# Gathering evidence: Current ICT use and future needs for arts and humanities researchers

Arts & Humanities Research Council

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The project team is based at the University of Bristol's Institute for Learning and Research Technology (ILRT[1]) and Department of Anthropology and Archaeology[2]. The team comprised:

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As well as having a broad overview of innovative use of ICT across the HE sector, ILRT teams work locally and nationally with lecturers, researchers and students to develop and evaluate practice. In the arts and humanities this includes developments such as Practice as Research in Performance (PARIP[3]), a Web database research tool; a performing arts gateway (Backstage[4]) and FILTER[5]. The ILRT also worked closely with the Department of Archaeology and Anthropology in an AHRC-funded project to digitise the personal papers of Isambard Kingdom Brunel to create an online resource. Its most recent collaboration is with the University's Department of Drama in a series of workshops under the AHRC's eScience initiative, exploring the use of grid and semantic web technologies in performing arts research. The project was able to access the communications network provided by BIRTHA (the Bristol Institute for Research in the Arts and Humanities) and drew contributions from Bristol academics (amongst others) as members of its steering group.

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[1] Institute for Learning and Research Techology (ILRT). <http://www.ilrt.bristol.ac.uk/>

[2] Department of Archaeology and Anthropology. <http://www.bristol.ac.uk/archanth/>

[3] PARIP (Practice as Research and Performance). <http://www.bristol.ac.uk/parip/>

[4] Backstage. <http://www.backstage.ac.uk/>

[5] FILTER (Focusing Images for Learning and Teaching: an Enriched Resource). <http://www.filter.ac.uk/>

# EXECUTIVE SUMMARY

"Gathering Evidence: Current ICT Use and Future Needs for Arts and Humanities Researchers" is a one-year project under the knowledge-gathering strand of the ARHC's ICT in the Arts and Humanities Research Programme. Based at the University of Bristol, the project team proposed a large online survey; a small number of case studies and comparison with findings from previous studies. The target audience comprised arts and humanities researchers— including postgraduate students—in UK higher education. The project's aims were to: help understand researchers' current ICT use and capability; identify trends and gaps; highlight potential future needs and consider what, if any, added value ICT brings to the quality of research in the arts and humanities.

The project team encountered difficulties in assessing the potential population and in obtaining contact details for the target audience. Initial response to the online survey launched in December 2005 was poor. However, by March 2006 we had received 449 valid responses (from a total response of 464). 25% of respondents are post-graduate students, the majority at doctoral level. Nine case study interviews were undertaken, drawn from survey respondents, and provided the opportunity to explore some responses in greater depth.

Survey respondents represent experienced researchers: nearly two-thirds have more than 11 years' research experience (over a third have more than 20 years). There is a wide spread of subject domains and respondents come from 73 different institutions. Just under a quarter of respondents identify with the Modern Languages and Linguistics subject domain, followed by English. The lowest number of respondents identify with Music and the Performing Arts and Archaeology and Anthropology.

The majority of respondents spend between a quarter and half of their time in research (students spend 75% or more of their time in research). Researchers are likely to be working on more than one current project: over half of respondents are working on two, and 33% on three projects simultaneously. There is a high proportion of researchers working alone and unfunded.

Whilst it is difficult to know how representative this self-selecting sample of researchers is of the arts and humanities community at large, we feel that our findings provide important information and are in broad agreement with other similar surveys examined.

Primary texts are the most important resource for all disciplines and non-electronic resources are felt to be more important than electronic ones. Electronic texts are the most frequent resource being created; and the majority of respondents are creating multiple resources. The data created are most frequently used as a teaching resource, but are also likely to be made available via the web or within the department. 20% of respondents report doing nothing with their research outputs. Conventional publishing channels are the most frequent means for disseminating research results.

57% of respondents report that ICT has brought significant change to their research. Younger respondents have not experienced such a high degree of change: a possible hypothesis is that they are already familiar with ICT and/or have not had long enough in research to experience any change. Most reported changes relate to speed of finding resources, improved access to existing resources, and access to a wider range of resources. Less change is reported for research productivity, quality of research or collaboration (however, later findings suggest that there is a desire for increasing collaboration especially at an international level). Web 2.0 technologies and tools (including versions of social software) may help build on the trend to use personal contacts for support. Many respondents report changes in ICT use in teaching and comment on the relationship between ICT use in teaching and research, including an emphasis on support for ICT in teaching at institutional level (in some cases to the perceived detriment to research support).

The majority (56%) class themselves as having an intermediate (rather than basic or experienced) skills level. The low level of knowledge about some support and advice services or advanced research ideas such as eResearch is possibly linked to the prevalence of the non-funded sole researcher status and reliance on word-of-mouth information from friends and colleagues and the possibility that they are not receiving up to date information by any other means. There is also evidence that relevant, 'just in time' information and support are more useful than generic courses or advice/tools published with a 'blanket' approach.

Most respondents keep up to date with ICT developments via personal contacts, from the very unstructured (like 'happenstance') to meetings with colleagues, and email and discussion lists. Journals and conferences are not reported as of such importance for this purpose. The relatively low use of email lists to keep up to date with ICT developments and

low awareness of national services pose a problem for the latter; when these services are known and used they are much appreciated. Sustainability of research resources is identified as a problem, particularly when material is deposited/published locally rather than nationally.

52% of respondents identify gaps in ICT provision. ICT training and technical assistance at both institutional and department/faculty levels appear good (but courses, though available, are not always what is wanted). Subject-specific advice and support is perceived as low. There are certain pockets of excellence but this leaves many feeling unsupported. Most-used sources of informal information/advice are dominated by web search engines like Google, colleagues and contacts both within and without respondents' department. The use of images (and other digitised material such as sound) appear problematic at several levels, including difficulties in access, standards, storage, manipulation/analysis, copyright issues and cost of re-use (this latter particularly for images).

Turning to future needs, digitisation of primary resources is seen as more important than access tools for all disciplines. However, as available digitised material increases, access tools will be important. Those with basic skills prioritise access to digitisation of primary resources. Several respondents identify the need for digitisation of more journals and better access to online journals. When asked if they have specific plans for expanding their use of ICT in their research in the future, areas most often mentioned are developing websites, databases, and developing skills (which has implications for training needs).

Respondents were also asked to supply an ICT 'wish list' to include up to three ideas: top of this are requests for digitisation and access to more primary materials; more support and training and better or updated hardware and software.

Our findings to some extent reflect those of a recent survey by the British Academy (of humanities and social science researchers' ICT use). We also compare our findings with two previous studies carried out in 1992 and 1985, although the face of ICT has changed considerably and both studies focused on teaching rather than research.

Within the project resources and timescale, we were unable to explore the views of those in institutions and national agencies with responsibility for research strategy and ICT support for research; we feel it would be helpful to do this to complement researchers' perspectives elicited via our survey.

Our data is very rich and we feel we have only been able to provide basic analysis and interpretation. Analysis of free-text responses in particular could yield further valuable information, as could a more detailed analysis of the post-graduate population.

**Summary of recommendations:**
1. Provide one or more mechanisms to aid communication, awareness-raising and collaboration (especially for sole/unfunded researchers), including exploration of the use of Web 2.0 technologies.
2. Create a single, readily-usable source of information about the research population and mechanisms for contact.
3. More detailed study of some aspects of our study, particularly in the area of training and support, and closer working with other organisations such as JISC to engage and support institutions in their infrastructure and support structures for arts and humanities research.
4. Discover more precise details of specialised training and skills acquirement needs for different disciplines.
5. Investigate whether problems identified particularly with access, storage and re-use of images and sound can be addressed through national or regional consortia or services.

# 1. INTRODUCTION

## BACKGROUND TO THE RESEARCH

The Arts and Humanities Research Council (AHRC) supports research across a vast subject domain, from Archaeology and Classics, through Linguistics and Philosophy, to the Visual and Performing Arts. The ICT in the Arts and Humanities Research Programme was launched by the AHRC in October 2003. Its purpose is to "... develop, promote and monitor the Council's ICT strategy and to build capacity nation-wide in the use of ICT for arts and humanities research". In a one-off programme of funding launched in 2004, proposals for ICT strategy projects were invited in two categories: knowledge gathering projects intended directly to inform a Fundamental Strategic Review to be conducted in the latter half of 2006, and resource development projects seeking to build tools and resources of broad relevance across the range of the AHRC's academic disciplines.

"Gathering Evidence: Current ICT Use and Future Needs for Arts and Humanities Researchers" received a grant of £39,148 under the knowledge-gathering strand to support a part-time research team for one year from August 2005. Based at the University of Bristol, the project team proposed a large online survey; a small number of case studies and comparison with findings from previous studies. The target audience comprised arts and humanities researchers— including postgraduate students—in UK higher education. The project's aims were to: help understand researchers' current ICT use and capability; identify trends and gaps; highlight potential future needs and consider what, if any, added value ICT brings to the quality of research in the arts and humanities.

## METHODOLOGY

The project was planned in four main phases, with the first phase concerned with the design, piloting and delivery of an online survey. The second phase saw initial data analysis and identification and conduct of case study interviews. The third phase involved further analysis of survey and case study data and a review of other studies, leading to the final report and dissemination phase. A no-cost extension of the project (to the end of August 2006) was agreed with the AHRC to take account of delay in data analysis owing to initial poor survey response.

The project timetable is provided in Appendix A. Appendices B-F provide examples of instruments; fuller presentation of survey and case study data and reference to findings from related research projects.

## Project management
A steering group was established in August 2005, with membership drawn from across the arts and humanities:

- Sheila Anderson, Director, Arts and Humanities Data Service (AHDS[6]), King's College London
- Professor David Cowling, Professor of French, University of Durham
- Jayne Burgess, Service Manager, Artifact[7], Manchester Metropolitan University
- Dr Shelley Hales, Classics and Ancient History, University of Bristol
- Dr John Irving, Head of Music, University of Bristol
- Dr Jonathan Gibson, English Department, Royal Holloway University of London
- Dr Angela Piccini, PARIP, Department of Drama, University of Bristol

The intention was for the group to contribute virtually via email and to meet physically at three key milestones in the project lifetime. In practice the third and final meeting planned for June 2006 had to be cancelled because of diary difficulties. However, group members made valuable virtual contributions to all phases.

## Survey design
The survey was intended to discover the current level and nature of ICT use (in terms of access, use and creation of resources and tools) and the extent of variation, if any, between subject domains. We also aimed to establish the impact of ICT in changing the way research is carried out and disseminated; to identify gaps in current provision and to ask researchers about their intended use of ICT for the future. To achieve continuity over time, our survey was to ask similar questions to those of a 1992[8] study which in turn was based on a study of 1985[9] (making allowance for the changes in the use of computers since 1985, when word processing was an advanced 'state of the art' and the Internet was unheard of). To avoid duplication of effort, the survey was also developed with reference to the findings of the British Academy survey of research in the humanities and social sciences (2005)[10] and other relevant major surveys.

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[6] Arts and Humanities Data Service (AHDS). <http://www.ahds.ac.uk/>

[7] Artifact. Now part of Intute: Arts and Humanities. <http://www.intute.ac.uk/artsandhumanities>

[8] Mullings, C. (1992) *Computers and Communication in the Arts and Humanities: A Survey of Use.* Oxford: Office for Humanities Communication Publications. No.1.

[9] Katzen, M. (1985) *Technology and Communication in the Humanities: Training and services in Universities and Polytechnics in the UK.* London: The British Library. Library and Information Research Report no.32

[10] The British Academy, *E-resources for Research in the Humanities and Social Sciences: A British Academy Policy Review*, April 2005

The survey went through a number of iterative design stages on paper to achieve optimum length and ease of response. Version 1 of the survey was piloted in face-to-face questioning with eight members of the University of Bristol's Arts Faculty. This allowed for in-depth feedback and the trialling of terminology to ensure as far as possible its relevance for all arts and humanities disciplines. Versions 2 and 3 of the survey went through further refinement in consultation with the steering group before version 3 was piloted in online form within ILRT and the steering group. We also conferred with the AHRC ICT programme team, the ICT Methods Network[11] and researchers from other ICT programme projects RePAH[12] and LAIRAH[13], to share our question set and ensure inclusion of any topics that the Methods Network in particular wished covered.

The final version of the online survey comprised ten main sections and was launched in December 2005 (see Appendix B).

### Survey delivery and analysis

Our target audience was to be academics and students engaged in research in UK higher education. A number of subject-specific email lists at JISCmail[14] were identified and favoured over more generic lists as most likely to elicit responses from the target audience.

The survey was launched on 7th December 2005 with an original closing date set for mid-January 2006. Following an initial poor response (27 responses by early January), a number of additional promotional activities were introduced. These included:

- postings by steering group members directly to mailing lists in their own subject areas
- sending reminders to the original JISCmail lists
- key arts and humanities web-based services hosting a link to the online survey
- asking creative industries researchers recommended by the AHRC and members of the AHRC Research Peer Review Panel in each major discipline to disseminate further
- requesting heads of department lists from relevant Higher Education Academy network centres

By the end of March 2006, we had 449 valid responses from a total response of 464.

The online survey was delivered via the Bristol Online Survey (BOS)[15] tool developed by ILRT and available for use by all higher education institutions by license. BOS provides automatic frequency outputs in numeric and graphic form. These are useful in providing an overview of the data, but for detailed analysis and multivariate views of the data we used both MS-Excel and SPSS. The data from BOS were first exported to an MS-Excel spreadsheet. After some analysis and data manipulation, the data were then imported to SPSS (v14) which was subsequently used as the primary data analysis tool. Student data (representing 25% of the total response population) were analysed separately. This did not reveal any significant differences other than obvious ones of age, research experience and so on, so the majority of findings presented here are for the whole valid population including students (unless otherwise stated).

### Case studies

Initial survey data analysis and advice from the steering group determined some broad categories for case study selection. These included:

- unfunded researchers
- students
- those claiming only basic ICT skills
- those who claim not to keep up to date with ICT developments relating to their research
- those who perceive little or no change from using ICT in their research
- creators of multiple digital resources

We emailed individuals on a long-list of 29 respondents covering the above categories (and who had expressed a willingness to contribute further to the project in their survey responses). Nine case study interviews were conducted by telephone in July 2006 based on a broad semi-structured interview schedule (see Appendix D). The resulting case studies (summarised in Appendix E) provide a richer picture and data otherwise difficult to obtain by a survey alone. The exploration and 'unpicking' of issues in interview led to new or expanded understandings of some of the survey responses, and these are cited at appropriate points in our discussion of findings. The interviews were also used to obtain specific examples of resources used and created, and of research dissemination routes.

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[11] AHRC ICT Methods Network. <http://www.methodsnetwork.ac.uk/>

[12] RePAH (Research Portals in the Arts and Humanities), A User Analysis Project. <http://repah.dmu.ac.uk/>

[13] LAIRAH (Log Analysis of Internet Resources in the Arts and Humanities). <http://www.ucl.ac.uk/slais/LAIRAH/>

[14] JISCMail. Host of free electronic discussion lists for the UK higher education and research community. <http://www.jiscmail.ac.uk/>

[15] BOS. (Bristol Online Survey). <http://www.survey.bristol.ac.uk/>

## PROFILE OF RESPONDENTS

There were 449 usable responses to the online survey from a total return of 464.

There is an almost even split between male (49%) and female (51%) respondents when students are excluded; when students are considered separately, a higher proportion (68%) are female (see Appendix C, Table 1).

Most of the respondents are in the 25-35 age range (34%), with roughly a fifth falling in the 36-45 and 46-55 range. 9% are under 25, and only 2% over 65 (see Appendix C, Table 2).

Unsurprisingly, a greater proportion of the student population (78%) is 35 years old or less.

A quarter of the total responses represent postgraduate students. Of the remainder, over half are lecturers and a quarter professors. Those who declare themselves 'specialists' include practitioners such as architects, curators or producers. The 'other' category includes those who spanned more than one of the other roles, the retired or the self-employed. Of the 25% response from students, the majority are studying at doctoral level, although some Masters students also feature. (Appendix C, Table 3).

Excluding students, this is an experienced sample, with 59% having eleven or more years' research experience. Over a third of respondents (35%) have more than 20 years' research experience. However, 48% have spent five years or less working in their current department (the student figure here is 96%); 31% (non-students) have worked in their current department for 11 years or more. Length of time in research, as might be expected, increases according to declared age band (Appendix C, Tables 4 and 5, show figures for the total population).

Overall, survey respondents represent a wide spread across subject domains and 73 different institutions. We asked respondents to identify with one of the subject domains defined by the AHRC[16,17]. The majority identify with the Modern Languages and Linguistics domain (23%) followed by English Language and Literature (17%) and History (15%) (see Appendix C Table 6). The lowest number of respondents identify with Music and the Performing Arts and Archaeology and Anthropology. The majority of students are from English Language and Literature (25%), Modern Languages, History and Philosophy.

The subject domain distribution of our survey is likely to be a reflection of the number and size of departments across the country; for example, there are more modern language departments than music or archaeology departments, and they are likely to be larger, with more staff members, since modern languages encompasses a number of languages and related disciplines. However, as described elsewhere in this report, base data on size of department and number of active researchers were difficult to access easily without extracting HEFCE (and HERO and HESA) figures institution by institution. This difficulty was mentioned by other researchers with whom we were in contact and was also aired at the DRHA conference in a session on using digital resources[18].

As well as the profiles listed in the methodology section above, case studies also cover a good spread of discipline (although this was not the main criterion for selection) and broad coverage of sex, age, research experience, region and funding. Subject domains represented in the nine case studies include:

- Visual Arts and Media (2)
- English Language and Literature
- History (Medieval and Modern) (2)
- Modern Languages and Linguistics (2)
- Archaeology and Anthropology
- Music

The majority of case studies are lecturers/senior lecturers and professors, with one 'specialist'. No students were available for case study interviews.

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[16] AHRC Subject Coverage
<http://www.ahrc.ac.uk/about/subject_coverage.asp>

[17] NOTE: For this survey we excluded the subject domain including Librarianship, Information and Museum Studies.

[18] DRHA (Digital Resources for the Humanities and Arts 2006 conference) <http://www.dartington.ac.uk/drha06/index.asp>

# 2. PRESENTATION OF FINDINGS

## CHARACTERISTICS OF RESEARCH

Survey findings and case studies suggest that research in the arts and humanities is characterised by a high proportion of sole researchers and of unfunded research. Lecturers and professors are more likely to have several projects in hand at any one time. The majority of our respondents spend a quarter to half of their time on research (for over half of students, the proportion is unsurprisingly over three quarters of their time). Appendix C, Table 7 shows figures for the full population.

The survey asked respondents for details of up to three of their current projects. A high proportion (61%) identify themselves as sole researchers on 'project 1', although students inflate this figure. A similar pattern emerges across all three projects. Unsurprisingly 73% of PhD students and 62% of Masters students are undertaking research on their own. Collaborations are with academics in their own departments. Working with academics in the discipline (rather than own department or faculty) is more likely for lecturers and more senior staff, with the converse true not only for students but also for research assistants (see Appendix C, Table 9). One case study expands on this: "I'm a lone scholar. Although researchers may work in clusters in order to get grants, attract research students, people generally do their own stuff" (Lecturer, Modern Languages and Literature). Very few people are working with technologists, computing scientists or industry contacts.

Our data give some support to the view that the 'lab-based' disciplines—for example archaeology, music, the performing arts and visual arts and media—collaborate more widely than those in the traditional humanities subject domains (see Appendix C, Table 10).

An analysis of who is working on projects cross-tabulated with funding source (excluding students), shows that the majority (64%) of sole researchers are undertaking research which has no specific funding stream. This proportion is higher for those referring to more than one current project (see Appendix C, Tables 11-13). Those whose research is most likely to be fully funded are students, or those working collaboratively within their discipline or on interdisciplinary projects. This latter point holds true for all three projects mentioned.

An analysis by subject domain, aggregating data provided for all three projects and excluding students (as this complicates the funding situation), indicates that Archaeology and Anthropology has the lowest level of unfunded research (11 out of 44 projects), followed by Visual Arts and Media. Classics and Ancient History has the highest (50 out of 71 projects) (see Appendix C, Table 14).

## CURRENT USE OF ICT

### Using resources for research

Our survey respondents see primary 'texts' as the most important resource for research across all disciplines. 97% of respondents rate non-digital primary resources as 'important' or 'very important' (see Table A below):

| Resource | Not important | Slightly important | Important | Very important |
|---|---|---|---|---|
| Primary texts | 0 | 3 | 7 | 90 |
| Secondary texts | 3 | 9 | 22 | 66 |
| Archives | 19 | 25 | 20 | 36 |
| Catalogues | 11 | 22 | 34 | 33 |
| Images | 35 | 21 | 22 | 22 |
| Artefacts | 48 | 20 | 14 | 18 |
| Music | 64 | 18 | 9 | 9 |
| Maps | 58 | 23 | 12 | 7 |

Table A: How important are these non-electronic resources for your research (valid %)

Primary texts are also important in digital form, with 55% of respondents rating these as 'very important' (80% accord these the two highest levels of importance), whilst catalogues also feature strongly (see Table B below):

| Resource | Not important | Slightly important | Important | Very important |
|---|---|---|---|---|
| Primary texts | 7 | 17 | 21 | 55 |
| Secondary texts | 11 | 20 | 30 | 39 |
| Archives | 25 | 27 | 21 | 27 |
| Catalogues | 7 | 18 | 25 | 50 |
| Databases | 17 | 16 | 24 | 43 |
| Images | 40 | 25 | 21 | 14 |
| 21.5 | 48 | 20 | 14 | 18 |
| Music | 69 | 15 | 7 | 9 |
| Maps | 62 | 19 | 12 | 7 |
| Multimedia | 54 | 18 | 14 | 14 |
| Analysis tools | 46 | 21 | 14 | 19 |
| Modelling | 79 | 9 | 4 | 7 |
| Geospatial data | 86 | 6 | 3 | 5 |

Table B: How important are these electronic resources for your research (valid %)

There are few surprises in analyses of resource importance by discipline, with images most important for the visual arts and media, archaeologists and English scholars and maps being important for archaeologists and historians. Traditional archives are most important to historians and more so than digital

archives, although the latter are more important to historians than to other disciplines. In several instances many disciplines favoured non-electronic over electronic resources (see Appendix C, Table 15).

One case study highlighted that proximity to a major holding library with significant subject-related collections both precluded the need to use digital resources and had the added advantage of providing the enjoyment of browsing through the stacks and using books: "I don't ever want to wipe out the need for going to the library, browsing the stacks. Serendipity is part of the process of discovery in research, especially of earlier texts. Some may not have been recently catalogued and therefore not found in an online search" (Modern Languages and Linguistics).

Non-digital images are more important than digital. This may in part reflect difficulties encountered with image search/retrieval and manipulation tools or issues relating to copyright and re-use. However, some researchers may find the original image more important because their analysis focuses on 'materiality' and the physical form rather than 'content'.

Electronic databases are important to all disciplines, particularly archaeologists and visual arts scholars, and least important to philosophers. Similar patterns emerge in the importance of modelling tools, analysis tools and multimedia. Other studies referring to discipline differences in the use of resources are mentioned in Appendix F.

### Creating resources
Respondents are not only using digital resources to some extent in their research but are also creating digital resources. The most important finding here is that many respondents are creating up to six or seven different types of digital resource: "The project is to make an electronic database of photographs and etchings. I am using a digital camera and scanners ... an Access database and text files in XmetaL will link to the scanned images and feed into the website" (Professor of Art History). Appendix C, Table 16 shows the full range of resource creation categories about which we sought information.

Three quarters of respondents are creating eTexts, with slightly fewer creating databases/datasets and creating or maintaining websites. Very few (only 27 mentions) are creating software or tools and the majority of these are in music and the performing arts. Even fewer respondents reported re-using or re-packaging products. Historians claim the highest proportion of database creation and they and modern languages researchers are most likely to be scanning material and creating catalogues. As mentioned previously, the higher number of responses from English, History and Modern

Languages domains has some influence on these findings. Unsurprisingly, Archaeology and the Visual Arts show the highest level of image creation. Modern languages scholars are creating more sound-based resources than researchers in music (see Appendix C, Table 16).

There does not appear to be any meaningful link between the *types* of electronic resource being created and the ICT skills level claimed by the researcher, although there does seem to be a link between reported high skills levels and the *fact* of creating resources (see Capability, below).

Case studies allowed for more in-depth exploration of resources used and created and showed that voice recordings, videos and images are used and created across many disciplines (see Appendix E).

### Dissemination of research results
Conventional publishing channels and conference papers or presentations are by far the most common dissemination routes for respondents' research results (see Appendix C, Tables 8 and 17). A few people report dissemination mechanisms such as exhibitions, performances and recordings. Departmental websites are also widely used (use of personal and project websites is less common). However, one respondent highlights potential difficulties with institutional forms of dissemination: "Conventional channels [are] more important and scholarly in my field than electronic databases of primary research held on the university website, which I object to on the grounds of the uncertainties about peer review assessment, copyright issues (what happens if I leave the institution?) aesthetics and readability" (Professor of English).

The most frequently reported use of *data* resulting from research is as a teaching resource. This is perhaps unsurprising as more than two thirds of non-student respondents to this section of the survey are lecturers, readers and professors. Overall, little research output appears to be deposited in local or national archives, electronic or otherwise. Non-funded researchers tend to make more use of local archives whilst fully-funded researchers make more use of national or international archives (see Appendix C, Table 17). A fifth of respondents claim not to do anything with the data or resources they create (especially true for non-funded researchers), perhaps adding to fellow researchers' frustrations over the continuing lack of primary resources accessible in digital form.

Our data do not show any strong correlations between dissemination 'habits' and funding. Trends reflect the numbers of people in each category (ie a higher proportion are non-funded). So whilst it seems that more non-funded researchers proportionately are using

ePrints and more fully-funded researchers are using departmental and project websites, numbers are very small and should be treated with some caution.

**Gaps and difficulties**

Just over half our respondents (52%) feel there are gaps in current ICT provision in their discipline. This is mainly in the availability of specialised tools or resources for their specific research area, but also in what we describe as 'basic' ICT resources such as hardware, software and network provision (see Table C below).

| Gap | Frequency |
|---|---|
| In specialised tools or resources | 178 |
| In basic resources | 78 |
| Other | 20 |
| **Total:** | **276** |

Table C: Gaps in current ICT provision (total valid population) (more than one response possible)

Responses in the 'other' category are mainly concerned with training and support or digitisation of resources, which reflects the responses given in other parts of the survey relating to future needs. There are few free-text additions in this section. A small selection identifies gaps such as: "digitisation of secondary source materials which are not journals" (discipline, other); "more digitisation of manuscripts is essential for their preservation for future scholarly work" (History); "lack of sophisticated indexing programmes for major works" (History).

Requests for access to more or a wider range of eJournals—which could be seen to represent an implied gap—are reported elsewhere (for example in responses to questions about researchers' ICT 'wish-lists' and future ICT use). A couple of comments relating specifically to journals include a request for "Online journals of French eighteenth century" (Modern Languages and Linguistics) and "The access to and availability of journals is very patchy. Often journals are available for a very limited number of years" (Philosophy, Theology).

Exactly half of our respondents cite the quality and reliability of resources as the source of most difficulty in their use of ICT in research, followed by their own (or possibly others') lack of expertise. 38% also point to difficulties arising from licensing and copyright restrictions (see Table D below):

| Difficulty | Frequency | % |
|---|---|---|
| Quality/reliability of resources | 223 | 50 |
| Lack of expertise | 191 | 42 |
| Licensing/copyright restrictions | 170 | 38 |
| Lack of discipline-specific software | 120 | 27 |
| Accessibility problems | 118 | 26 |
| Lack of common standards | 111 | 25 |
| Compatibility / sustainability of software | 106 | 24 |
| National funding / charging policies | 95 | 21 |
| Institutional practices | 91 | 20 |
| Publishing practices | 83 | 18 |
| Institutional funding / charging policies | 76 | 17 |
| Departmental practices | 57 | 13 |
| Other | 10 | 2 |

Table D: What difficulties do you experience using ICT? (valid % - more than one response possible)

An insight into copyright issues is provided by the case studies (see Appendix E). Regulations are described as "prohibitive" and decision-makers as being far removed from the research. Just one image of a painting by Dalí important to the research has a re-use cost of £500 (Visual arts and Media). Another case study respondent adds: "Images are becoming very expensive. Everyone wants to make money. It can be £60-£100 for one image where we would have paid nothing at all [in the past]. So some important collections may not be in the final database" (History of Art). Lack of discipline-specific software, accessibility problems, a lack of common standards and compatibility/usability of software are each mentioned as difficulties by about a quarter of respondents. Access to and re-use of images, tools for their analysis and infrastructure, standards and space for their storage appear problematic in responses to several sections of the survey.

Around 20% also point to difficulties relating to national and institutional funding and charging policies, and to institutional and publishing practices: "Important software is not available at educational prices. I normally go back to my former university in Canada to purchase software" (Archaeology, Anthropology). "Very few machines of the right quality [are available] and Photoshop is not properly supported by the institution" (Domain not given). Whether these are local, institutional or national responsibilities will be discussed later in this report.

## CAPABILITY

We wanted to find out through our survey what influences take up and creation of electronic resources, and so asked respondents for their views of their ICT skills level, how they keep up to date with ICT developments and how aware they are of certain national ICT developments such as eResearch and grid technology.

### ICT skills

The vast majority of respondents describe their ICT skills level as 'intermediate' or 'experienced'. We provided no definitions of these levels in the survey, so case study interviews specifically asked more about respondents' self-categorisation. This revealed the extent of subjectivity and contextualisation in responses. Over half the sample of valid responses consider themselves 'intermediate' (see Table E below):

| Skill level | Frequency | Valid Percent |
|---|---|---|
| Basic | 46 | 11 |
| Intermediate | 245 | 56 |
| Experienced | 144 | 33 |
| Total | 435 | 100 |

Table E:  Self-categorisation of Current ICT skills (total population)

A slightly higher proportion of staff self-categorise as at the 'basic' level and proportionally more students as at 'intermediate'. Of those few who describe their ICT skills as 'basic', one does so because ICT is not perceived as a major part of the work ("I can't really be creative with this sort of thing"), even though this researcher uses online journals, has published material in them and has a web page (Modern Languages and Linguistics. Another is an experienced MS-Access and MS-Word user but new to digitisation and the creation of an image database; 'basic' reflects the steep learning curve experienced in this area (Visual Arts and Media). Other case studies reveal a tendency to underplay existing skills levels because researchers see colleagues working with technology in ways they do not.

Music and Performing Arts disciplines have the highest proportion claiming basic skills levels, whilst those claiming the highest at experienced level are Archaeology and Anthropology, Philosophy and Theology and Visual Arts and Media (see Appendix C, Table 19). However, numbers in these categories are very small, possibly challenging the validity of this finding. Not surprisingly, the survey and case studies also reveal a strong link between skills level and the extent to which researchers are creating digital resources. There is also slight evidence from our data that those with higher levels of IT experience are likely

to be collaborating at an interdisciplinary level than those with other skill levels (although again, numbers are small).

Our questions relating to future use of ICT highlight some perceived gaps in capability. For example: "I like the idea of setting up a collaborative virtual research community to unite scholars in my subject area between UK, France, Belgium, Switzerland and the US, but feel distinctly under-qualified at present" (Modern Languages and Linguistics).

More support and training are high on respondents' 'wish lists' for the future and also feature as the second highest 'difficulty' experienced with the use of ICT in research (see Table F below).

| Difficulty | Frequency | % total |
|---|---|---|
| Quality/reliability of resources | 223 | 50 |
| Lack of expertise | 191 | 42 |
| Licensing/copyright restrictions | 170 | 38 |
| Lack of discipline-specific software | 120 | 27 |
| Accessibility problems | 118 | 26 |
| Lack of common standards | 111 | 25 |
| Compatibility/sustainability of software | 106 | 24 |
| National funding/charging policies | 95 | 21 |
| Institutional practices | 91 | 20 |
| Publishing practices | 83 | 18 |
| Institutional funding/charging policies | 76 | 17 |
| Departmental practices | 57 | 13 |
| Other | 10 | 2 |

Table F: Difficulties in using ICT (total population)

This 'lack of expertise' is surprising given the high proportion of respondents claiming 'intermediate' or 'experienced' ICT skills levels, but perhaps reflects the range of interpretations of the terms offered in the survey to describe skills. Those claiming only basic skills tend to report more difficulty with accessibility, lack of expertise and institutional funding policies than with other areas listed above. Experienced ICT users report fewer problems in these areas (see Appendix C, Table 20, for analysis of difficulties by skills level).

Some express the specific support they feel they need: "I would like consultancy for the department, centrally provided and available to everyone to help in the use of programmes. For example, Lexis is not intuitive" (case study – keen IT user, English Language and Literature).

### Keeping up-to-date with ICT developments

The survey also asked about the ways researchers keep up to date with ICT developments, how aware they are of certain services aimed at them and what levels of support they receive from their institution, their department or faculty and from less formal sources. Largely at the request of the Arts and Humanities Data Service (AHDS) and the AHRC ICT Methods Network,

respondents were asked whether they had heard of (rather than used) eResearch, grid computing and the Methods Network itself. Awareness amongst respondents is limited, with a quarter having heard about eResearch, 17% grid computing and 16% knowing of the Methods Network (see Appendix C, Table 21). Archaeologists show the highest level of awareness of these, followed by Visual Arts in all but awareness of grid computing. The numbers across all disciplines are, however, small.

We find that respondents keep up to date with ICT developments largely through serendipity or personal contacts. Eleven categories were developed from the free-text responses (up to three were allowed, and were not ranked). Table G below shows analysis of the distribution of responses:

| Method | Aggregate of up to 3 responses |
|---|---|
| Personal contacts/word of mouth | 118 |
| Courses/training/presentations | 50 |
| Own initiative | 46 |
| With difficulty | 37 |
| Specific services (eg. AHDS) | 30 |
| Conferences | 28 |
| Journals/eJournals, other literature | 27 |
| Chance/random | 26 |
| Web searching/browsing | 23 |
| Email/discussion lists | 4 |
| Media | 4 |
| **Total mentioned** | **393** |

Table G: How researchers keep up to date with ICT developments (aggregate of up to three responses)

266 people mentioned one source, 104 mentioned two and 23 mentioned three sources.

Personal contacts and casual conversations feature strongly, as do courses, presentations and own initiative derived from personal interest. Email discussion lists, web searching and specialised services such as AHDS and Humbul[19] are also used, but to a lesser extent. The following comments appear to be typical: "Discussion with colleagues, Google to follow up things I come across" (Music and Performing Arts) and "happenstance and accident" (English Language and Literature). A case study also reveals "There is probably a need to raise awareness of resources and services. Mailing lists are probably still the best option. I use bookmarks less and less, return less to sites to see what's new, just [use] Google" (Archaeology). Another case study also mentions the use (and potential for over-use) of email: "I use subject-specific mailing lists and get online journals via email. I get a news list from the States every day. But email is an excuse for not doing proper work ... many spend all day in front of their email" (Modern Languages and Linguistics). In practice, a

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[19] Humbul. Now part of Intute: Arts and Humanities. <http://www.intute.ac.uk/artsandhumanities">

range of methods may be used: "... Through training provided by faculty/institution; conversation with colleagues; conferences such as DRH; electronic journals and learning from others' good practice" (Medieval and Modern History).

37 respondents mention that they keep up-to-date 'with difficulty'. One replies "Good question. I'm not as proactive about this as I could be" (English Language and Literature).

**Support for ICT in the arts and humanities**
The survey asked three questions about provision of formal support by the institution, the department or faculty and about various kinds of informal support and advice. We did not provide definitions of 'formal' or 'informal', but respondents were offered a number of suggested sources within each category which they were asked to rank (see Table H below for a summary, and Appendix C, Table 21, for a full breakdown):

| Sources of informal 'support' | % |
|---|---|
| Web search engines (like Google) | 85 |
| Institutional IS | 66 |
| Colleagues in department | 59 |
| Contacts elsewhere | 58 |
| Colleagues not in department | 50 |
| Email discussion lists | 39 |
| Internet resources (e.g. Humbul, similar portals) | 37 |
| Conferences/seminars | 35 |
| Journals | 33 |
| Learned societies | 23 |
| National services such as AHDS, BUFVC | 22 |

Table H: Informal sources of information identified as important or very important

The way this question was worded may have caused confusion to respondents, especially the categories 'Internet resources' and 'National services' which have considerable overlap. This means that the combined use of these Internet resources would be higher up this table, second to web search engines.

Responses reflect those relating to how researchers keep up to date on developments in ICT, with 59% finding colleagues in their department important sources; 58% contacts elsewhere and 50% finding colleagues in other departments important. Essentially, respondents are looking to those working in similar areas who understand both the research and the technology, but with varying degrees of success: "It is hard to get formal and informal support at anything but a simplistic level of ICT use" (Modern Languages and Linguistics).

Ranked highest, though, are web search engines like Google (85%): "As my research is based in Naples and I'm in the UK, the world wide web has been an essential contact point – I'm very dependent on it and appreciative of the kinds of exchanges it affords"

(English Language and Literature). In practice, a combination of sources is likely to be used: "databases like SwetsWise, Ingenta etc., eJournals like DLib and friends who know about this stuff" (Modern Languages and Linguistics).

66% of respondents rate their institutional Information Services department (on an informal basis rather than for instance attending training sessions) as 'important' or 'very important' for support, whilst 39% feel the same about email discussion lists. Only just over a fifth (22%) turn to national advisory services such as BUFVC[20] or AHDS for support. However, case studies reveal an appreciation for the support and advice such national centres can provide, with specific mentions of HATII[21] based at the University of Glasgow; TASi[22], University of Bristol and ADS[23], University of York: "ADS is an indispensable service for archaeologists. I can't see any of the universities providing a similarly sustainable base because of the structure of academic departments. Exceptions may be with teaching resources that are digital, they will be curated and maintained. But otherwise the material tends to die when people move on" (Archaeologist). Whilst general awareness of national services and resources may be low, they appear to be considered valuable when they are known and used.

Sustainability is an apparently resonant issue with case studies: "A problem is the maintenance of digital resources once projects come to an end" (Archaeology and Anthropology). Another respondent adds: "Focus on ICT is invariably on current use rather than long-term survival (only the British Library, CUL [Cambridge University Library] and the Bodleian are working towards this) and this is an awful development. The advantage of paper, parchment, vellum and carvings is that they last" (PhD Student in Law).

The first two questions on formal support (institutional and departmental/faculty) offered the same set of options but, as elsewhere in the survey, the provision of an 'other' category allowed space for respondents to supply their own descriptions. Table I below shows the most-reported areas of institutional support:

| Type of support | Frequency |
|---|---|
| Technical back-up | 343 |
| IT training | 268 |
| Legal advice | 105 |
| Expert subject-specific advice | 69 |
| None | 19 |

Table I: Formal support for ICT use in research provided by institution
(more than one answer possible)

The most commonly reported institutional support is technical back-up services (76% report this category) and IT training (reported by 60%). Expert subject-specific advice, unsurprisingly, is low at institutional level and slightly higher at departmental or faculty levels (see Table J below):

| Type of support | Frequency |
|---|---|
| Technical back-up | 204 |
| IT training | 98 |
| Expert subject-specific advice | 89 |
| Legal advice | 36 |
| None | 45 |

Table J: Formal support for ICT use in research provided by department/faculty
(more than one answer possible)

Technical back-up also features strongly in the provision of departmental support. Legal advice on issues such as copyright, consent and so on tend to be provided at institutional level. However, 45 respondents say that there is no local support at all. Because of the large institutional distribution in our data (73 different higher education institutions), identifying good practice in specific institutions is not possible.

The more experienced ICT user (in terms of skills level) tends to report a higher proportion of technical support and subject specific support from the institution than training in ICT skills, perhaps suggesting that they have already reached an adequate level here.

Case studies suggest that IT training provision is widespread at institutional level, "including courses on web development, presentation software and so on." "Could do with more subject specific day-to-day technical backup in relation to imaging activity as I am a novice in this area." "I would like to see more support for academics in creating and using digital resources but am concerned that this may come at the cost of other services (eg specialist area librarians, adequate book resources, adequate eJournal subscriptions etc)."

Departmental or faculty support is sometimes described as reactive and problem-oriented (like fixing broken printers). A bigger gap appears in subject-specific

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[20] BUFVC (British Universities Film and Video Council). <http://www.bufvc.ac.uk/>

[21] HATII (Humanities Advanced Technology and Information Institute). <http://www.hatii.arts.gla.ac.uk/>

[22] TASi (Technical Advisory Service for Images). <http://www.tasi.ac.uk/>

[23] ADS (Archaeology Data Service), part of AHDS. <http://ads.ahds.ac.uk/>

support: "I think that, although [there is] a theoretical emphasis on IT, the University should invest MUCH (respondent's emphasis) more in facilities and support for staff: both very poor at the moment" (Modern Languages and Linguistics). "Within the University, they put on workshops on new software, like fEC for example. I'm not aware of anything at department or faculty level.  We have faculty IT staff and technical back-ups, but they're entirely reactive. Their remit is to respond to problems rather than enhancements" (Modern Languages and Linguistics).

Case studies and 'other' responses to survey questions on support also suggest varying opinions on the provision of 'central' and departmental support and institutions' ICT support strategies: "Not really sufficient, they put more resources into education technology, for example WebCT, than into support" (domain, 'other') and "Institutions don't take ICT in the arts seriously – there is no money for small departments to have state of the art equipment (computers don't have DVD-write facilities, no laptops for those doing archival research) so the use of ICT is hampered by lack of hardware rather than what [resources] are available" (Modern Languages and Linguistics). And two more: "I am concerned about the over-centralisation of computer tools, expertise and infrastructure in a few institutions and the corresponding lack of support for those outside those institutions" (History – Medieval and Modern) and "The main problem in a smallish institution is that it cannot afford subscriptions to JSTOR, databases, et al, so ICT has actually meant a 'disadvantage' for us as colleagues in larger institutions benefit from data we cannot get" (Classics and Ancient History).

## ICT 'S IMPACT ON RESEARCH

57% of all respondents (54% of the student population) feel that ICT has had a 'highly significant' impact on the way they undertake research (see Table L below):

| Ranking | Full population Frequency | % | Student population Frequency | % |
|---|---|---|---|---|
| Highly significant | 243 | 57 | 63 | 54 |
| Moderate | 143 | 33 | 39 | 34 |
| Slightly significant | 36 | 8 | 10 | 9 |
| Not significant | 8 | 2 | 4 | 3 |
| Totals: | 430 | 100 | | |

Table L: Degree of change ICT has brought to research
(shown for both full sample and students)
(valid responses)

Analysis of the same data by discipline (see Appendix C, Table 23) shows that over 50% in all disciplines feel that change has been highly significant. Visual arts scholars report the highest incidence (75%) of 'highly

significant' change from ICT, followed by music and the performing arts.

The younger population (under 25s) feel change is less significant than those in older age bands, perhaps because they have always had access to digital tools and resources or simply that they have had less time to observe changes. Not surprisingly, fewer of those describing their ICT skills level as 'basic' (see Appendix C, Table 24) find the change highly significant, seeing it as either 'moderate' or 'slight'.

Overall, the greatest changes experienced are: increased speed in finding resources; increased efficiency; improved access to existing materials and to a wider range of resources (see Table M below):

| Change | Not at all | Slight | Moderate | A great extent |
|---|---|---|---|---|
| Increased speed finding resources | 1 | 6 | 22 | 71 |
| Improved access to existing materials | 3 | 11 | 33 | 51 |
| Greater access to a wider range of resources | 3 | 13 | 33 | 51 |
| Increased efficiency | 4 | 15 | 30 | 51 |
| Access to new types of materials | 8 | 21 | 29 | 42 |
| Increased communication with colleagues | 14 | 20 | 31 | 35 |
| New ways of working/thinking | 19 | 30 | 25 | 26 |
| Increased research activity | 23 | 28 | 28 | 21 |
| Increased research productivity | 18 | 31 | 30 | 21 |
| Increased collaboration with colleagues | 25 | 27 | 30 | 18 |

Table M: Extent and type of change experienced from using ICT in research (valid %)

Just over a quarter feel that ICT has allowed for new ways of working/thinking 'to a great extent'. Only a fifth feel that ICT has increased collaboration (although just over a third see increased communication with colleagues, and responses to later questions establish a wish to have greater collaboration in the future).

Although the numbers experiencing change in the *quality* of their research (in terms of new ways of thinking and increased research activity) are relatively low, it is important to note that ICT use does *facilitate* research (through greater speed and extent of access to resources) for many.

One of our case studies reveals the extent to which ICT can have an impact:  an archaeologist working in the field needs to capture all material digitally as it needs to remain in the nation of origin for archiving and curation. This was impossible in another project a decade earlier,

when "laptops and digital cameras were just not available to us". For this researcher, ICT is also important for information exchange and collaboration: "it's not just about the ease of access, it's much easier to resolve queries and have a dialogue about interpretation" (Archaeology).

**Relationship between teaching and research**
For some, change is related more to their teaching than their research and of more benefit for students. They also challenge the quality of resources on the web (again, especially for students, who possibly lack the experience of vetting them). "If I look at my career over the last five years, ICT has informed my teaching more than my research ... in actual research and quality of output, not so. In my area not much is available online" (Modern Languages and Literature).

There is some overlap in impact of ICT use in teaching and research. Some resources and generic software are applicable to both functions. Equally, what is created by research can be used in teaching and vice-versa. Some respondents make advances in ICT use in teaching before applying them to research: "[keep up to date] usually through first finding out about teaching applications" (English Language and Literature) and "ICT in teaching (with which my job is directly concerned) often crosses over into research" (Archaeology and Anthropology). Others expect their use of ICT in teaching to feed into their research in future: "Using Blackboard for teaching, which I believe will have an impact on my research (or, at least, my readings of certain texts)" (English Language and Literature) and "... as my teaching develops, and as the students' ideas push the boundaries of my own specific knowledge and resources" (Visual Arts and Media).

# FUTURE NEEDS

**Digitisation or access tools?**
When asked to choose between greater investment in the digitisation of primary resources or in tools to support search, retrieval and access, more than two thirds demand digitisation, with historians pressing most. English and Modern Languages are the two disciplines expressing the highest demand for access and retrieval tools (see Table N below):

| Subject domain | Primary resources v tools | |
| --- | --- | --- |
| | Digitisation of primary resources<br><br>Count and % in brackets | Access and retrieval tools<br><br>Count and % in brackets |
| Archaeology, Anthropology | 22 (71) | 9 (29) |
| Classics, Ancient History | 29 (72) | 11 (28) |
| English Language and Literature | 44 (60) | 29 (40) |
| History - Medieval and Modern | 54 (84) | 10 (16) |
| Modern languages and Linguistics | 58 (57) | 44 (43) |
| Music and Performing Arts | 19 (66) | 10 (35) |
| Philosophy, Theology, Religious Studies and Law | 30 (70) | 13 (30) |
| Visual Arts and Media | 25 (69) | 11 (31) |
| Totals: | 289 (67) | 140 (33) |

Table N: If you had to make a choice would you prefer to see digitisation of primary resources or tools to help with search/retrieval (eg better access)

One case study provides a possible reason: "It's a dilemma, as more and more digital data appears and is archived, so the search tools are more important". Another explains why search tools are useful: they enable "enquiry, not just reproduction ... resources are very useful but as a start point only" (both Modern Languages and Linguistics). However, case studies also highlight the significant extent to which primary resources remain in non-digital (and therefore in many cases largely inaccessible) form, supporting the demand for more digitisation of those all-important primary materials. Those describing their ICT skills as basic express a preference for access tools rather than digitisation (see Appendix C, Table 25). As it is clearly impossible to digitise all resources anyway, access will continue to be of crucial importance, but with a changing priority in subject domains dependent on the extent of digital material available.

**Expanding the use of ICT in research**
Just under a third of our respondents have something specific to say about expanding their use of ICT in the future. This was an open-ended question, and the free-text responses were grouped into ten categories for analysis. This shows that the creation of websites, use or further development of tools and development of ICT skills feature strongly in respondents' plans (see Table O below):

| Intention | Count |
|---|---|
| Develop website, database or resources | 43 |
| Use or develop tools | 27 |
| Develop skills | 24 |
| Make more use of existing resources | 13 |
| Increase collaboration | 11 |
| Digitise material | 8 |
| Improve dissemination | 8 |
| Publish material | 6 |
| Deposit data in existing database | 4 |
| Purchase hardware | 3 |

Table O: What plans do you have to expand your use of ICT in future? (number of mentions)

A selection of free-text responses provides illustrations, although most of the comments represent 'hopes' more than plans. "I would like to publish the output of collaborative research projects ... in an online format, allowing functionality not possible on the printed page" (Classics and Ancient History). Other researchers add: "I plan to create a web edition of some primary text for use in both teaching and research" (English Language and Literature) and "I would like to improve and overhaul my own website [with] links ... to documents, other websites, my teaching materials".

Of those planning to develop websites or databases, some specified the kind of content (images, music texts). One considers that lack of support is proving a barrier: "I would like to learn how to conduct proper statistical analysis of my linguistic data. I would like to digitise my corpus and archive it. I would like to transcribe my corpus and archive that too. I would then like to learn how to use concordancing software for grammatical and discourse analysis. I would like to learn how to do acoustic analysis using software. There is no one here to train me in any of this, and a total lack of support for these activities in my institution" (Modern Languages and Linguistics).

Amongst those planning to use and develop tools, there were several mentions of bibliographic software and GIS. One or two are looking to be make more sophisticated use of tools; a few are interested in tools for teaching. Few gave examples of exactly what they will develop tools for.

Developing further skills included some mention of subject-specific courses or services, others a need to develop skills more generally. Where specific tools are mentioned these include bibliographic and analysis tools as well as web design. "I am currently trying to get onto a course to learn how to master Endnote in order to help organise and track my research sources" (English Language and Literature). "I would like to learn to use a programme like LaTEX for word-processing my thesis. Also would like to learn more about digitising medieval manuscripts and digital publishing" (Medieval and Modern History). "It is my hope to do a course on web design as I feel it would be very beneficial to have my own website" (Philosophy, Theology). "I would love to disseminate my work in DVD-ROM rather than book form - so much more appropriate for film/moving image studies I think" (Visual Arts and Media). "I plan to use more software packages for bibliography, indexing/processing/publishing, more subscriptions to databases and online encyclopaedias" (Modern Languages and Linguistics).

As an example of wanting to increase collaboration, one respondent states: "I am having preliminary discussions with a potential partner institution to collaborate on the development of my prototype database (Project 1) into (a) a composer-specific online resource and (b) as a generic database structure available to other scholars" (Music).

**A research ICT 'wish list'**
The survey invited respondents to describe up to three items for a 'wish list' of ICT resources, tools or support for use in their research. The free-text responses were clustered into eleven categories and ranked in order of mention to facilitate analysis (see Table P below):

| Wish list | Count |
|---|---|
| Digitisation and access to more primary material | 136 |
| More support/training | 58 |
| Better/updated hardware and software | 57 |
| Open access/cheap access | 41 |
| More sophisticated search tools | 26 |
| Portals and gateways | 21 |
| Discipline-specific tools | 21 |
| Collaborative tools/networks | 20 |
| Fuller indexing/cataloguing standards | 19 |
| More funding | 17 |
| Fewer copyright restrictions | 9 |

Table P: What would you have on your wish list? (number of mentions)

Numbers 1 and 5 on the wish list reflect the balance of choice respondents also make on potential investment in digitisation vs. tools for access and retrieval. Within the 'top' wish for more digitisation and access to primary material, there are many specific requests for digitisation of journals and journal back copies and easier access to these. Many specify primary material they would like to see digitised: "In my wildest dreams I'd be able to find all the rare texts I work on (those you can only find on microfiche in the British Library...) digitised online" (Modern Languages and Linguistics). "Improved access to OS large scale maps, digitisation of

excavation archives" (Archaeology). One suggests that institutions and even nations join forces to increase the level of digitisation: "People working in foreign languages would like to see more collaborative ventures between archives and libraries in different countries to digitise holdings – that would make a difference" (Modern Languages and Linguistics). "More online editions of journals with full text and pagination as in printed editions "(English Language and Literature). "More journal availability online (ie more journals and more volumes of those that there are.) More key reference work availability online (eg Bonitz' Index Aristotelicum; Denniston's The Greek Particles)" (Philosophy, Theology). Digitisation of early manuscripts and Victorian/19th century newspapers in 'facsimile' form including all advertisements, illustrations, etc also feature.

The second item on the wish list expresses a desire for more support or training. This overlaps with some comments respondents make on expanding their use of ICT. As well as more general training/support, respondents would also like subject-specific support and for that to happen locally. Support is also required for producing websites. "Better subject-specific expertise in my institution (or available to my institution)" (Classics and Ancient History).

Better/updated hardware or software is the third item on the wish list. Comments on software generally reflect a frustration with existing applications such as MS-Word and MS-Access being un-suited for specific research activity (for example, compatibility of Greek or other non-English fonts or more stable footnotes). There are also requests for specific software for data analysis and bibliographic tools (see earlier) and "Better availability of software such as drawing packages" (Archaeology, Anthropology); "An upgrade to the current Mac OS, as well as design and 3D animation software. Also better digital hardware (cameras)" (Visual Arts and Media); "More uniformity in subject-specific platforms, more international collaboration" (Classics, Ancient History). In many cases, respondents do not feel they have access to the latest or most up-to-date hardware and software for their needs. Digitisation of manuscripts (or other material) requires considerable storage space for images and this is often not available within an institution. Dedicated servers for the department or project are on some individuals' wish lists. Others feel excluded from access to and use of existing resources because of a lack of infrastructural or financial support: "Easier access to hardware and software, ie more money: the exclusion of hardware by most funding bodies is not very helpful" (Archaeology, Anthropology).

Fourth on the wish-list is a desire for more open access or free access to resources. Comments here included: "Open-source morphological data for Latin and Greek; searchable articles and monographs (as in JSTOR and Google book search)"; "Digitisation of and free online access to scholarly monographs and journals" (both Classics and Ancient History); "More availability, support and emphasis on the use of open source and free software" (Modern Languages and Linguistics).

More sophisticated search tools is the fifth item and the last that we provide verbatim comments for in this section, although there are many more. Comments include: "A search facility for searching combined French press sources (ie a metasearch tool)" (Modern Languages and Linguistics); "Better search tools for archives" (History - Medieval and Modern).

One of our case studies points out that there is not just a need for general IT skills, but also for those needed to support specific research purposes. A survey respondent echoes this: "I wish I were more proficient and knowledgeable about electronic potential but freely admit that I don't always take advantage of what is offered. I tend to operate on a needs basis". Others would like more centralised support (within a department, faculty or institution) rather than develop skills themselves: "I would like a departmental webmaster to maintain the departmental website" (one of his colleagues had taken on the self-appointed role of editing and adding to the website for others) (case study – Medieval History).

Some respondents highlight a lack of integration and sophistication in standards and in search and retrieval tools: "The current situation is appalling with poor access to electronic books, arcane search facilities for journal articles and a disparate set of provisions of eBooks from Project Gutenberg and the like" (Modern Languages and Linguistics). Another asks for "a single standard for sound files and an easy way of listening to them, manipulating them and doing acoustic analysis on them" (case study – English Language and Literature). The same person also wants a "Google speech index for downloadable speech (like Google images)".

# 3. CHANGES IN DIRECTION

We encountered some difficulties during the project, particularly during the early phases, which necessitated some changes in direction from the original plan. The targeting and promotion of the survey proved more difficult than anticipated. For the 1992 and 1985 surveys mentioned above, contact addresses and personalised mailing lists had been acquired for heads of academic departments, librarians and computer centre directors from publications such as *Current Research in Britain: the Humanities (CRIB),* the *Commonwealth Universities Yearbook* and so on. We had also used mailing houses for similar address labels for other studies in the social sciences. By 2006, it seems that CRIB no longer exists and no up-to-date named (or indeed, anonymised) lists of heads of arts and humanities departments in UK higher education institutions appears to be readily obtainable from one source. We did not have sufficient resource within the project team to track individuals via institutional websites. Identification of named researchers was similarly problematic.

We had originally proposed to write to all relevant heads of department (HoDs) to publicise the online survey and ask them to encourage researchers in their departments to participate (paper copies would also to be available on request). Departments were selected as the organisational unit for the study, partly to allow comparison with the two previous studies but also on the assumption that the head of department would be able to target and alert researchers. However, approaches made to the Research Councils, HEFCE, the British Academy and subject-specific sites failed to produce contact information in a readily-compiled format and the notion of HoDs as main point of contact had to be abandoned and we instead attempted to target individual researchers via subject-specific JISCMail lists.

This particular change of plan necessarily introduces bias towards those who are already ICT-literate (at least, up to the point of using email and being aware of—and subscribing to—subject-specific mailing lists). Subsequent promotional activity was also largely by electronic means. Again, within the project resource, we were unable to consider how to reach those who are not ICT-literate (but contact with other projects suggest that focus groups being conducted may have reached at least some of these). We were also conscious of the 'survey overkill' phenomenon, in that the target audience is subject to many similar requests for information. Other (known) ICT projects were carrying out similar online surveys at the same time, although it was accepted that these did not necessarily duplicate content. Others receiving funding under the ICT Strategy Projects Programme revealed at a December 2005 meeting that they were also conducting surveys.

Responses to some of these were also poor; at one stage ARIA (see reference in this report) had received only 170 replies from an anticipated population of 2500.

As the survey design progressed, it also became clear that an equally important target audience lay in those responsible in higher education institutions for research and ICT support and related strategy development. Further work to elicit their perspectives would have been a useful compliment to this project's findings, but we were unable to generate the financial support needed to expand the project in this direction in the relevant timescale. This may still be a useful area to explore.

# 4. CONCLUSIONS

## DISCUSSION

It is difficult to know how representative this self-selecting sample of researchers is of the arts and humanities community at large; obviously they are likely to be ICT users to some extent in that they responded to the online survey. Despite this, and the smallish sample of researchers, we feel that our findings provide important information, and are in broad agreement with other similar surveys mentioned in this report and detailed in Appendix F.

On the whole our findings seem to represent the traditional humanities disciplines (as lone researchers, unfunded) better than music and the performing and visual arts where there is likely to be more collaboration and more sophisticated use of ICT, partly because numbers in these categories were low (see previous discussion). So respondents to our survey could be categorized as being somewhat 'ICT-light', to borrow a phrase from the AHDS. Despite this, and especially from our case study explorations, we feel that scholars are very keen to become more ICT active, learn more ICT skills and collaborate more in their research.

It is apparent that there is a huge diversity in ICT use and needs between the disciplines and no one prescription will fit all. For example, in the digitization of resources we have not been able to analyse this by discipline as we did not have the resources available to code and analyse the free-text responses. Spread of responses from across the sector is very wide, meaning that no conclusions can be drawn relating to individual institutions (eg on levels of support). The question of balance between centralised (ie national) and local (HEI) levels and also between generic and subject-specific support is difficult.  From our findings, researchers really need to be more aware of and know where to go for specialised support (whether nationally

or locally provided, although it could be useful to make this a national responsibility). There is a risk that HEIs or national bodies invest in certain tools and technologies which are expected to support research, but are in fact too generic and not researcher-led. All we can say is that there appears to considerable variation which may bear greater exploration. The situation is currently rather 'piecemeal' according to an institution's technological and personnel resources. Just in time support and information appears to be desired and perceived as useful, rather than generic 'blanket' approaches. Building on the trend towards use of personal contacts and web tools such as Google may find a way forward in Web 2.0 technologies and tools, including social software such as blogs, community-based sites such as wikipedia, greater syndication and search engine optimisation.

With regard to the creation of resources, we find that most of our respondents are creating multiple digital resources or using several digital resources/tools to create digital products. The question remains of who is using them, apart from the widespread use as a teaching resource. If they are not being deposited, catalogued and so on, then they will not be available to other researchers. The AHRC already has a database of resources created by projects funded by them, and resulting data from these projects should be deposited with the AHDS. However, we find that unfunded researchers in particular are not depositing or making their outputs more widely available, or doing so only on departmental or institutional websites. This has implications for preservation and sustainability when the research ends.

Other studies (eg Mullings, 1992) have concentrated on the use of computers in teaching and there has been considerable focus on support of the use of computers in teaching over the past 15 years (eg the Computers in Teaching Initiative and the Learning Technology Support Network). Some of our respondents referred to institutional support being focused on ICT support for teaching to a greater extent than for research and there is perhaps now a case for greater national and local emphasis on the support of the use of ICT in research.

We would like to highlight the difficulties we experienced in contacting/reaching researchers – if we have problems (and the AHRC could not help with this either) then this also problematic for national services/resources/facilities that AHRC or others may fund. We need to find ways of raising peoples' awareness and getting the right information to researchers when they need it (i.e. not just blanket emails) and also to the people who can support them. This project did not have the time or capacity to interview or survey support staff or those with strategic responsibility for ICT for research. However, we believe

that their views are likely to be important to the national perspective as well as to individual researchers. The degree of importance attached to their perspectives and plans is echoed by our steering group and other ICT strategy programme researchers we have talked to.

Being at or near a centre of excellence (eg the Bodleian library or similar non-electronic holdings or a major centre of electronic support or resources) is seen as an advantage and researchers comment on the value of this. This raises questions about those who are not in this position, what the AHRC and others may do to offer similar advantages and, indeed, the desirability of this.

Our data is very rich and we feel we have only been able to provide basic analysis and interpretation. We could look at the data in other ways given more time and resources. This especially relates to the free-text responses. There is also the possibility of a more detailed analysis of the postgraduate population which make up a quarter of our online survey return. The analysis of students' wish list and expansion plans for the future may be of particular interest and may be of value to the AHRC Methods Network who are interested in the topic of postgraduate training.

## RECOMMENDATIONS

1. Explore appropriate mechanisms (including potential for Web 2.0 technologies) to aid communication, awareness-raising and collaboration, (especially for sole and unfunded researchers).

2. Better information on heads of department (or individual researchers) and the research population in UK HE arts and humanities to be collated and available more widely and in a readily-usable format.

3. More detailed study (or more unpicking of current data) of some aspects of our study. For example, a major topic appears to be support/training and whether this is national/local, generic or specialist.

The AHRC may want to consider looking into creating national resources for individual subjects, along the lines of the Archaeology Data Service, and to somehow find a way to offer support in their use and in the use of analysis and other tools at a very local level. This could be a central repository or resource at a national level which is drawn down by individual institutions, or a support network of experienced researchers themselves. The AHRC may wish to work further with other organisations such as the JISC to engage and support institutions in their infrastructure and support structures for the arts and humanities research.

4. Discover more precise details of what the specialised training needs are for the different disciplines.

5. Investigate whether problems identified with access, storage and re-use of images/sound can be addressed through national or regional consortia or services.

# APPENDIX A:
# PROJECT TIMETABLE

**AHRC-ICT Project Tasks and Timetable**
**2005-2006**

| Work phase | Task | Staff Responsibility | Timing |
|---|---|---|---|
| | | | |
| Study design and execution | Draft survey instruments and letter | Co-applicant (CM) with other input | August-October 2005 |
| | Literature search of major work in this area | Admin assistant RA | September-October 2005 |
| Preparatory Work | Select and check the sample | Admin assistant (with supervision) | August-September 2005 |
| 1st Milestone | Pilot Q. with BIRTHA; gather feedback from AHDS, HUMBUL and other audiences | Co-applicant (CM) and RA | September-October 2005 |
| | *First Project Steering Group meeting* | Whole team | 20th October 2005 |
| | Amend Q, create online and paper forms | Co-applicant (CM), RA | October-November 2005 |
| | Agree final instruments/letter | All except admin assistant | November 2005 |
| Administer survey | Launch online survey Send out letters to Heads of Dept. | Admin and RA | November 2005 |
| | Send out reminder letter and/or email | Admin and RA | Early December 2005 |
| 2nd Milestone | End of survey period | | End Jan 2006 |
| Analysis | Initial checking, logging, data monitoring and data analysis | RA | Dec 2005-Jan 2006 |
| | *2nd Project Steering Group meeting* | Whole team | January 2006 (tbc) |
| | Main data analysis | Co-applicant (CM), RA | Feb-May 2006 |
| | Selection of projects and proceed with case study interviews | Co-applicant (CM), PI | Feb-May 2006 |
| 3rd Milestone | Draft report | Co-applicants, PI, RA | April 2006 |
| | *Third Project Steering Group meeting* | Whole team | April 2006 (tbc) |
| Dissemination | Conferences, Seminars, Articles | Co-applicants, PI | May-July 2006 |
| Reporting | Main report writing including case studies | Co-applicants, PI, | Feb-July 2006 |
| | Final report due | | End July 2006 |

Dated October 19th 2005.

# APPENDIX B:
# SURVEY QUESTIONNAIRE

The following represents the layout and content of the final version of the survey delivered online via the BOS software. Drop-down and free-text boxes and other online features such as radio buttons and check boxes are indicated rather than being reproduced graphically as they appeared online.

## AHRC Review – Your use of ICT in research

### Welcome to the AHRC Review – Your use of ICT in research
This survey is aimed at all researchers in arts and humanities disciplines in Higher Education institutions in the UK, including post-graduate students.

We would like to know about your current use of ICT (information and communications technology) and your future needs.  There are **40** short questions, mostly easy-to-complete tick boxes, and it should take **10** minutes to complete.

**Closing date and prize draw**
Please complete this survey by Friday 31st March 2006.
If you provide your contact details at the end you will be entered into a PRIZE DRAW for Amazon vouchers.

**Background.** The University of Bristol has been awarded a one-year grant from the Arts and Humanities Research Council (AHRC) to find out how arts and humanities scholars currently use ICT in their research and what their needs for the future are. Your views will make a difference as there is to be a review of the AHRC strategy programme in 2006 which will address research community needs; data from this survey will inform that review.

**Note** Once you have clicked on the CONTINUE button at the bottom of each page you cannot return to review or amend that page.

[CONTINUE>]

## Section 1.  Your current research

1.    **Which broad subject area do you work in?** [*choices presented in a drop-down box*]

      Classics, Ancient History
      Archaeology, Anthropology
      Visual Arts and Media: practice
      Visual Arts and Media: history and theory
      English Language and Literature
      Medieval and Modern History
      Modern Languages and Linguistics
      Music
      Performing Arts
      Philosophy
      Theology/Religious Studies
      Other

      If you selected Other, please specify:

      ---------------------------------------------------------------------------

2.  **What is your specific area(s) of research interest?**
      (please provide a brief title or one-line description)

      ---------------------------------------------------------------------------

**3. What proportion of your employment do you spend doing research?**

      O <25%       O 26-50%      O 51-75%      O > 76%

The next **3** questions concern partners and collaborators in your current research (In case you have more than one current project we have allowed for up to 3 primary pieces of research).

**4. Who is involved with your <u>current</u> research? Project 1** *(Choices offered as drop-down box)*

Yourself solely?
Other academics in your department/faculty?
Others in your discipline? (may be cross-institution)
Interdisciplinary? (ie multiple discipline collaboration)
Others? (such as technologists, computing scientists or industry contacts)

If you selected Others, please specify:

-------------------------------------------------------------------------------------

**5. Who is involved with your <u>current</u> research? Project 2** *(Choices offered as drop-down box)*

Yourself solely?
Other academics in your department/faculty?
Others in your discipline? (may be cross-institution)
Interdisciplinary? (ie multiple discipline collaboration)
Others? (such as technologists, computing scientists or industry contacts)

If you selected Others, please specify:

-------------------------------------------------------------------------------------

**6. Who is involved with your <u>current</u> research? Project 3** *(Choices offered as drop-down box)*

Yourself solely?
Other academics in your department/faculty?
Others in your discipline? (may be cross-institution)
Interdisciplinary? (ie multiple discipline collaboration)
Others? (such as technologists, computing scientists or industry contacts)

If you selected Others, please specify:

-------------------------------------------------------------------------------------

The next **3** questions concern funding for the projects you listed in the 3 questions above.

**7. Is <u>Project 1</u> partially or fully funded?**

○ Fully funded    ○ Partially funded    ○ Non-funded

Who funds this project?

---------------------------------------------------------

**8. Is <u>Project 2</u> partially or fully funded?**

○ Fully funded    ○ Partially funded    ○ Non-funded

Who funds this project?

---------------------------------------------------------

**9. Is <u>Project 3</u> partially or fully funded?**

○ Fully funded    ○ Partially funded    ○ Non-funded

Who funds this project?

---------------------------------------------------------

**10.  How would you describe your current ICT skills level?**

○ Basic  ○ Intermediate   ○Experienced

[CONTINUE>] [Check Answers & Continue> ]

# Section 2.  Current use of resources

Please answer the following sections with your primary research project in mind.

**Current use of resources**
We would like to know what type of resources you use in your research (both non-electronic and electronic) and also your possible role as a creator of digital resources.

**11. How important are the following <u>non-electronic</u> resources for your research?**
(please tick one box in each row)

| | 1 Not important | 2 | 3 | 4 very important |
|---|---|---|---|---|
| a. Primary Texts (books, journals, corpora, manuscripts) etc | ○ | ○ | ○ | ○ |
| b. Secondary texts (critiques, literary criticism, reviews, editions) | ○ | ○ | ○ | ○ |
| c. Archives | ○ | ○ | ○ | ○ |
| d. Index/catalogue/dictionary/bibliography | ○ | ○ | ○ | ○ |
| e. Images – still or moving, microfilm | ○ | ○ | ○ | ○ |
| f. Objects/artefacts/works of art | ○ | ○ | ○ | ○ |
| g. Music or other audio materials | ○ | ○ | ○ | ○ |
| h. Maps | ○ | ○ | ○ | ○ |

**12. If there are any other <u>non-electronic</u> resources that are important in your research, please list below.**

------------------------------------------------------------------------------------------------------------------------

**13.  How important are the following <u>electronic</u> resources for your research?**

(please tick one box in each row)

| | 1 Not important | 2 | 3 | 4 very important |
|---|---|---|---|---|
| a. Primary full-text (books, journals, corpora, manuscripts) etc | O | O | O | O |
| b. Secondary full texts (critiques, literary criticism) | O | O | O | O |
| c. Archives | O | O | O | O |
| d.  Index/catalogue/dictionary/bibliography | O | O | O | O |
| e. Databases (text or image), datasets | O | O | O | O |
| f. Images – still or moving | O | O | O | O |
| g. Music or other audio materials | O | O | O | O |
| h. Maps | O | O | O | O |
| i.  Multimedia or mixed media (ie text, images, graphics, sound) | O | O | O | O |
| j. Analysis tools (text, data, image) | O | O | O | O |
| k. Modelling techniques | O | O | O | O |
| l. Geospatial data (eg GIS) | O | O | O | O |

**14. If there are any other <u>electronic</u> resources that are important in your research, please list below.**

-----------------------------------------------------------------------------------------------------------------------------------

**15.  What types of <u>electronic</u> resources are you creating?**
*(select all that apply)*
☐  Creating software/tools
☐  Creating a database/dataset
☐  Digitising (scanning) resources as basis for your own research
☐  Creating text (article, chapter, book)
☐  Creating catalogues/indexes
☐  Creating or processing images (still or moving)
☐  Creating or processing sound
☐  Re-use/re-packaging products
☐  Creating or maintaining a website
☐  None of these
☐  Other (*please specify:*)

-----------------------------------------------------------

**16.  How do you currently disseminate your research results to others?**
*(select all that apply)*
☐  Conventional publishing channels (book, journal, monograph)
☐  Conference papers and presentations
☐  eJournals
☐  ePrints archive
☐  Personal website
☐  Departmental (or faculty) website
☐  Other (*please specify:*)

-----------------------------------------------------------

**17. What happens to the data you have created once the research is completed?**
*(select all that apply)*

☐ Available via Web
☐ Shared in department
☐ Deposited in local non-electronic archive
☐ Deposited in local electronic archive
☐ Deposited in national archive
☐ Used as a teaching resource
☐ Nothing
☐ Other (*please specify:*)

-----------------------------------------------------------

[CONTINUE>] [Check Answers & Continue> ]

# Section 3.  Support for your ICT Use in Research.

**18. What kind of <u>formal</u> support do you get for ICT use in your research provided by your institution** (eg Information Services, Computer Centre)? (*Select all that apply*)

☐ IT training
☐ Technical support, back-up
☐ Expert subject-specific advice
☐ Legal advice (eg copyright, ethics, consent)
☐ Other (*please specify:*)

-----------------------------------------------------------

**19. What kind of <u>formal</u> support do you get for ICT use in your research provided by your department or faculty?** (*Select all that apply*)

☐ IT training
☐ Technical support, back-up
☐ Expert subject-specific advice
☐ Legal advice (eg copyright, ethics, consent)
☐ Other (*please specify:*)

-----------------------------------------------------------

20.  How important are the following sources of **informal** support to your use of ICT in research?

| (please tick one box in each row) | 1 Not important | 2 | 3 | 4 very important |
|---|---|---|---|---|
| a. Colleagues in department | ○ | ○ | ○ | ○ |
| b. Colleagues elsewhere | ○ | ○ | ○ | ○ |
| c. Contacts elsewhere | ○ | ○ | ○ | ○ |
| d. institutional information services (ie library, computer centre) | ○ | ○ | ○ | ○ |
| e. Learned societies/associations | ○ | ○ | ○ | ○ |
| f. Journals and similar printed publications | ○ | ○ | ○ | ○ |
| g. Conferences/seminars | ○ | ○ | ○ | ○ |
| h. Internet resources such as HUMBUL and Artifact; portals | ○ | ○ | ○ | ○ |
| i.  National services like the AHDS, TASi, BUFVC (see more info button) | ○ | ○ | ○ | ○ |
| j. Web search engines (like Google) | ○ | ○ | ○ | ○ |
| k. Email discussion lists | ○ | ○ | ○ | ○ |

[MORE INFO]

**21. If there are any other <u>informal</u> support that are important in your use of ICT for research, please list below.**

------------------------------------------------------------------------------------------------------

**22. How do you keep up-to-date with ICT development relevant to your research?**

------------------------------------------------------------------------------------------------------

**23. Have you heard about any of the following?**

|  | Yes | No |
|---|---|---|
| a. eResearch | O | O |
| b. Grid computing | O | O |
| c. AHRC Methods Network | O | O |

[CONTINUE>] [Check Answers & Continue> ]

# Sections 4 and 5.  Effects of using ICT in your research.

**24.  How would you describe the degree of change ICT has brought to the way you do research?**

O Highly significant     O  Moderate     O  Slightly significant     O  Not significant

**25.  To what extent have you experienced any of the following changes from using ICT in your research?**
*(please tick one box in each row.)*

|  | 1 not at all | 2 | 3 | 4 to a great extent |
|---|---|---|---|---|
| a. Increased speed of finding resources | O | O | O | O |
| b. Increased efficiency/saving time | O | O | O | O |
| c. Access to new types of materials | O | O | O | O |
| d. Improved access to existing materials | O | O | O | O |
| e. Greater access to a wider range of resources | O | O | O | O |
| f. New ways of working/thinking | O | O | O | O |
| g. Increased research activity | O | O | O | O |
| h. Increased research productivity | O | O | O | O |
| i. Increased collaboration with colleagues | O | O | O | O |
| j. Increased communication with colleagues. | O | O | O | O |

**26. If you have experienced any other changes from using ICT in your research please list below.**

------------------------------------------------------------------------------------------------------

## Any difficulties in using ICT in your research?

**27. Have you experienced any specific difficulties using ICT in your research?**
*(select all that apply)*

- ☐ shortage of discipline-specific software
- ☐ compatibility-sustainability of software
- ☐ lack of common standards
- ☐ accessibility problems
- ☐ licensing, copyright restrictions
- ☐ quality/reliability of resources (on the Web and elsewhere)
- ☐ institutional practices
- ☐ departmental practices
- ☐ national funding or charging policies
- ☐ institutional funding or charging policies
- ☐ publishing/dissemination practices
- ☐ lack of expertise
- ☐ Other *(please specify:)*

-----------------------------------------------------------

**28.  Do you feel there are any specific gaps in current ICT provision in your discipline?**

| Yes | No |
|:---:|:---:|
| ○ | ○ |

If yes, is this for: *(select all that apply:)*

- ☐ basic ICT resources (eg computers, software, networking)
- ☐ specialised tools or resources for your own reearch
- ☐ Other *(please specify:)*

-----------------------------------------------------------

[CONTINUE>] [Check Answers & Continue> ]

# Section 6.  Future Intentions

**29.  If you have any specific plans for expanding your use of ICT in research in the future please comment here:**

--------------------------------------------------------------------------------------------

**30.  If you had to make a choice would you prefer to see:**
- ○ digitisation of primary resources used in research such as texts, maps, images, (i.e. more eResources)
- ○ tools to help with search/retrieval or processing? (i.e. better access)

**31.  What is your 'wish-list' for ICT resources, tools or support for your research?**
(Please give up to three suggestions)

--------------------------------------------------------------------------------------------

**32. Are there any further comments you wish to make about your ICT use or needs?**

--------------------------------------------------------------------------------------------

# Section 7. Background information

**33. Please name the institution where you work**    ------------------------------------------------

**34. What is your formal job title?**                ------------------------------------------------

**35. How long have you worked in your current department or faculty?**

○  < 1 year       ○  1-5 yrs        ○ 6-10yrs       ○11-20 yrs       ○  >20 years

**36. How long have you been engaged in research?**

○  < 1 year       ○  1-5 yrs        ○ 6-10yrs       ○11-20 yrs       ○  >20 years

**How many of these years are post-doctoral?**

-------------------------

_____

Finally, please provide the following details:

**37. Sex**

○  Male ○  Female

**38. Age band**

○  < 25          ○  25-35          ○ 36-45         ○ 46-55          ○  56-65          ○  > 65

**39. Further interest**
We are going to carry out a limited number of more in-depth case studies to illustrate how arts and humanities academics use ICT in their research.  If you would be willing to take part please indicate below:

If you would like to be entered in the **prize draw for Amazon vouchers** please indicate below.
_(Select all that apply)_

☐  I would be interested in taking part in further studies
☐  Please enter me for the prize draw

**40. If you are interested in either of these, please make sure you supply your email and/or institutional telephone number:**

Name: _____

   a.   Tel: _____

   b.   Email: _____

[CONTINUE>] [Check Answers & Continue> ]

# APPENDIX C:
# SURVEY DATA TABLES

**A. Frequency counts of main data for total population (ie including student population) unless otherwise stated.**

|  | Frequency | Valid Percent |
|---|---|---|
| Female | 247 | 56 |
| Male | 193 | 44 |
| Total | 440 | 100 |
| Missing | 8 | |
| Total | 448 | |

Table 1:  Sex

|  | Frequency | Valid Percent |
|---|---|---|
| less than 25 | 39 | 9 |
| 25-35 | 150 | 34 |
| 36-45 | 91 | 21 |
| 46-55 | 89 | 20 |
| 56-65 | 63 | 14 |
| more than 65 | 9 | 2 |
| Total | 441 | 100 |
| Missing | 7 | |
| Total | 448 | |

Table 2:  Age band

|  | Frequency | Valid Percent |
|---|---|---|
| Professor | 66 | 15 |
| Reader | 17 | 4 |
| Lecturer | 162 | 38 |
| Research fellow | 27 | 6 |
| Research director | 8 | 2 |
| PhD Student | 99 | 23 |
| MA Student | 22 | 5 |
| Research assistant | 14 | 3 |
| Specialist | 9 | 2 |
| Other | 8 | 2 |
| Total | 432 | 100 |
| Missing | 17 | |
| Total | 449 | |

Table 3: Job Title

| | Frequency | Valid Percent |
|---|---|---|
| less than 1 year | 34 | 8 |
| 1-5 years | 136 | 31 |
| 6-10 years | 79 | 18 |
| 11-20 years | 78 | 18 |
| more than 20 years | 111 | 25 |
| Total | 438 | 100 |
| Missing | 10 | |
| Total | 448 | |

Table 4:  Length of time engaged in research

| | Frequency | Valid Percent |
|---|---|---|
| less than 1 year | 75 | 17 |
| 1-5 years | 189 | 44 |
| 6-10 years | 69 | 16 |
| 11-20 years | 52 | 12 |
| more than 20 years | 45 | 11 |
| Total | 430 | 100 |
| Missing | 18 | |
| Total | 448 | |

Table 5:  Length of time in current department or faculty

| | Frequency | Valid Percent |
|---|---|---|
| Archaeology, Anthropology | 33 | 7 |
| Classics, Ancient History | 42 | 9 |
| English Language and Literature | 76 | 17 |
| History - Medieval and Modern | 65 | 15 |
| Modern Languages and Linguistics | 104 | 23 |
| Music and Performing Arts | 32 | 7 |
| Other | 11 | 3 |
| Philosophy, Theology, Religious Studies and Law | 44 | 10 |
| Visual Arts and Media | 41 | 9 |
| Total | 448 | 100 |

Table 6:  Broad subject area of current research

|  | Frequency | Valid Percent |
|---|---|---|
| less than 25% | 91 | 21 |
| 26-50% | 170 | 38 |
| 51-75% | 79 | 18 |
| more than 75% | 103 | 23 |
| Total | 443 | 100 |
| Missing | 5 |  |
| Total | 448 |  |

Table 7:  Proportion of time spent doing research

| Method | Frequency (each element) | % total=449 |
|---|---|---|
| Conventional publishing | 362 | 81 |
| Conference papers | 390 | 87 |
| eJournals | 108 | 24 |
| ePrint archives | 15 | 3 |
| Personal website | 77 | 17 |
| Department website | 136 | 30 |
| Project website | 17 | 4 |
| Exhibition/performance | 8 | 2 |
| Other | 26 | 6 |

Table 8:  How do you currently disseminate your research results to others? (More than one response possible).

## B:  Cross-tabulated data

| Job title | Yourself solely | Academics in dept | Academics in discipline | Interdisciplinary. | Technologists or industry | other |
|---|---|---|---|---|---|---|
| Professor | 52% | 15% | 17% | 15% | .0% | 1% |
| Reader | 50% | .0% | 31% | 13% | 6% | .0% |
| Lecturer | 66% | 8% | 16% | 9% | .6% | .6% |
| Research fellow | 42% | 27% | 15% | 15% | .0% | .0% |
| Research director | 25% | 25% | 25% | 12% | .0% | 13% |
| PhD student | 73% | 14% | 3% | 8% | 1% | 1% |
| MA student | 62% | 29% | 5% | 4% | .0% | .0% |
| RA | 29% | 29% | 14% | 21% | .0% | 7% |
| Specialist | 33% | 11% | .0% | 22% | 11% | 22% |
| Other | 63% | .0% | 13% | 25% | .0% | .0% |

Table 9:  Current Project 1, Collaboration by Job Title

|  | Yourself solely | Academics in dept | Academics in discipline | Interdisciplinary |
|---|---|---|---|---|
| Archaeology, Anthropology | 11 | 5 | 8 | 15 |
| Classics, Ancient History | 41 | 5 | 17 | 8 |
| English Language and Literature | 48 | 14 | 14 | 11 |
| History - Medieval and Modern | 42 | 10 | 16 | 9 |
| Modern Languages and Linguistics | 94 | 22 | 36 | 17 |
| Music and Performing Arts | 28 | 5 | 10 | 9 |
| Philosophy, Theology, Religious Studies and Law | 33 | 6 | 9 | 8 |
| Visual Arts and Media | 24 | 9 | 7 | 5 |

Table 10: Collaboration by Broad Discipline area. Counts from Projects 1-3 amalgamated
(This table is for non-student population only and refers to the main categories of collaboration rather than every one)

| | Project 1 | Count then % in brackets | | |
|---|---|---|---|---|
| | Fully funded | Partially funded | Non-funded | Total |
| Yourself solely | 28 (17) | 32 (19) | 109 (64) | 169 (100) |
| Academics in dept/faculty | 18 (51) | 8 (23) | 9 (26) | 35 (100) |
| Academics in discipline | 17 (35) | 13 (26) | 19 (39) | 49 (100) |
| Interdisciplinary | 16 (41) | 18 (46) | 5 (13) | 39 (100) |
| Technologists/industry | 2 (67) | 1 (33) | 0 | 3 (100) |

Table 11: Who is working on project 1 by funded/non-funded research (this excludes the student population)

| | Project 2 | Count then % in brackets | | |
|---|---|---|---|---|
| | Fully funded | Partially funded | Non-funded | Total |
| Yourself solely | 6 (7) | 13 (14) | 72 (79) | 91 (100) |
| Academics in dept/faculty | 10 (37) | 7 (26) | 10 (37) | 27 (100) |
| Academics in discipline | 9 (21) | 10 (24) | 23 (55) | 42 (100) |
| Interdisciplinary | 6 (22) | 7 (26) | 14 (52) | 27 (100) |
| Technologists/industry | 5 (71) | 1 (14) | 1 (14) | 7 (99) |

Table 12: Who is working on project 2 by funded/non-funded (this excludes the student population)

| | Project 3 | Count then % in brackets | | |
|---|---|---|---|---|
| | Fully funded | Partially funded | Non-funded | Total |
| Yourself solely | 2 (4) | 7 (12) | 48 (84) | 57 (100) |
| Academics in dept/faculty | 5 (38) | 5 (38) | 3 (23) | 13 (99) |
| Academics in discipline | 5 (18) | 7 (25) | 16 (57) | 28 (100) |
| Interdisciplinary | 5 (28) | 6 (33) | 7 (39) | 18 (100) |
| Technologists/industry | 1 (33) | 1 (33) | 1 (33) | 3 (99) |

Table 13: Who is working on project 3 by funded/non-funded (this excludes the student population)

| | Fully funded | Part-funded | Non-funded | Total projects mentioned | % unfunded |
|---|---|---|---|---|---|
| Archaeology, Anthropology | 16 | 17 | 11 | 44 | 25 |
| Classics, Ancient History | 9 | 12 | 50 | 71 | 70 |
| English Language and Literature | 12 | 21 | 50 | 83 | 60 |
| History - Medieval and Modern | 17 | 13 | 48 | 78 | 61 |
| Modern Languages and Linguistics | 32 | 44 | 93 | 169 | 55 |
| Music and Performing Arts | 13 | 16 | 23 | 52 | 44 |
| Philosophy, Theology, Religious Studies and Law | 12 | 8 | 37 | 57 | 65 |
| Visual Arts and Media | 17 | 13 | 25 | 55 | 45 |

Table 14: Amalgamation funding situation by subject domain (this is an aggregated count of data for all three projects, when mention made).

Table 15 (below): Cross-tabulation of main discipline areas by importance of non-electronic and electronic resources (separate resource in each table). NB. original values (four categories) have been amalgamated to two categories. Important and very important therefore=important, and not important and slightly important=not important.

Primary texts

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 97%* | 3 | | 70 | 30 |
| Classics, Ancient History | 98 | 2 | | 76 | 24 |
| English Language and Literature | 96 | 4 | | 84 | 16 |
| History - Medieval and Modern | 97 | 3 | | 77 | 23 |
| Modern Languages and Linguistics | 98 | 2 | | 64 | 36 |
| Music and Performing Arts | 100 | 0 | | 90 | 10 |
| Philosophy, Theology, Religious Studies and Law | 98 | 2 | | 85 | 15 |
| Visual Arts and Media | 93 | 7 | | 73 | 27 |

Secondary texts

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 64 | 36 | | 36 | 64 |
| Classics, Ancient History | 95 | 5 | | 63 | 37 |
| English Language and Literature | 91 | 9 | | 78 | 22 |
| History - Medieval and Modern | 89 | 11 | | 68 | 32 |
| Modern Languages and Linguistics | 93 | 7 | | 64 | 36 |
| Music and Performing Arts | 84 | 16 | | 87 | 13 |
| Philosophy, Theology, Religious Studies and Law | 86 | 4 | | 82 | 18 |
| Visual Arts and Media | 85 | 15 | | 68 | 32 |

Archives

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 42 | 58 | | 45 | 55 |
| Classics, Ancient History | 31 | 69 | | 39 | 71 |
| English Language and Literature | 68 | 32 | | 53 | 47 |
| History - Medieval and Modern | 93 | 7 | | 70 | 30 |
| Modern Languages and Linguistics | 52 | 48 | | 29 | 61 |
| Music and Performing Arts | 45 | 55 | | 52 | 48 |
| Philosophy, Theology, Religious Studies and Law | 23 | 77 | | 36 | 64 |
| Visual Arts and Media | 64 | 36 | | 56 | 44 |

Catalogues and indexes

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 36 | 64 | | 42 | 58 |
| Classics, Ancient History | 79 | 21 | | 67 | 33 |
| English Language and Literature | 78 | 22 | | 88 | 12 |
| History - Medieval and Modern | 72 | 28 | | 81 | 19 |
| Modern Languages and Linguistics | 68 | 32 | | 76 | 24 |
| Music and Performing Arts | 61 | 39 | | 87 | 13 |
| Philosophy, Theology, Religious Studies and Law | 66 | 34 | | 72 | 28 |
| Visual Arts and Media | 60 | 40 | | 63 | 37 |

Images

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 52 | 48 | | 64 | 36 |
| Classics, Ancient History | 35 | 65 | | 33 | 67 |
| English Language and Literature | 41 | 59 | | 78 | 22 |
| History - Medieval and Modern | 48 | 52 | | 30 | 70 |
| Modern Languages and Linguistics | 42 | 58 | | 34 | 66 |
| Music and Performing Arts | 48 | 52 | | 47 | 53 |
| Philosophy, Theology, Religious Studies and Law | 9 | 91 | | 9 | 91 |
| Visual Arts and Media | 83 | 17 | | 66 | 34 |

Music

| | Non-electronic resources | | | Electronic resources | |
|---|---|---|---|---|---|
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 6 | 94 | | 9 | 91 |
| Classics, Ancient History | 7 | 93 | | 5 | 95 |
| English Language and Literature | 12 | 88 | | 9 | 91 |
| History - Medieval and Modern | 14 | 86 | | 13 | 87 |
| Modern Languages and Linguistics | 17 | 83 | | 15 | 85 |
| Music and Performing Arts | 88 | 12 | | 71 | 29 |
| Philosophy, Theology, Religious Studies and Law | 7 | 93 | | 2 | 98 |
| Visual Arts and Media | 24 | 76 | | 25 | 75 |

Maps

| | Non-electronic resources | | | Electronic resources | |
| --- | --- | --- | --- | --- | --- |
| | Important | Not important | | important | Not important |
| Archaeology, Anthropology | 81 | 19 | | 73 | 27 |
| Classics, Ancient History | 21 | 79 | | 15 | 85 |
| English Language and Literature | 10 | 90 | | 14 | 86 |
| History - Medieval and Modern | 29 | 71 | | 28 | 72 |
| Modern Languages and Linguistics | 8 | 92 | | 10 | 90 |
| Music and Performing Arts | 3 | 97 | | 14 | 86 |
| Philosophy, Theology, Religious Studies and Law | 2 | 98 | | 2 | 98 |
| Visual Arts and Media | 18 | 82 | | 17 | 83 |

Artifacts (non-electronic only)

| | Important | Not important |
| --- | --- | --- |
| Archaeology, Anthropology | 79 | 21 |
| Classics, Ancient History | 26 | 74 |
| English Language and Literature | 23 | 77 |
| History - Medieval and Modern | 28 | 72 |
| Modern Languages and Linguistics | 19 | 81 |
| Music and Performing Arts | 47 | 53 |
| Philosophy, Theology, Religious Studies and Law | 14 | 86 |
| Visual Arts and Media | 58 | 42 |

Databases (electronic resources only)

| | Important | Not important |
| --- | --- | --- |
| Archaeology, Anthropology | 82 | 18 |
| Classics, Ancient History | 60 | 40 |
| English Language and Literature | 70 | 30 |
| History - Medieval and Modern | 73 | 27 |
| Modern Languages and Linguistics | 59 | 41 |
| Music and Performing Arts | 57 | 23 |
| Philosophy, Theology, Religious Studies and Law | 49 | 51 |
| Visual Arts and Media | 78 | 22 |

Multimedia (electronic resources only)

| | Important | Not important |
| --- | --- | --- |
| Archaeology, Anthropology | 44 | 56 |
| Classics, Ancient History | 17 | 83 |
| English Language and Literature | 26 | 74 |
| History - Medieval and Modern | 20 | 80 |
| Modern Languages and Linguistics | 23 | 77 |
| Music and Performing Arts | 52 | 48 |
| Philosophy, Theology, Religious Studies and Law | 9 | 91 |
| Visual Arts and Media | 55 | 45 |

Analysis tools (Electronic resources only)

|  | Important | Not important |
|---|---|---|
| Archaeology, Anthropology | 78 | 24 |
| Classics, Ancient History | 22 | 78 |
| English Language and Literature | 25 | 75 |
| History - Medieval and Modern | 27 | 73 |
| Modern Languages and Linguistics | 31 | 69 |
| Music and Performing Arts | 45 | 55 |
| Philosophy, Theology, Religious Studies and Law | 16 | 84 |
| Visual Arts and Media | 38 | 62 |

Modelling (Electronic resources only)

|  | Important | Not important |
|---|---|---|
| Archaeology, Anthropology | 42 | 58 |
| Classics, Ancient History | 5 | 95 |
| English Language and Literature | 5 | 95 |
| History - Medieval and Modern | 11 | 89 |
| Modern Languages and Linguistics | 6 | 94 |
| Music and Performing Arts | 17 | 83 |
| Philosophy, Theology, Religious Studies and Law | 5 | 95 |
| Visual Arts and Media | 26 | 84 |

|  | Archaeology, Anthropology | Classics, Ancient History | English Language and Literature | History - Medieval and Modern | Modern Languages and Linguistics | Music and Performing Arts | Philosophy, Theology, Religious Studies and Law | Visual Arts and Media | Total |
|---|---|---|---|---|---|---|---|---|---|
| Software tools | 3 | 2 | 4 | 1 | 4 | 7 | 2 | 3 | 26 |
| Databases | 23 | 13 | 23 | 30 | 27 | 8 | 8 | 17 | 149 |
| Scanning, Digitising | 19 | 15 | 13 | 25 | 25 | 12 | 6 | 16 | 131 |
| eTexts | 30 | 28 | 59 | 53 | 76 | 23 | 36 | 28 | 333 |
| Catalogues, indexes | 16 | 8 | 19 | 28 | 22 | 7 | 12 | 11 | 123 |
| Images | 23 | 8 | 19 | 17 | 19 | 10 | 0 | 23 | 119 |
| Sound | 3 | 0 | 6 | 4 | 16 | 14 | 1 | 3 | 47 |
| Re-use | 3 | 0 | 1 | 2 | 2 | 1 | 0 | 2 | 11 |
| Website | 16 | 7 | 18 | 26 | 36 | 11 | 15 | 14 | 143 |

Table 16: Electronic resource creation by discipline (these figures are a count of all mentions of creating resources-most people created more than one type)

|  | Fully funded | Part-funded | Non-funded | Total |
|---|---|---|---|---|
| Conventional publishing | 113 | 86 | 154 | 353 |
| Conference papers | 130 | 90 | 160 | 380 |
| eJournals | 34 | 30 | 42 | 106 |
| ePrint archives | 4 | 3 | 8 | 15 |
| Personal website | 26 | 14 | 37 | 77 |
| Department website | 54 | 35 | 45 | 134 |
| Project website | 8 | 3 | 5 | 16 |
| Exhibition/performance | 1 | 5 | 2 | 8 |

Table 17: Dissemination patterns by level of research funding received-Project 1 (the figures are a count of number of mentions-more than one selection possible).

|  | Fully funded | Part-funded | Non-funded | Total |
|---|---|---|---|---|
| Via web | 67 | 28 | 46 | 141 |
| Shared in department | 43 | 21 | 37 | 101 |
| Local non-eArchive | 23 | 23 | 32 | 78 |
| Local eArchive | 15 | 8 | 17 | 40 |
| National archive | 34 | 20 | 27 | 81 |
| Teaching resource | 41 | 44 | 70 | 155 |
| Nothing done | 21 | 16 | 48 | 85 |

Table 18: Where data is located on creation by level of funding available (the figures are a count of the number of mentions-more than one selection possible).

|  | ICT skills level | | | Total |
|---|---|---|---|---|
|  | Basic | Intermediate | Experienced | |
| Archaeology, Anthropology | 4 (12) | 14 (42) | 15 (46) | 33 (100) |
| Classics, Ancient History | 5 (12) | 27 (66) | 9 (22) | 41 |
| English Language and Literature | 5 (6) | 47 (62) | 24 (32) | 76 |
| History - Medieval and Modern | 5 (8) | 41 (67) | 15 (25) | 61 |
| Modern Languages and Linguistics | 11 (11) | 60 (59) | 30 (30) | 101 |
| Music and Performing Arts | 7 (23) | 14 (45) | 10 (32) | 31 |
| Philosophy, Theology, Religious Studies and Law | 3 (7) | 20 (48) | 19 (45) | 42 |
| Visual Arts and Media | 5 (13) | 17 (44) | 17 (43) | 39 |

Table 19: Subject area by current ICT skills level (Count and % in brackets)

|  | Basic ICT skills | Intermediate | Experienced |
|---|---|---|---|
| Quality/reliability of resources | 19 (9) | 132 (60) | 68 (31) |
| Lack of expertise | 29 (16) | 119 (64) | 37 (20) |
| Licensing/copyright restrictions | 12 (7) | 87 (52) | 67 (40) |
| Lack of discipline-specific software | 10 (8) | 69 (59) | 38 (33) |
| Accessibility problems | 13 (11) | 63 (53) | 38 (33) |
| Lack of common standards | 8 (7) | 48 (44) | 53 (49) |
| Compatibility/sustainability of software | 8 (8) | 53 (52) | 41 (40) |
| National funding/charging policies | 6 (6) | 49 (52) | 40 (42) |
| Institutional practices | 7 (8) | 39 (43) | 44 (49) |
| Publishing practices | 9 (11) | 44 (54) | 28 (35) |
| Institutional funding/charging policies | 10 (13) | 38 (50) | 28 (37) |
| Departmental practices | 4 (7) | 22 (40) | 29 (53) |

Table 20: Specific Difficulties in using ICT in research by ICT skills level (count then % in brackets (more than one response possible)

|  | Knowledge of eResearch Count then % in brackets | Knowledge of Grid computing Count then % in brackets | Knowledge of AHRC Methods Network Count then % in brackets |
|---|---|---|---|
| Archaeology, Anthropology | 9 (29) | 11 (34) | 8 (25) |
| Classics, Ancient History | 7 (17) | 5 (12) | 2 (5) |
| English Language and Literature | 22 (29) | 13 (17) | 10 (13) |
| History - Medieval and Modern | 16 (25) | 13 (20) | 14 (22) |
| Modern Languages and Linguistics | 20 (20) | 10 (10) | 15 (15) |
| Music and Performing Arts | 8 (25) | 8 (25) | 5 (16) |
| Philosophy, Theology, Religious Studies and Law | 8 (19) | 6 (14) | 6 (14) |
| Visual Arts and Media | 14 (34) | 5 (12) | 11 (27) |
| Total heard of | 109 (25%) | 74 (17%) | 72 (16%) |

Table 21: Knowledge of Services by Discipline

|  | not important | slightly important | important | very important |  |
|---|---|---|---|---|---|
| colleagues in department | 17.1 | 23.7 | 26.0 | 33.3 | 100% |
| colleagues elsewhere | 20.7 | 28.7 | 27.3 | 23.2 |  |
| contacts elsewhere | 21.5 | 20.1 | 33.3 | 25.0 |  |
| institutional information services | 8.6 | 24.8 | 35.2 | 31.4 |  |
| journals etc | 45.3 | 21.5 | 18.9 | 14.3 |  |
| conferences/seminars | 36.3 | 28.8 | 22.8 | 12.1 |  |
| learned societies | 55.2 | 21.7 | 17.5 | 5.6 |  |
| internet resources | 36.1 | 27.2 | 20.8 | 15.9 |  |
| national services eg AHDS | 54.2 | 24.5 | 12.7 | 8.6 |  |
| web search engines | 1.8 | 12.8 | 25.6 | 59.9 |  |
| email discussion lists | 32.2 | 28.7 | 23.8 | 15.3 |  |

Table 22: How important are the following sources of informal support for use of ICT in your research? (Valid %)

| | | | Degree of change ICT has brought to the way you do research | | | | Total |
|---|---|---|---|---|---|---|---|
| | | | Highly significant | Moderate | Slightly significant | Not significant | |
| Broad subject area | Archaeology, Anthropology | Count | 19 | 10 | 2 | 1 | 32 |
| | | % within Broad subject area | 59% | 31% | 6% | 3% | 100% |
| | Classics, Ancient History | Count | 23 | 14 | 3 | 1 | 41 |
| | | % within Broad subject area | 56% | 34% | 7% | 2% | 100% |
| | English Language and Literature | Count | 37 | 25 | 8 | 1 | 71 |
| | | % within Broad subject area | 52% | 35% | 11% | 2% | 100% |
| | History - Medieval and Modern | Count | 33 | 20 | 8 | 1 | 62 |
| | | % within Broad subject area | 53% | 32% | 13% | 2% | 100% |
| | Modern Languages and Linguistics | Count | 51 | 37 | 12 | 1 | 101 |
| | | % within Broad subject area | 50% | 37% | 12% | 1% | 100% |
| | Music and Performing Arts | Count | 19 | 9 | 1 | 0 | 29 |
| | | % within Broad subject area | 66% | 31% | 3% | .0% | 100% |
| | Philosophy, Theology, Religious Studies and Law | Count | 23 | 18 | 2 | 1 | 44 |
| | | % within Broad subject area | 52% | 41% | 5% | 2% | 100% |
| | Visual Arts and Media | Count | 30 | 8 | 0 | 2 | 40 |
| | | % within Broad subject area | 75% | 20% | .0% | 5% | 100% |
| Total | | Count | 243 | 143 | 36 | 8 | 430 |
| | | % within Broad subject area | 57% | 33% | 8% | 2% | 100% |

Table 23: Degree of change ICT has brought to research by discipline

| | | | Degree of change ICT has brought to the way you do research | | | | Total |
|---|---|---|---|---|---|---|---|
| | | | Highly significant | Moderate | Slightly significant | Not significant | |
| ICT skills level | Basic | Count | 18 | 18 | 6 | 2 | 44 |
| | | % within ICT skills level | 41% | 41% | 14% | 4% | 100% |
| | Intermediate | Count | 117 | 93 | 23 | 5 | 238 |
| | | % within ICT skills level | 49% | 39% | 10% | 2% | 100% |
| | Experienced | Count | 102 | 28 | 6 | 1 | 137 |
| | | % within ICT skills level | 75% | 20% | 4% | 1% | 100% |
| Total | | Count | 237 | 139 | 35 | 8 | 419 |
| | | % within ICT skills level | 57% | 33% | 8% | 2% | 100 % |

Table 24: ICT skills level by degree of change ICT has brought to the way you do research

| | | | Primary resources v tools | | Total |
| --- | --- | --- | --- | --- | --- |
| | | | digitisation of primary resources | access and retrieval tools | |
| ICT skills level | Basic | Count | 25 | 15 | 40 |
| | | % within ICT skills level | 62% | 38% | 100% |
| | Intermediate | Count | 164 | 72 | 236 |
| | | % within ICT skills level | 70% | 30% | 100% |
| | Experienced | Count | 92 | 48 | 140 |
| | | % within ICT skills level | 66% | 34% | 100% |
| Total | | Count | 281 | 135 | 416 |
| | | % within ICT skills level | 68% | 32% | 100% |

Table 25:  ICT skills level by choice of digitisation or access tools

# APPENDIX D:
# CASE STUDY SCHEDULE

A checklist of questions provided a framework for semi-structured telephone interviews.

1.  Confirm and explore further details relating to the category (ies) for which subject was selected.

2.  Nature of their current research project(s)

3.  Examples of electronic and non-electronic resources of importance to their research

4.  Details of electronic resources they are creating

5.  Dissemination strategies, particularly in relation to ePublications and open access

6.  Current ICT skills levels and what further specific skills they were seeking

7.  Support from the institution and department, who is providing what, what is missing

8.  Difficulties in using ICT, especially linked to standards, sustainability

9.  The types of changes ICT has brought to their research, especially the quality of their research

10. Delve into access v digitisation of primary resources in more depth

# APPENDIX E:
# ANONYMISED CASE STUDIES

The nine case study interviews varied in length from 30 minutes to an hour depending on the extent of subjects' responses to the broad question areas illustrated in Appendix D. Those responses are summarised here under common headings together with relevant survey responses. The intention is to give a flavour of the rich pictures that emerged whilst preserving subjects' anonymity. Other quotes—not included here—are included where relevant to illustrate other points in the presentation of findings in our main report.

## Case Study 1: 'Basic skills'

**Profile**: Professor of Art History. Been in department 11-20 years, has more than 20 years' research experience (11-20 years' post-doctoral). Spends 51-75% of time on research. Current projects are 1. Fully-funded by AHRC; 2. Fully-funded by British Council and 3. Non-funded. Describes skills level as basic.

**Creating resources**: Survey response indicates creation of a number of different types of resource: Creating or maintaining a website; Creating or processing images (still or moving); Creating catalogues/indexes; Creating text (article, chapter, book); Digitising (scanning) resources as basis for own research; Creating a database/dataset; chatting/email. The interview revealed that, for the current projects in hand, resource creation is still in its early days as the project has only recently started. An earlier project had dealt with 9,000 letters by [artist]. The more recent project is to develop an electronic database of [artist's] photographs and etchings.

**Using resources**: Uses digital camera and scanners and will create a MS-Access database and text files in XMetaL which will link to scanned images and feed into a website.

**Dissemination of research:** Survey responses showed that a variety of channels are generally used to disseminate research: Departmental (or faculty) website; Conference papers and presentations; Conventional publishing channels (book, journal, monograph); deposited in art galleries/dealers; Deposited in national/international archive; Available via Web. Outputs from the current projects will be attached to the department's website for open access.

**Skills level**: Self-assigned 'basic' level in the survey, but very experienced with MS-Access and MS-Word. Identifies 'lack of expertise' as one of the difficulties in using ICT. Is new to digitisation (hence the basic category) because of the steep learning curve involved. Courses are available and has attended some – has the funding but not the time.

**Support**: Survey responses showed a range of formal support and the use of AHDS and personal contacts to keep up to date. The interview revealed ability to delegate to colleagues when there is not time to learn. HATII (Humanities Advanced Technology And Information Institute based at the University of Glasgow) is very helpful, own institution's Information Services not quite so helpful. However, is "quite well off" – has a computer consultant six hours per week. No departmental help but much help from other colleagues.

**Impact of ICT on research:**
*Pros*: "Enormous change since 1980 when we were still using scissors and sellotape!! I could have saved about ten years of research time". ICT brings better accuracy, range and search mechanisms. Able to compare works of art – couldn't be done without ICT.

*Cons*: Standards are getting stricter; more regulation required which can stop some scholarly projects. We have difficulty with too many people using MS-Access. "Images are becoming very expensive (everyone wants to make money – can be £60 – £100 for one image where we would have paid little or nothing at all) and some important collections may not be in the final database".

**Plans and wishlist:** "I am consulting on slide scanning and management of images; on networking visual images from USA and Europe; tools to help with search/retrieval or processing (i.e. better access). I would like to see cheaper payment for images used on web; less confusing and expensive options for managing images; more accessible study days on computing - it's a steep learning curve!"

# Case Study 2: 'Experienced skills, creating resources'

**Profile**: Senior Lecturer – Cultural heritage. Been in department 1-5 years, has more than 20 years' research experience. Spends 26-50% of time on research. Current projects are 1. Partially-funded by AHRC and four other sponsors; 2. Partially-funded by charitable trusts and 3. Non-funded. Describes skills level as experienced.

**Creating resources**: Survey response indicates creation of a number of different types of resource: Creating or maintaining a website, Re-use/re-packaging products; Creating or processing sound; Creating or processing images (still or moving); Creating catalogues/indexes; Creating text (article, chapter, book); Digitising (scanning) resources as basis for own research. The interview revealed further detail of the wealth of resources being created, some partially-funded by the AHRC. These include an online database and two major catalogue publications. All the data and images (photos, digitised drawings, thin section petrographic slides, tables and cross-references and text files) have also been deposited with the Archaeology Data Service. For the second project, all material gathered several years ago is now being digitised.

**Using resources:** The project makes use of a number of online services to deposit and provide access to data, for example ArchNet (where you can upload images, metadata, published articles etc) and ADS. iView is used to catalogue photographic images with extensive metadata; ADS' Dublin Core-based standards can be derived from this.

**Dissemination of research:** As well as traditional channels such as conferences and journals, survey response showed that research is disseminated widely via ePrints archives and eJournals. The team has negotiated a deal with a commercial company to publish on-demand digitally. Research data are also used as a teaching resource and deposited in national/international archives.

**Skills level:** The self-assigned 'experienced' skills level is reflected in the extent of use, manipulation and creation of digital resources and eCollaboration revealed at interview. However, the considerable variation in ICT-literacy in research assistants, for example, is noted. Also not sure how best to keep up to date with ICT developments. Has not necessarily used TASi training courses, for example, even though has heard of them, and vaguely aware of JISC developments, but again not signed up to receive any mailings.

**Support**: Support at institutional level is good, with web space (though never enough for storing large number of images) and good training infrastructure and courses on eg DreamWeaver, using blogs etc: "Every time I need something there is usually a course available". There is a central support unit that does scanning, digital photography etc, with "a lot of local expertise on the archiving of images". There is less technical support ("for example, if you have 25,000 slides to digitise you need to raise the funding and do it commercially – or pay a student to do it. There's no central resource for that kind of activity"). Resourcing for long-term sustainability of research outputs is an issue locally as the institution couldn't support large numbers wanting to submit images and texts to the online database. ADS is seen as a vital resource for long-term sustainability of arts and humanities research outputs.

**Impact of ICT on research:**

*Pros*: "It's significant in a lot of areas ... for example, ten years ago, we word-processed structural narratives and drew phase plans by hand, trying to cross-reference the two ... collaboration is much easier now". "It's not just the ease of access: I can now have very strong three-way discussions ... fully informed by shared evidence ... [ICT] allows us to ask more sophisticated questions about data and debate those more critically ... there's a breakthrough coming soon where we can present the complicated and important information in complex ways; where colleagues don't agree on an interpretation, we can now show the alternatives". It also changes what you can expect students to do and the level of detail they can be expected to analyse or synthesise.

*Cons*: none

**Plans and wishlist:** The survey response indicated plans for greater electronic dissemination and eLearning strategies. At interview, this was explored in more depth: "I have a lot of ideas about using WebCT more, with quizzes, self-paced learning and so on ... the technology is all there, it's just that the time isn't! There isn't much support within [department] for course development – ie the people to turn your ideas into programmes. But I'm going to spend more time learning about advanced features of WebCT and doing a designing quizzes course. We have a good internal network of best practice, all the WebCT coordinators share examples cross-faculty". The survey response also placed emphasis on the need for digitisation, but the interview revealed a dilemma, and a need for access tools, depending on the extent of digitisation in a given field: "For conventional research, there's not enough digital material. Much is published already, conventionally, who's going to go back and digitise it? In some fields, you can live without it, but for others it's vital." For other areas, "the priority is for search tools because the major part of the material is available electronically".

# Case Study 3: 'Unfunded research, sole researcher'

**Profile**: Fellow/Lecturer – Modern Languages/Linguistics. Been in department 1-5 years with same level of post-doctoral research experience. Spends 51-75% of time on research. Current projects are 1. Unfunded 2. Partially-funded by department and 3. Travel funding from AHRC. Describes skills level as intermediate.

**Creating resources**: Survey response indicates creating a database/dataset. Interview reveals research outcomes include publications, a monograph currently in press, invited articles in volumes of essays and journal article by competitive submission. All mostly hard copy. Has also produced a mini-website for first year students, offering texts, introductory material, analysis of syntax.

**Using resources:** Uses MLA database and JSTOR, GALLICA and other databases of medieval manuscripts and other early printed material. Hard copy of primary texts also used, plus modern critical editions from late 20$^{th}$ century, some 19$^{th}$ century and manuscripts of early printed books. As many journals as possible, mostly hard-copy because of proximity to major holding library. Would seek out hard copy in preference to eCopies, but this may be different if not close to the library. Uses inter-library loans. Mostly uses text and images and catalogues. With such old texts, copyright is not an issue, but there can be problems requesting permission for use of images or text in articles or in teaching resources.

**Dissemination of research:** Conventional channels, including hard copy journals. Is now working on a couple of critical editions. Although theoretically possible to create critical editions electronically, this is not deemed appropriate for current texts being studied. However, is aware of the potential offered by technology, eg British Library's different views of a manuscript, comparing different versions, and another at Sheffield using hypertext.

**Skills level:** Thinks it would be to advantage to advance skills level, especially in the area of hypertext and that "all generations of current scholars see the exciting possibilities". Would like to be more competent and at least know where to start and how technology could be applied.

**Support**: The University's Computing Services run a lot of relevant courses. Has attended some on use of PowerPoint, and the courses are pitched well and are free. IT support is provided at faculty level for "things like a broken printer etc" but subject specialist help is not provided.

**Impact of ICT on research:**

*Pros*: Has seen use of ICT grow, but not phenomenally. As an undergraduate in 1997, students didn't have email accounts and notes were put in pigeonholes by tutors. There is no longer such a reliance on paper. Positive changes include time-saving (eg checking online catalogues for references, dates, etc). "It's all beneficial, more a confidence thing, for example now more dexterous in dealing with databases I know ... but don't ever want to wipe out the need for going to the library, browsing in the library stacks, serendipity part of the process of discovery in research, especially for earlier texts – some may not have been recently catalogued and therefore not found in an online search".

*Cons*: none

**Plans and wishlist:** Access is a key in this discipline rather than digitisation. "Enables enquiry rather than just reproduction, keeps it alive: [digitised] resources are very useful but a starting point only". At the end of the interview, said it had prompted thinking about what to do next in following up IT, and would go and look on the University's IT training website and look for suitable courses.

# Case Study 4: 'Unfunded research, not up-to-date with ICT?'

**Profile**: Senior Lecturer – English Language and Literature. Been in department 6-10 years but has more than 20 years' post-doctoral research experience. Spends less than 25% of time on research. Current projects are 1. Unfunded, sole researcher. Describes skills level as Experienced.

**Creating resources**: Survey response indicates creation of a range of different types of resources: Creating or maintaining a website; Creating or processing sound; Creating or processing images (still or moving); Creating text (article, chapter, book); Digitising (scanning) resources as basis for own research; Creating a database/dataset. The interview shows that is creating voice files for use in exams and videos to embed in PowerPoint presentations. Is doing much digitising and scanning and using DreamWeaver to create own website.

**Dissemination of research:** The survey indicates that dissemination is via Departmental (or faculty) website; personal website; ePrints archive; eJournals; Conference papers and presentations; conventional publishing channels (book, journal, monograph). Data resulting from research is "just held by me" although also used as a teaching resource, available via the web.

**Skills level:** Self-categorised as 'experienced' and is a keen ICT user. The survey indicates that keeping up to date with ICT developments is difficult: "not sure I do" Perhaps it's not possible". The interview reveals that keeping up to date is "mostly accidental, for example, only this week I found out about software for manipulating data and I am IS rep for the department and learnt about Lexis at a meeting". Actually does keep up to date with technical developments but it is informal. Feels there is a lot more that could be doing, eg doesn't use cascading style sheets yet but would if more time.

**Support**: Survey response suggests that difficulties relate to having an "old computer"; institutional practices; licensing and copyright restrictions; lack of common standards/compatibility. Has been on a University course on embedding video in PowerPoint. A reasonable number of courses are available. Would like consultancy for the department, centrally-provided and available to everyone, to help in the use of programmes like Lexis, which is not intuitive. Is also not sure about mechanisms for finding out what's available. Would like a more organised way of finding out about software.

**Impact of ICT on research:**
***Pros***: Can hardly remember a time without ICT. Thinks the Web is wonderful: "the more you know, the more you know you don't know, so this will affect how you rate yourself, your skills, etc".

***Cons:*** There are pedagogical issues around the use of ICT, for example "students regard the web as a 'thing', so they say "I got it from the web" which they think is equivalent to saying "I got it from a book". Students think all information is equally valid in spite of Internet Detective (was thrilled to hear about the new release). They think speed=appearance of authority.

**Plans and wishlist:** "There is always scope for more datasets. I am always expanding my use of ICT, digitisation of primary resources used in research such as texts, maps, images (ie more eResources). Plans to expand ICT include: Google speech index for downloadable speech (like Google images); A single standard for sound files, and an easy way of listening to them, manipulating them, and doing acoustic analysis on them. Draggable boxes in PowerPoint projections. Would like to see "new things will emerge that I can't imagine now. Old English is particularly well-supported currently. EEBO is also tremendous".

# Case Study 5: 'Other job title, Experienced, Creating resources'

**Profile**: Imaging Officer – Visual Arts and Media. Been in department 1-5 years and has 11-20 years' research experience, 6-10 of these at post-doctoral level. Spends less than 25% of time on research and in effect has three part-time roles. Current projects are 1. Fully-funded by AHRC, working with other academics, volunteers and technical support. 2. Unfunded, sole researcher; 3. Fully-funded by JISC. Describes skills level as Experienced and identifies most resources as 'very important'.

**Creating resources:** Survey response indicates is creating a number of different types of resources: Creating or maintaining a website; Creating or processing images (still or moving); Creating catalogues/indexes; Creating text (article, chapter, book); Digitising (scanning) resources as basis for own research; Creating a database/dataset. The interview reveals more detail about resources being created in each project area. The first involved digitisation and maintaining a large picture archive; the second involved taking a specific group of artworks – paintings, prints, drawings, landscapes and figures and double imagery using various imaging techniques to compare and analyse. The software was developed and adapted for own use, to look for different representation of artworks and to reveal patterns and outlines which exist in original works of art but cannot be seen. The third project was more about researching 3D and providing a forum for discussion and technical support.

**Using resources:** Uses PhotoShop, text encoding in XML and MS-Access as underlying database.

**Dissemination of research:** For second project, is using a personal multimedia package and for the third, the project's website, Conference papers and presentations, Conventional publishing channels (book, journal, monograph). For project 2, the outputs are for own use only and used as a teaching resource, deposited in national/international archive and available via the Web. Through interview, acknowledges that paper-based publications are difficult in this area. For project 2, the digital methodology is bringing new insights and needs to be interactive. Can produce individual CDs and use them privately, in lectures and for students and research queries, but there are "impossible copyright issues" as images are from museum collections and the costs of clearing copyright are prohibitive. "Would love to turn research into a website but copyright prevents this as the research demands the use of very high-resolution images. Regulations are prohibitive and people who make the decisions are not aware of the nature of the research. For example, just one Dali painting important for this research has copyright charges of £500". However, doesn't feel alienated because of a lack of published books – there is a community of art historians who all face similar issues.

**Skills level:** Self-categorised as 'experienced'

**Support**: Survey response suggests that difficulties relate to dissemination practices; national funding or charging policies; institutional practices; licensing, copyright restrictions; compatibility-sustainability of software. A free-text response adds "Lack of institutional support for ePublication and prohibitive cost of clearing copyright". Some difficulties arise from the short-term nature of art-related computer-based projects, with funding and project duration not really sufficient to allow full completion: "quite frustrating not to be able to *really* complete these projects". [Institution] is regarded as a leading institution in art history but the level of ICT awareness "amongst academics is poor and not supported by the institution. Has nothing to do with age – generally about technophobia".

**Impact of ICT on research:**
*Pros*: "There are two cultures: some people still use old-fashioned typewriters, slides and acetate images ... so [ICT] can be a revelation if they want to learn"

*Cons*: none

**Plans and wishlist:** In project 2, applying for more advanced imaging techniques in my own research; project 3, applying 3D surveying and visualisation techniques and digitisation of primary resources used in research such as texts, maps and images. Would like to see unrestricted use of images in research and teaching; CBIR retrieval facilities for image archives; financial support for individual, non-institutional research.

# Case Study 6: 'Unfunded research, Basic skills, Creating resources'

**Profile**: Professor – History: Medieval and Modern. Has more than 20 years' research experience and spends up to half of time on research. Current projects are 1. Unfunded, some interdisciplinary and Project 2 on own, some funds for travel and conferences. Describes skills level as basic.

**Creating resources:**  Is creating catalogues and indexes, articles, chapters (text).

**Using resources:**  Uses early English books online (although there is little available digitally from 17$^{th}$ and 18$^{th}$ centuries). The National Archive's wills online are very useful, as are the Royal Historical Society Bibliography, online library catalogues, Historical Association archives. Private collections are much less likely to be online.  Local record offices are becoming more electronically aware but "mainly for family history resources as this is what is most popular".  Does not especially use historical databases, but makes use of journals and copies of Hansard that are now online.

**Dissemination of research:** In teaching capacity, will be introducing students to using historical data in spreadsheets (but not using the bank data), probably something to do with a count of different religions in the parishes of several dioceses. "This will be fairly elementary and they will then go on to study census data, both English and Norwegian ... very big spreadsheets, a data wizard will load the data". Is also writing articles for the Economic History Review.  Mainly uses conventional channels for dissemination of research more widely, including journal publishing, but is just doing a PDF file for an article that will be produced both in paper and electronic versions.  [Institution] is developing an ePrint repository for the RAE "but it is too much of a science model and doesn't work well for all arts subjects". Art History journals tend not to be in electronic form because of rights restrictions on illustrations. Is not particularly interested in having own website although the institution provides support for this.  Cites information overload as part of the problem.

**Skills level:**  Self-categorised as 'basic', although is quite an experienced user of common desktop software. Projects looking mainly at correspondence, but also involved following up references to, for example, banking records, where access to the bank's archives, customer ledgers, etc., provided an opportunity to extract data manually and use MS-Word and MS-Excel to record information. "Using spreadsheets suits the material, is flexible and good for very variable data". Has never succeeded in sorting things in spreadsheets, hence transporting into tables so that the integrity of the data remains intact. Is an early user of databases (Dbase2 and MS-Access, but found Access too complicated and not well-suited to own types of data.  "... it is a sledgehammer to crack a nut").  Some younger colleagues know all sorts of things that [researcher] doesn't; hence the description 'basic'. Not interested in electronic things for their own sake, only for a specific purpose. For example, being able to sort things in Excel – "can only do one column at a time without losing associated data".  Has a good American tutorial and is self-taught. Likewise back in 1986, self-taught Dbase, so "not afraid of having a go".

**Support**:  Teaching approach makes 'buying out' teaching time for more research difficult.   [Institution] has invested heavily in electronic journals with high level of electronic subscriptions, plus JSTOR and EBSCO.  "It makes a big difference to the students".  [Institution] runs plenty of generic training courses but these are not very interesting as they cater for all-comers: "chemists, administrators, etc.,", and aren't "specifically geared" to the arts and humanities community. "Colleagues are very good on an informal basis – may show you an easy way".

### Impact of ICT on research:
*Pros*: Improved access to existing materials. Also it has promoted the internationalisation of own work – has frequent contact with Canada, US, Australia several times a week. "You can organise things easily, like panels at conferences.  It's a vast improvement. Also you can cluster people with similar interests".

*Cons*: none

**Plans and wishlist:** A better understanding of software for data analysis.

# Case Study 7: 'Unfunded, sole researcher, Creating resources'

**Profile**: Lecturer – History: Medieval and Modern. Been in current department 6-10 years and has more than 20 years' research experience (11-20 years post-doctoral). Spends up to 50% of time on research. All three projects unfunded and worked on alone. Intermediate skills level.

**Creating resources:** Survey response shows creation of a number of different types of resource: Language translation programmes, eg. Latin; Creating or maintaining a website; Creating or processing images (still or moving); Creating text (article, chapter, book); Digitising (scanning) resources as basis for own research; Creating a database/dataset.

**Using resources:** important ones are: Blizt Latin, a Latin translation programme produced by Software Partners. The majority of resources are in Latin and you still have to know Latin to use them. Hasn't tried modern foreign language programs. Uses medieval websites, e.g. Medieval Sourcebook, part of the online reference book for Medieval Studies, which has full text resources, out-of-copy translations, etc. an American site (Fordham). Uses bibliographies, international academic publishers online, BREPOLS which includes all conference and journal publications and is fully searchable. Lets students use this, but not many do. Also, CLIOHnet an EC network of historians, a network of experts and EHLee, and offshoot of the above mainly about using ICT in teaching. Also uses images embedded in PowerPoint for lectures/teaching in medieval iconography.

**Dissemination of research:** From the survey, apart from conventional publishing channels (book, journal, monograph), dissemination is mainly via electronic means: Departmental (or faculty) website; Personal website; eJournals; Conference papers and presentations. The interview indicates that electronic publishing is still quite new: "Just moving into publishing on the web. You have to put a lot of time into doing this and really do need technical support. A colleague is using 'best use of images' 'Social Display', an interdisciplinary use of images as cultural markers". Data from the research are also used as a teaching resource and deposited in national/international archive.

**Skills level:** Intermediate. Needs time to get more experienced. In-house training by the institution e.g.1 day events etc are very good. Would like to improve and overhaul own website, putting in a lot of links from the main page to documents, websites, teaching stuff (lecture notes, PowerPoint).

**Support**: Support received from the institution is mainly around legal advice, eg copyright, ethics, consent. Keeps up-to-date mainly via personal contacts and online resources. Difficulties identified include lack of expertise; publishing/dissemination practices; institutional funding or charging policies; national funding or charging policies; institutional practices; quality/reliability of resources (on the Web and elsewhere); licensing, copyright restrictions. Is lucky that department is close to another which has a very good graphics unit and very good technical support staff including "a guy in charge of photography". They are currently creating a database of images. However, copyright for images/illustrations can be a problem. Costs can be huge. British Library can be difficult, but "National Archives are very good and let you reproduce images digitally".

**Impact of ICT on research:**
*Pros*: Searchable bibliographic databases really do broaden things out. Digital manuscripts available have helped immensely – "they are such good quality that you can work from the screen, better than using a magnifying glass".

*Cons*: [searches] can also generate non-relevant materials. ICT has improved access, but there is still much room for improvement.

**Plans and wishlist:** Would like to see development of further data handling resources and digitisation of primary resources used in research such as texts, maps and images. Would also like free access to full, searchable texts – more of MGH sort of resources. Main interest is in digitising manuscripts. Need a good amount of computer space to store images, a problem to overcome. Need a dedicated server – hope help will be forthcoming from the graphics database support mentioned earlier. "The time to get a handle on it and the technical support to do it. Need a departmental Webmaster to maintain the website. IS do the institutional website but nothing at departmental level." A colleague has taken on the formal role of editing and adding things to the website for others at an administrative level. Otherwise they are left to themselves.

# Case Study 8: 'Unfunded, Basic skills, Not creating resources'

**Profile**: Professor – Modern Languages and Linguistics. Has over 20 years' research experience, in the same department, with 11-20 years' post-doc experience. Spends 26-50% of time on research. Projects 1 and 2 are unfunded, working as sole researcher. Project 3 is partially funded by the British Academy and involves other local academics.

**Creating resources:** The survey response indicated that [researcher] was not creating any digital resources, but the interview shows that has own web page which is kept relatively up to date. However, IT is not a major part of research methods nor of institutional requirements: "there's no talk about [an institutional repository] that I'm aware of. The whole university is geared to the RAE and it's unlikely there will be any new initiatives until that's over".

**Using resources:** Research focuses on cultural heritage studies via film and literature. Little is available digitally, so mainly involves visits to relevant archives to research primary texts. "[Country] isn't really in a position to digitise". Project funding has largely been for travel or to fund visiting researchers to UK. Uses a couple of online journals, and has published material in one of them. "I use subject-specific mailing lists and get online journals via email. I get a news list from the States every day with factual stuff. It can be useful to scroll through and get out what you want. But email is an excuse for not doing any proper work, it seems, for many, they spend all day in front of their email." Finds websites can be "a bit hit and miss, it can take a long time to find what you need. They are ok for basic factual information about texts, but can be of dubious quality ... For students, there are hard copies of the texts we study in the library (though never enough), and I point students in the direction of websites and web journals. Students find their own materials, I warn them not to take them at face value".

**Dissemination of research:** Survey response indicated research is disseminated via eJournals; Conference papers and presentations; Conventional publishing channels (book, journal, monograph). The interview revealed has collaborated on journal articles with colleague overseas and expects to produce book-length monograph from current (partially-funded) project. Results of research are also used as a teaching resource, and are available via the Web.

**Skills level:** Described as basic. "IT is not a major part of what I do. I can't really be creative with this sort of thing. I've only just discovered what PDFs are .. well, a year ago. I've got my own web page and I update it every six months or so. I add links to a couple of web publications I have. Most of them are published in journals, not sure many are in open access repositories". However, does use ICT for teaching, eg Blackboard.

**Support**: The survey response shows that institutional support is mainly in Technical support, back-up; IT training with Technical support, back-up also provided at departmental level. Identifies difficulties as arising from: publishing/dissemination practices; quality/reliability of resources (on the Web and elsewhere); licensing, copyright restrictions. Self-described as "the 'lone scholar'. Although researchers work in clusters in order to get grants, attract research students, etc., people generally do their own stuff". In terms of support and resources, "Not really sure what there is out there". "Within the University, they put on workshops on new software, like fEC for example. I'm not aware of anything at department or faculty level. We have faculty IT staff and technical back-ups, but they're entirely reactive. Their remit is to respond to problems rather than enhancements. However, a couple of months ago I got a new pc and new email system and they're both much better than I had before". For Blackboard, "I went to a training session for a whole day, they put me up overnight which was nice, and I took some files along and learnt enough to get going. Really the brain can't absorb too much at once, it was just right to get started".

**Impact of ICT on research:**
*Pros*. In the survey, said ICT has had 'moderate' impact on changes in research. In the interview, said "It's fine tuned things I can get hold of much more quickly. What I need though are primary texts, things on paper. If I look at my career over the last five years, ICT has informed my teaching more than my research. There are more email lists, chat lists for students about what they've seen or read, in that area it's more pedagogically positive. In actual research and quality of output, not so. In my area not much is available online".

*Cons*: ICT means: Less flexible deadlines, more pressure to observe them.

**Plans and wishlist:** Has no plans to expand use of ICT. Would prefer to see: tools to help with search/retrieval or processing? (i.e. better access). Interview expanded on this: "I would want more primary texts available online. In an ideal world, then I wouldn't need to travel. If things were digitised in archives and library holdings, but I can't see that happening in my area. For people working in foreign languages, I would like to see more collaborative ventures between archives and libraries in different countries to digitise holdings, that would make a difference".

# Case Study 9: 'Unfunded, Basic skills'

**Profile**: Lecturer – Music. Has been in the department 1-5 years and has 11-20 years research experience. Spends up to 50% of time on research. Mainly works on own, non-funded, but some funding from AHRC for project one.

**Creating resources:** Working on a topic which will be online eventually, a database of composer biopics - films about composers. It is a resource for researchers and is mainly texts. Complicated in a technical sense and because of copyright etc. Hoping for funding for a database of film music sources held in University archives, annotated film scripts, audio visual sources. At first it would be just a database, where to go to find the materials, but could eventually include digitised versions of the written material. Depends on copyright. The department may also look to digitise and make available local music-related data – some of it is "currently in cardboard boxes". Hope to digitise "using borrowed technical equipment … to see whether it's viable on a larger scale".

**Using resources:** Uses *New Grove's dictionary* online and a German one, ILRM (internationale de littérature musicale) which has musical publications, collections of articles, books. Can search by usual routines, by composer, by topic, etc

**Dissemination of research:** Is writing a monograph about music theory, by listening to music, watching films and DVDs. Finds out about film data from IMDB (Internet Movie Database).

**Skills level:** Described as basic in the survey response, but the interview reveals that does not remember saying this! Knows how to switch on a computer, word processing, image manipulation and how to search on the Internet. Feels can probably acquire further necessary skills by just trying to do a project, create it and get it up and running. Does not feel generic training would help as each project is different to others. So the best way is just to experiment (with local support).

**Support**: "There are different levels of support, some more useful than others. There is IT support in the department for running of a website, that kind of thing, but no experts in creating a database, or database stuff". When putting in an AHRC application, had to provide a technical appendix and talked to Computer Services about database aspects here – "no problems at all". Also talked to AHDS "to get their angle". For the planned digitisation research, tried to find out who could help and contacted TASi, and been along to talk. Doesn't know yet how complicated things will get when they actually get started [on the project]. None of the people in the music department have this kind of experience so they would need help on all levels. Don't know how it would work out, how many man-hours etc. Would like people here in [institution] who could answer questions quickly.

**Impact of ICT on research:**
*Pros*. Increased speed, increased efficiency and access to wider resources. "A lot is available online that wasn't five years ago. Before this would have to visit a library. eg The New Grove's dictionary used in the preparation of teaching and for writing research. But not so good for finer research questions". Also benefits from articles online as they are so much quicker. A big benefit is Internet searches on other disciplines (as already feels is familiar with musicology resources) but in film, for example, does not have the same expert knowledge so more difficult, but searching randomly finds relevant pointers to answer questions.

*Cons*: none

**Plans and wishlist:** Would like to see subject-specific portals as currently has to search far and wide on the Internet. "At a recent conference of the Royal Musical Association there were some leaflets about these things, so there are already some things like this, for example, the Royal Holloway has a catalogue (collection) called 'Golden Pages': they update it but don't expand it. There is the Sibelius Academy in Helsinki and some American ones. They are all quite limited. You need a lot of people to find the resources and put them up, it would need dedicated personnel". But does see limitations: feels that people might think all the relevant information is available via this portal and that that is all that exists. "Students especially may look no further".

# APPENDIX F:
# OTHER RELATED RESEARCH FINDINGS

As well as asking respondents for their own views on the impact of ICT use on research over time, our study also aimed to build on knowledge obtained in previous surveys in an attempt to identify changes in ICT use via longitudinal data. Both of the earlier surveys (see Introduction) covered the arts as well as the humanities. We also compared our data with more recent surveys.

**British Academy Survey**
*E-resources for Research in the Humanities and Social Sciences: A British Academy Policy Review, April 2005*

Although this survey had a more restricted audience and a smaller response[24], there are some very similar findings (see below). Not all their findings and recommendations could be compared to our survey, as in addition to targeting users by email and through the British Academy website (a similar strategy to ours) they also conducted interviews with staff from a range of appropriate national bodies (eg Research Councils; the British Library; the National Archives; JISC; the MLA). They also held discussions with some university libraries and learned societies and were able to explore in depth some subjects about which we were only able to collect minimal data (eg ePublishing and Open Access Publishing (OAP) and repositories, fair use and charging regimes). However, our survey differs from the Academy one in the methodology used, target audience and some of the question topics. Some of the most important findings from the British Academy study relating to our own are:

- Non-electronic resources continue to be extremely important; the BA survey looked at both e and non-e resources - in our study nearly all non-electronic resources were more important to researchers than electronic resources

- Humanities and Social Science (HSS) researchers typically work alone or in small groups rather on large projects; this is similar to our finding that 61% of respondents work alone on their first project mentioned

- Many HSS researchers are not grant supported and so do not have research income; we found high levels of unfunded research

- ICT profoundly modifies research practice (68% said research had changed); in our survey 57% of our respondents said the degree of change brought to research by ICT was 'highly significant'

- Some of the changes mentioned include: ICT provides better access and new modes of access and to a much wider range of material; convenience and speed; communication and collaboration though email and discussion lists (especially internationally and inter-disciplinary); our results show that although many have witnessed huge changes these are very much linked to finding and using things in a new way than affecting research productivity/quality itself; much of the research may be carried out the same way but more efficiently, for example access to library catalogues across the world; like our survey results, the BA found that a number of younger researchers had always had these tools and therefore the way they do research has not changed

- Access to eResources is affected by technological, funding and organisational factors; provision is ad hoc, fragmented and uncoordinated

- There are complex relationships between e and non-e resources and difficulties sustaining both versions

- There is a priority difficulty of digitising primary or secondary resources (see their definition of primary and secondary, quite similar to our primary resources and tools definition); which are more important? In the BA survey secondary resources had a higher priority whilst in our survey it was digitisation of primary resources

- Access and sustainability are the key needs; we have supporting data but maybe do not reach the same conclusion

- The main challenge for individual researchers is finding and learning how to use packages and updating this knowledge; again we have data on training, courses and need for further skills and training

The BA study also asked questions on gaps in provision; creation of data or literature; use of 'secondary' resources and sources of expert guidance as we did. Most of the resources being created were text-based (including web pages) or databases, such as digital catalogues, transcriptions, and articles. Their secondary resource use emphasised the importance of information provided by colleagues both in the home institution and elsewhere (our findings agree). Their conclusion on guidance was that technical support provision is better from the institution or the department than was expert guidance. They conclude that digital preservation is a greater priority than originally.

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[24] ie BA Fellows, Small Grant Holders and Postdoctoral Fellows, and included Social Science disciplines as well as the Arts and Humanities. There were 260 completed surveys, a 16% response rate.

**Mullings (1992)**

Mullings, C. (1992) *Computers and Communication in the Arts and Humanities: A Survey of Use.* Oxford: Office for Humanities Communication Publications. No.1.

This survey focused on the use of new technology in teaching and research; although it had a high emphasis on teaching, the sample is probably fairly similar to our present one. It targeted heads of departments in institutions (these were universities, polytechnics and HE colleges). Separate surveys were sent to libraries and computer centres in these institutions to look at training and support issues which we did not follow up in the same way this time, i.e. by questioning librarians and computer centre directors, etc.

The earlier questionnaire contained quite a lot of material that is not comparable with our current study such as types and counts of basic computing facilities, what hardware and 'labs' they had access to and what formal instruction was given to staff and students about specific software usage. There were several specific questions about use of computing in teaching, such as whether they were used to teach parts of the curriculum.

The survey mailed out to heads of department provides information on the size of departments at this time, with the highest numbers being sent to Modern Western European Languages and Studies Departments, followed by History, Humanities/Arts and English. Very few were sent to Archaeology, Art History, Linguistics and Media/Drama, though the response rate from these small departments was actually quite high. Art History and English had the best response rates. (The structure and nomenclature of departments was slightly different in 1990s). So the characteristics in terms of subject domain were similar to the current survey with a greater emphasis on humanities based subjects rather than arts.

The main areas with issues in common with our present results are:

- The main benefits from using IT were in teaching and research, including saving time etc, but increased research productivity scored higher then; increased collaboration was less important then as seen in our current findings

- Problems associated with use of IT in teaching (which could be extended to research) were cost, including money for renewal and upgrade; staffing, including lack of computing skills and experience; hardware and accommodation; software problems included lack of discipline-specific software; it was felt then that humanities and arts departments were unfairly treated in comparison to the sciences, partly due to the comparatively small size of humanities departments

- Sources of information: the results were very similar to our current survey, overwhelmingly personal contacts (colleagues in and outside of the department), so this has not changed over time; printed publications had more prominence then, especially CTI publications (hard copy); the CTI was in the second phase at this time and subject-specific centres had just been established; Internet use was not widespread; Electronic Bulletin Boards such as HUMBUL, Humanist and NISS were only just being introduced and their take up and knowledge of was low

- Future intentions (this was from a departmental view rather than individual) were to purchase more hardware and software; run more courses, with more local networking provision; this was not surprising as most (small) departments were not at a sophisticated level, some only having two PCs in the department and having just got email and library access from local network links to the Computer Centre mainframe; the World Wide Web was not in existence then and they were just beginning to talk about multimedia and CD-ROM readers

**Katzen (1985)**

Katzen, M. (1985) *Technology and Communication in the Humanities: Training and services in Universities and Polytechnics in the UK.* London: The British Library. Library and Information Research Report no.32

This survey was largely to determine what training in humanities communication was provided for students in universities and polytechnics by humanities departments and libraries. The major finding was that there was a rapid increase in the availability and use of computerised facilities.

Both these earlier surveys highlighted the low priority given to arts and humanities computing needs compared to the sciences, medicine and engineering. There was a lot of lobbying at this time for the creation of an Arts and Humanities Research Council to provide the necessary influence. Some of the findings from our current survey still feel that arts and humanities scholars do not receive a fair deal.

**Other projects**
We exchanged plans and interim findings with the following ICT Strategy Programme projects:

1. UCL weblog analysis: LAIRAH (see earlier reference)
2. RePAH based at the Sheffield Humanities Research Institute (see previous reference). This was largely seeking information on what people were searching for, their extent of use of digital resources and the usefulness of each portal they visited.
3. Institute of Historical Research[25]. This looked at the importance of peer evaluation in the selection of resources for personal research, the digital resources of most value, whether hard copy, CD-ROM or online versions were preferred, how digital resources were assessed and so on.
4. 'The Hunt for Submarines in classical art; mappings between scientific invention and artistic inspiration'[26], Dr Mike Pringle and Rupert Shepherd, Surrey Institute of Art and Design.
5. ARIA project (see previous reference) on Arts and Humanities Research ICT Awareness and Training also carried out an online survey. Their workpackage 4 was about building a picture of researchers' awareness and appreciation of ICT resources and training opportunities.

These surveys complemented each other rather than duplicating data.

Other surveys and reports that we were aware of:

1. AHRC Research Centres and the Use of ICT, a collaborative report from AHRC and AHDS (Stuart Dunn and Alastair Dunning)
2. AHDS Subject Extended Feasibility Study (on Ancient History, Classics, Law, Philosophy, Theology and Religious Studies) to survey the requirements and needs in these subject communities.
3. AHDS Projects and Methods database-production of a pilot database recording current ICT-based research in the arts and humanities including the technologies used, data creation methodologies, metadata standards employed and formats used.
4. AHDS Performing Arts Scoping Study[27] looked at the current state of play in research, teaching and learning in the Performing Arts and how these communities create and exploit digital resources, plus needs and desires for the future. Recommendations included developments of high quality resource delivery for the Performing Arts.
5. eScience scoping survey[28] looked at how resources are used now, and a wish list for the future. It was conducted by discipline and one conclusion was that ICT was well embedded in research in Archaeology, Linguistics, and the Performing Arts, but History and Literary Studies were "ICT-light".'
6. User requirements gathering for the Humanities: How do we establish best practice for the community, Ruth Kirkham, John Pybus, Oxford. Several workshops have been held to explore this subject and reports about to be published.

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[25] HIS Peer Review and Evaluation of Digital Resources for the Arts and Humanities

[26] The Hunt for Submarines in Classical Art. <http://ahds.ac.uk/visualarts/projects/submarines/index.htm>

[27] Getting to Know our Audience, Daisy Abbott, AHDS Performing Arts and Emma Beer, AHDS Executive, July 2006

[28] <http://www.ahds.ac.uk/e-science/e-science-scoping-study.htm>