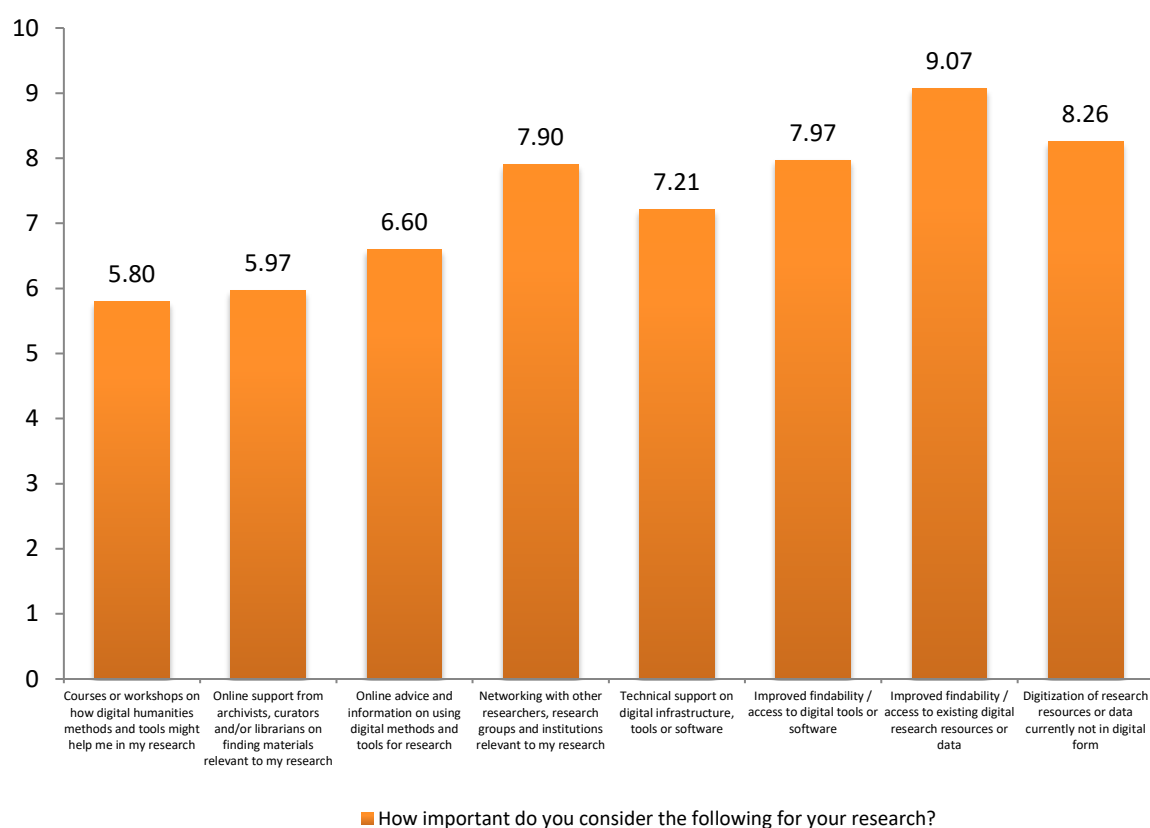
**Figure 9.26** Use of applications to store or manage research assets, Swiss dataset (N=184).

## 9.6 Assessment of researcher needs

Finally, the researchers were asked to rate the importance of a series of statements regarding their needs in a scale from 1 to 10, where 1 is the least important and 10 is the most important. All available statements were considered to be important for their research, as shown in Figure 9.27. Nevertheless, improved findability and access to existing digital research resources or data seems to be the most important according to respondents, gathering a score of 9.07 of 10. The importance of digitization of research resources or data that are not currently in digital is still rated as important (8.26 / 10) by respondents as well as the improved findability

## Respondents of the survey consider findability and access to existing digital research resources or data as most important.

/ access to digital tools or software (7.97 / 10), the networking with other researchers, research groups and institutions relevant to their research (7.9 / 10) and the technical support on digital infrastructure, tools or software (7.21 / 10). Finally, the statements that are rated with less than 7 points have to do with the importance of online advice and information on using digital methods and tools (6.6 / 10), of online support from archivists, curators and / or librarians (5.97 / 10) and of the existence of courses or workshops on how digital humanities methods and tools might be useful in research (5.8 / 10).



**Figure 9.27** Importance of needs, Swiss dataset (N=184).

## 9.7 Conclusions

Compared to the complete dataset of participants, researchers in the human sciences residing in Switzerland who responded to the survey are more often attached to a university. In Switzerland, research centres don't play a very important role for researchers in the humanities working with digital methods. The use of these methods is already widespread (90.8%). Most of respondents use digital devices to consult relevant media like articles in journals, images, maps, video, and audio. Only books are still more often used in a printed form. Resources like video, audio, images, and maps are mainly consulted on a digital device, whereas the use of textual information in an analogue or a digital form is more balanced. It seems that participating researchers in Switzerland are using both digital and printed books and journals; it, however, can't be judged whether they use analogue devices to consult research materials by preference or by lack of digital alternatives.

During their research work, humanities researchers responding to the survey in Switzerland often collaborate with others, but they don't use social media tools to communicate with others very frequently (please note that the survey was conducted in 2015). As primary sources for their work, they often rely on material outside their country of residence. The majority does neither rely on archives, special collections, or museums nor on advice from specialists curating those collections for their research. In order to organize research assets, respondents usually use keyword lists or thesauri created by themselves instead of standard products. But when it comes to organize the bibliographic management for citations, the majority uses well-known applications like *Endnote*, *Zotero*, etc. For the research process itself humanities researchers in Switzerland make use of a wide variety of methods and tools, especially of online repositories for digital resources like journals or discipline-orientated collections. Most of them are international resources, some are national based initiatives like *retro.seals.ch* for online journals or *RERO DOC* as digital library. For activities like text analysis or encoding, solutions particularly adapted for the needs of humanities researchers like *Praat*, *ANNIS2*, or the *TEI* standard are in use, whereas many of the other tools mentioned like *LaTeX*, *SQL*, *SPSS*, or *Dropbox* cover basic needs for text processing or collecting, analysing and sharing data.

Almost two thirds of researchers in the human sciences residing in Switzerland responding to the survey publish in their native language. As a consequence of the multilingual culture in Switzerland, the notion of 'native language' is ambiguous. This can be German, French and Italian, or – given the high percentage of researchers with foreign background – other languages, but mostly English and some Spanish. English as publication language seems to be the second choice for half of respondents, whereas something else than the native or the English language is rarely chosen. To disseminate their research results, they primarily use a commercial scholarly content community site, the portal or repository of their institution, an open content journal or publication or their own website or blog. Social network platforms such as *Twitter* or *Facebook*, and generic online content communities such as *YouTube* or *Flickr* are less important for this purpose.



Databases are commonly used for data management purposes by humanities researchers from Switzerland who responded to the survey. Only one out of three state that they never use such management tools. Databases are used to primarily manage metadata, textual descriptions and for images or transcripts. Depending on the type of media academics search for their work, databases only contain audio files, video, maps and – not yet often – 3D models.

Web search engines, engines for research publications, digital archives, collections or data repositories and online scholarly journals are tools that humanities researchers in Switzerland participating in the survey often use. Social media sites do not play an important role for research purposes. The most common applications to display, manage and store research results are some kind of word processor and spreadsheet application, and, to a lower extent, database management systems and note-taking applications, whereas only a few researchers use web-based content management systems to run a website. Non-digital methods are still in use by almost 40% of respondents.

Finally, humanities researchers in the Swiss dataset consider the findability and the access to existing digital research resources or data as well as the digitization of research resources or data that are not currently in digital as crucial for their work. Furthermore, access to digital infrastructure, tools or software, and to some sort of support and advice, seems to be of great importance, together with the possibility of sharing data and networking with other researchers.

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# Appendix

## Survey questionnaire

### DARIAH European survey on scholarly practices and digital needs in the human sciences

The European network of Digital Research Infrastructures for the Arts and Humanities (DARIAH-EU, <http://www.dariah.eu>) is conducting a survey to find out how researchers across Europe use digital resources, methods and tools, and what they need from digital infrastructures. Your participation to this survey will help us serve better the needs of arts and humanities researchers through the future services and activities of DARIAH-EU and its affiliated national initiatives.

There are twelve questions on digital practices and needs in the survey, followed by a small number of questions about yourself. It should take about 15 minutes of your time to complete, from beginning to end.

On completion, you may, optionally, add your email address to find out more about this work and to be included in a draw for a digital tablet.

**Thank you for taking the time to respond!**

#### 1 Where do you consult the following materials?

	On a desk-top or laptop PC	On some mobile device (tablet, smartphone etc.)	Printed, or using an analogue device
Articles in scholarly journals or conference proceedings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Archival holdings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Images	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Audio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all that apply.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 2 Do you use, or are you interested in using, digital methods or tools for your research?

Please choose **only one** of the following:

- I already use digital methods or tools
- I am interested in using digital methods or tools
- I neither use nor am interested in digital methods or tools

## 3 You stated that you use, or are interested in using, digital methods or tools for your research. For what purpose? Check all that apply.

Only answer this question if the following conditions are met:

Answer was 'I already use digital methods or tools' or 'I am interested in using digital methods or tools' at question '2 [DS01002]' (Do you use, or are you interested in using, digital methods or tools for your research?)

Please choose **all** that apply:

- To discover, collect, or create my research assets
- To organize, structure, or manage my research assets
- To annotate, enrich, or curate my research assets
- To process, analyze, or visualize my research assets
- To publish, disseminate, or communicate about my research

## 4 You stated that you use, or are interested in using, digital methods or tools for your research. Could you identify these digital methods or tools?

Only answer this question if the following conditions are met:

Answer was 'I already use digital methods or tools' or 'I am interested in using digital methods or tools' at question '2 [DS01002]' (Do you use, or are you interested in using, digital methods or tools for your research?)

Please write your answer here:

## 5 How often do you perform the following activities as you work on your research?

Please choose the appropriate response for each item:

	Never	Seldom	Often	Very often
I visit historical archives, special collections or museums				
I seek information or advice from archivists, subject librarians or collection curators				
I access primary sources outside my country of residence				
I use a standard keyword list or thesaurus to organize my research assets				
I use my own keyword list or thesaurus to organize my research assets				
I use a bibliographic management application (e.g. Endnote, Zotero etc.) to manage my citations				
I collaborate with others on a research project				
I communicate with others in a social media site or discussion forum				

## 6 In which language do you primarily publish?

All your answers must be different and you must rank in order.

Please number each box in order of preference from 1 to 3

Please choose no more than 3 items.

- In my native language
- In English
- In some other language

## 7 How often do you disseminate your work through...

Please choose the appropriate response for each item:

	Never	Seldom	Often	Very often
...an open content journal or publication?				
...the portal or repository of your institution?				
...your own website or blog?				
...a scholarly community site (e.g., academia.edu, ResearchGate)?				
...a generic online content community (e. g. Slideshare, Flickr, Youtube)?				
...a social network (e. g. Google+, Twitter, Facebook)?				



## 8 Do you use a database to manage your research data or sources?

Please choose **only one** of the following:

- No
- Yes, I use a personal database for my research data or sources
- Yes, I use an institutional database for my research data or sources
- Yes, I use both a personal and an institutional database for my research data or sources

## 9 You stated that you use a database to manage your research data or sources. Does this database contain...

Only answer this question if the following conditions are met:

Answer was 'Yes, I use a personal database for my research data or sources' or 'Yes, I use an institutional database for my research data or sources' or 'Yes, I use both a personal and an institutional database for my research data or sources' at question '8 [DS01010]' (Do you use a database to manage your research data or sources?)

Please choose the appropriate response for each item:

	Yes	No
Characteristics (attributes) of your data or sources?		
Textual descriptions or commentaries?		
Photographs or scanned images?		
Transcripts?		
Maps?		
Audio recordings?		
Video?		
3D models?		
Select all that apply.		

## 10 How often do you use the following services for research purposes?

Please choose the appropriate response for each item:

	Never	Seldom	Often	Very often
Web search engines (e.g., Google, Bing, Yahoo)				
Search engines of research publications (e.g., Google Scholar, Microsoft Academic Search)				
Digital archives, digital collections, or data repositories				

	Never	Seldom	Often	Very of- ten
Online scholarly journals (JSTOR, Emerald, Springer, etc.)				
Online library catalogues				
Social media sites (e.g., LinkedIn, Facebook, Twitter)				

## 11 Which applications do you use to store and manage your research assets? Select all that apply.

Please choose **all** that apply:

- A word processor (e.g., MS Word)
- A spreadsheet application (e.g. Excel)
- A database management system (e.g. Oracle, Access, mySQL)
- A web-based Content Management System (e.g., Drupal, Wordpress)
- A note-taking application (e.g. Evernote, OneNote, Zotero)
- Some non-digital method
- Other:

## 12 How important do you consider the following for your research? (1= Least important, 10= Most important)

Please choose the appropriate response for each item:

	1	2	3	4	5	6	7	8	9	10
Improved findability / access to existing digital research resources or data										
Digitization of research resources or data currently not in digital form										
Improved findability / access to digital tools or software										
Online advice and information on using digital methods and tools for research										
Online support from archivists, curators and/or librarians on finding materials relevant to my research										
Courses or workshops on how digital humanities methods and tools might help me in my research										

1 2 3 4 5 6 7 8 9 10

Networking with other researchers, research groups and institutions relevant to my research

Technical support on digital infrastructure, tools or software

## 13 In which discipline do you work primarily?

Choose one of the following answers

Please choose **only one** of the following:

- Anthropology or Ethnology
- Archaeology
- Art, History of Art ou visual studies
- Classics
- Drama, theatre, or performance studies
- Ethnic, gender and cultural studies
- Folklore
- History
- Language and literature
- Linguistics
- Medieval studies
- Museum studies
- Music
- Philosophy
- Theology or religious studies
- Other

## 14 Identify your more specific field(s) or area(s) of research.

Please write your answer here:

## 15 How long have you been working on research?

Choose one of the following answers

Please choose **only one** of the following:

- Less than 1 year
- Between 1-3 years
- Between 3-10 years
- More than 10 years

## 16 You are attached to...

Choose one of the following answers

Please choose **only one** of the following:

- a university
- a research centre
- a government department or agency
- a private company
- none of the above - I am not attached to an institution
- Other

## 17 Your professional status:

Choose one of the following answers

Please choose **only one** of the following:

- Full or associate professor, reader, or senior researcher
- Assistant professor, or lecturer
- Post-doctoral researcher, adjunct professor or sessional instructor
- Junior or contract-based researcher
- PhD student
- Masters or equivalent student
- Amateur or independent researcher
- Other

## 18 Your country of residence: \*

Choose one of the following answers

Please choose **only one** of the following:

Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Republic	Denmark	Estonia
Finland	France	Germany	Greece
Hungary	Ireland	Italy	Latvia
Lithuania	Luxembourg	Malta	Netherlands
Poland	Portugal	Romania	Slovakia
Slovenia	Spain	Sweden	United Kingdom
Afghanistan	Albania	Algeria	Andorra
Angola	Antigua & Deps	Argentina	Armenia
Australia	Azerbaijan	Bahamas	Bahrain
Bangladesh	Barbados	Belarus	Belize
Benin	Bhutan	Bolivia	Bosnia Herzegovina

Botswana	Brazil	Brunei	Burkina
Burundi	Cambodia	Cameroon	Canada
Cape Verde	Central African Rep	Chad	Chile
China	Colombia	Comoros	Congo
Congo (Democratic Republic of)	Costa Rica	Cuba	Djibouti
Dominica	Dominican Republic	East Timor	Ecuador
Egypt	El Salvador	Equatorial Guinea	Eritrea
Ethiopia	Fiji	Gabon	Gambia
Georgia	Ghana	Grenada	Guatemala
Guinea	Guinea-Bissau	Guyana	Haiti
Honduras	Iceland	India	Indonesia
Iran	Iraq	Israel	Ivory Coast
Jamaica	Japan	Jordan	Kazakhstan
Kenya	Kiribati	Korea North	Korea South
Kosovo	Kuwait	Kyrgyzstan	Laos
Lebanon	Lesotho	Liberia	Libya
Liechtenstein	Macedonia (FYR of)	Madagascar	Malawi
Malaysia	Maldives	Mali	Marshall Islands
Mauritania	Mauritius	Mexico	Micronesia
Moldova	Monaco	Mongolia	Montenegro
Morocco	Mozambique	Myanmar	Namibia
Nauru	Nepal	New Zealand	Nicaragua
Niger	Nigeria	Norway	Oman
Pakistan	Palau	Panama	Papua New Guinea
Paraguay	Peru	Philippines	Qatar
Russian Federation	Rwanda	St Kitts & Nevis	St Lucia
Saint Vincent & the Grenadines	Samoa	San Marino	Sao Tome & Principe
Saudi Arabia	Senegal	Serbia	Seychelles
Sierra Leone	Singapore	Solomon Islands	Somalia
South Africa	South Sudan	Sri Lanka	Sudan
Suriname	Swaziland	Switzerland	Syria
Taiwan	Tajikistan	Tanzania	Thailand
Togo	Tonga	Trinidad & Tobago	Tunisia

Turkey	Turkmenistan	Tuvalu	Uganda
Ukraine	United Arab Emirates	United States	Uruguay
Uzbekistan	Vanuatu	Vatican City	Venezuela
Vietnam	Yemen	Zambia	Zimbabwe
Other			

## 19 Your age:

Choose one of the following answers

Please choose **only one** of the following:

- 18-25 years
- 26-35 years
- 36-50 years
- 51-65 years
- Over 65 years

## 20 Your gender:

Please choose **only one** of the following:

- Female
- Male

## 21 Coda

Thank you for your response! This concludes our questionnaire. Your personal data are strictly confidential.

If you wish to receive future communications about research and education activities and plans in DARIAH, and to be included for a draw for a digital tablet, please type your email address below:

Please write your answer here:

We are most grateful for your participation. Your response will help us serve better the needs of arts and humanities researchers through the future services and activities of DARIAH-EU and its affiliated national initiatives.

You will find more information on the European network of Digital Research Infrastructure for the Arts and Humanities (DARIAH-EU) at: <http://www.dariah.eu>.

Submit your survey.

Thank you for completing this survey.

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<https://doi.org/10.5281/zenodo.6583037>. [report]

