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Working in the Health Information Profession: Perspectives, Experiences and Trends
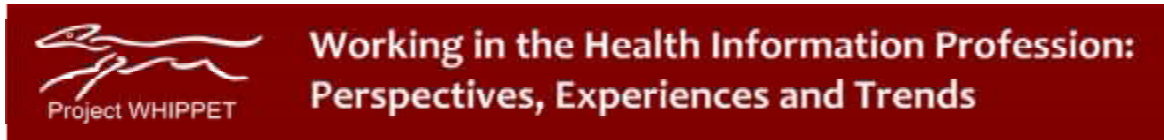
Report to the European Association for Health Information and Libraries (EAHIL)

A 25th Anniversary Project undertaken by the Information School, University of Sheffield

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1. Executive Summary

Aim: To record the stories and experiences of health information professionals practising across Europe, and to provide data to help build, plan, and develop career profiles, establish training needs, and support strategic decision-making for information services, and organisations such as EAHIL.

Methods: Interviews, surveys, and focus groups were used to gather data to understand the roles of information professionals, and how they support healthcare. Six focus groups were carried out in Sheffield, London, York, and Stockholm. The aim of these was to provide preliminary evidence for the perspectives and experiences of individuals working within the profession, and to get an indication of key trends emerging. Thirty individuals took part in the focus groups. Eight interviews were carried out at the EAHIL Workshop in Stockholm. The interviews and focus groups were recorded, transcribed and thematically analysed. A pilot survey was also distributed prior to a full survey being distributed electronically. Forty-seven surveys were completed at the pilot stage, and the results were used to inform the design of the final survey which achieved 513 complete responses. The data gathering took place during 2013.

Results: The survey produced 513 usable responses, predominantly females (429), and 77 males, with 7 not disclosing their gender. Respondents came from 32 countries around the world, with the highest number of responses from the UK (224), France (66) and Canada (47). The majority of respondents were not EAHIL members, and this presents an opportunity for EAHIL to extend its reach.

The majority of the participants in the focus groups, interviews and surveys were in professional (rather than para-professional) roles, and a substantial minority were senior personnel in management roles. The large majority of participants were very well qualified, i.e. with qualifications at postgraduate level. Analysis of the job titles from the final survey showed that the majority of respondents (64%) had the terms 'library' or 'librarian' in their job title, reflecting the continued relevance of traditional 'library' roles in the health information sector.

The participants work across a variety of sectors, primarily in state healthcare and education, with fewer numbers working in the charity and voluntary sector, and in industry. The main user groups are students, doctors, researchers, nurses and allied health professionals. Proportionally, very few respondents provided services directly to patients and the public.

The participants are engaged in a wide range of roles, and comments on the diversity of roles and the feeling of being a 'jack-of-all-trades' recurred throughout the data. The roles identified can be categorised into evidence-based roles (e.g. literature searching and teaching/training) and management roles, including library-specific management roles, more generic management roles, communications roles and roles involving technology. Participants also identified a wide variety of skills used in their jobs, including LIS-specific skills as well as technical skills, management skills, 'soft skills' and personal qualities. LIS-specific skills were mentioned most frequently in the final survey, but focus group and interview participants frequently did not think to mention these skills unless prompted, suggesting that they may be taken for granted.

Participants had acquired their skills mainly in the workplace and at library school. The library school degree was seen as a foundation, with continuing professional development (CPD) and workplace experience providing more specialist skills specific to the health information context. Participants showed a strong commitment to CPD and 'keeping up-to-date', and to support this they identified being members of over 160 professional organisations, including EAHIL. A range of training needs were identified, reflecting areas of change within the profession as well as the desire to further hone existing skills such as literature searching. Skills relating to new technologies (e.g. m-libraries, social media, e-learning) were high on the list of development needs.

Participants identified a wide range of challenges, notably shrinking budgets and problems with time and workload. Additional challenges included a lack of appreciation and awareness of the value of library and information services among management and non-library colleagues, and related difficulties in promoting the services. Participants across all phases of the study mentioned challenges relating to keeping up-to-date in a changing environment, compounded by lack of time and a heavy workload.

Participants gave a variety of examples of situations in which they had made critical contributions to healthcare. The majority of these drew on evidence-based LIS skills such as literature searching or information literacy training/teaching. By using these skills, respondents had a direct impact on patient care, health outcomes and clinical decision-making, as well as making more indirect contributions, for example by supporting the education and learning of health professionals and students, and by contributing to the evidence base.

There was a mixed response to the possible value of a website, with respondents keen that any potential site should not duplicate what was already available elsewhere. A wide variety of features were suggested for the website, with the most popular suggestion being that the website should provide access to, and information on, research literature and other information sources. There was support for the idea that the website could fulfil a useful function as a 'one-stop shop', providing links to existing resources. Any website created would require ongoing maintenance of some form, e.g. ensuring that information was kept up-to-date or moderating discussions.

Conclusions: The project has provided an overview of the roles, skills and training needs of health information professionals across Europe and beyond, as well as the challenges facing these professionals and their critical contributions to healthcare. Roles and skills were diverse and wide-ranging, encompassing both traditional 'library' skills and new areas of expertise. Despite challenges such as budget and workload, health information professionals make both direct and indirect contributions to healthcare, primarily through the exercise of their evidence-based LIS skills.

The study enhances our understanding of the complexity of the domain, enabling organisations such as EAHIL to continue supporting the profession in a targeted way. The findings will be of use to library schools and other training providers in meeting the development needs of (future) health information professionals, and also contribute to the evidence base on the value and impact of information provision in healthcare contexts.

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Abbreviations used

A&E	Accident & Emergency
DoH	Department of Health (UK)
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
CEO	Chief Executive Officer
CBT	Cognitive Behavioural Therapy
CPD	Continuing Professional Development
EAHIL	European Association for Health Information and Libraries
EBLIP	Evidence-Based Library & Information Practice
EBM	Evidence-Based Medicine
EBP	Evidence-Based Practice
EU	European Union
FAQ	Frequently Asked Questions
GP	General Practitioner
HE	Higher Education
HTA	Health Technology Assessment
ICT	Information and Communications Technology
IL	Information Literacy
IT	Information Technology
LILAC	Librarians' Information Literacy Annual Conference
LIS	Library and Information Science
LMS	Library Management System
MA	Master of Arts (UK taught postgraduate qualification)
MSc	Master of Science (UK taught postgraduate qualification)
NHS	National Health Service (UK)
NICE	National Institute for Health & Care Excellence (UK)
NLM	National Library of Medicine (US)
OA	Open Access
OPL	One-Person Librarian
PhD	Doctor of Philosophy (research degree)
PICO	Patient/Problem; Intervention; Comparison; Outcome
Q&A	Question & Answer
SD	Standard Deviation
SLA	Service Level Agreement
SR	Systematic Review
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHO	World Health Organisation

2. Introduction

The health library and information sector is diverse, with opportunities in public, private, voluntary and charitable bodies, including organisations with global reach such as the World Health Organisation and UNESCO. As the world continues to strive to find solutions to healthcare problems – both complex research issues, and ones of simple care provision – the need for health information and sound evidence is increasing. We have communities striving for resilience against a backdrop of political and economic unrest, and social and technological change. The solutions range from services such as bibliotherapy (Fanner & Urquhart, 2008, 2009; Brewster, Sen & Cox, 2012) to complex meta-analyses to support decision-making within the healthcare context (Lavis, et al, 2009; Chambers, et al, 2011). Health library and information professionals can make important contributions to both research and practice. It is important to understand the skills needed to support effective healthcare in this rapidly changing environment.

EAHIL has helped health librarians throughout Europe learn from each other, sharing knowledge and transferring lessons learned in one country to another, supporting change, and encouraging them to develop new roles and to meet the challenges they face in health and social care (Urquhart & Bakker, 2011). Throughout Europe, countries have identified the need for increased skills and professional standards to meet these demands (Tsalapatani & Kalogeraki, 2010; Robu & Bakker, 2010), with health library groups calling for librarians to "…create their future within the health sector" and "to apply their specialised skillset to add value and benefit right across the health service" (Health Sciences Libraries Group and Library Association of Ireland, 2012). The current project seeks to understand how the health information and library professionals' skillset is currently being used, and how it can be applied in the future for the benefit of health and wellbeing. It seeks to present a Euro-map of data, as a shared resource to support understanding of the sector, professional development and training, and future planning and decision-making.

2.1. The research problem

The changing healthcare context provides many challenges for health information and library professionals in terms of their roles and the way in which they may respond to social, technological, economic and political changes in their working environment (Urquhart and Bakker, 2011). Roles have developed, encompassing these challenges, often embracing technologies and pushing the boundaries of traditional library roles. Information Analyst, Information Governance Manager, Knowledge Manager, Informationist, Clinical Librarian, Informatician, Patient Advice and Information Officer, and Bibliotherapist are just some of the health information roles that sit alongside the traditional Health Librarian and Information Manager roles. This brief list highlights the breadth and complexity of our domain and how it has evolved in recent decades in an information-intensive health sector.

Given the rapid pace of change in the sector, and the diversity identified, do we have a clear picture of the health information professional landscape in Europe? Do we understand how we as health information professionals contribute critically to healthcare? The research outcomes provide data to help build, plan, and develop career profiles, establish training needs, and support strategic decision-making for information services, and organisations such as EAHIL.

The project aims to deliver the following:

- Lists of health information professionals' skills and attributes;
- Training needs and opportunities identify;
- A map of the health information landscape across Europe;
- A data set that will be transferred to EAHIL at the end of the project (either one year or two years depending on whether an extension to the project is granted), including health information and library profiles;
- Findings that will inform EAHIL's strategic development by providing information on the diversity of health information roles and where key contributions are made by health information professionals within the sector;
- A website for information and knowledge sharing, to encourage best practice in health information provision, continuing professional development, and engagement with new technologies;
- Findings that will be shared at EAHIL and other health information conferences and within the Journal of EAHIL and other health information publications.

2.2. Methodology

1. Data collection centred around three key methods:

   a. Focus groups with health information professionals to facilitate a broader understanding of the landscape;

   b. Interviews with information professionals to explore their skills development needs, roles, the changing nature of those roles, challenges, the impact they have as health professionals, and the future of the profession;

   c. Questionnaires to gain a broad data set on which to base any future work, and to inform future decision-making.

Video or audio stories from a number of health information professionals about their roles were originally intended to be collected and made available on a website to provide illustrative 'cases' of the diverse roles within the profession. This element of the study was not fulfilled due to constraints on time and funding (see section 5, Limitations), and mixed responses from the research participants as to the value of a website and what should be on any potential website. The team feel further reflection on this element of the project is required, together with discussion with the EAHIL board, and possible extension of the project to facilitate this adequately. Concerns were expressed in the focus groups as to the sustainability of any such website, the editorial responsibilities and control, and avoiding duplication of content available elsewhere.

The work in the above work packages was undertaken primarily by the project's part-time Research Associate, supported by the Project Manager and Technical Manager.

2.3. Procedure

The project commenced 1st January 2013, and was due to be completed 31st December 2013. The project extended beyond this date due to the volume of data collected and time required to analyse the data. The dissemination of outputs was always expected to go beyond this date, and the first formal dissemination of the full project is scheduled for the EAHIL conference in Rome, June 2014.

Some preliminary literature review was carried out to provide key resources for future dissemination and addition of key resources to the website. The literature will also support the dissemination of papers at a future date.

Six focus groups were carried out in Sheffield, London, York, and Stockholm. The aim of these was to provide preliminary evidence for the perspectives and experiences of individuals working within the profession, and to get an indication of key trends emerging. The focus group discussions were taped, transcribed and analysed thematically.

Eight interviews were carried out at the EAHIL Workshop in Stockholm. These were again recorded and transcribed and have been thematically analysed (Section 3.2).

A pilot survey was also distributed prior to a full survey being distributed electronically. Forty-seven surveys were completed, and the results were used to inform the design of the final survey (Section 3.3). Preliminary analysis of the pilot survey results informed the design of the final questionnaire. Respondents were also asked in the pilot survey whether they had any comments on the questionnaire design: most respondents did not have any comments, and a few specifically commented that the survey was well-designed, however a few critical comments were made which were taken into account where appropriate when designing the final questionnaire. A copy of the pilot survey can be found in Appendix A.

Additional questions were added to the final questionnaire relating to membership of EAHIL and other professional organisations, and a question was also added asking respondents to rate the learning methods they had used to acquire their skills. For question 6, "What sector(s) is your organisation based in?", the radio buttons were changed to tick boxes to permit selection of more than one sector, as analysis of the pilot questionnaire showed that several respondents had commented that they worked in an organisation that crossed sector boundaries, such as a university with a teaching hospital attached. Several questions were changed from open-ended to closed-ended in order to facilitate quantitative analysis; the tick box categories were developed based on the open-ended responses to the pilot survey and an 'Other' box was included for any additional responses. However, question 10, "What are the main challenges you face in your role?" and question 15, "Please give an example of a time when you felt you made a critical contribution to healthcare" were retained in open-ended format as analysis of the pilot survey had shown that these questions elicited richer, more complex data. Finally, the wording of some questions was slightly altered in order to elicit more useful data. The study was then piloted with all members of the research team and an external volunteer, and some minor changes were made to question format and wording in response to comments. A copy of the final survey can be found in Appendix B.

The final survey was implemented in Limesurvey, and was distributed via various mailing lists, forums, LinkedIn groups, Facebook groups, Google groups and Twitter. The invitation to participate was translated by the research associate into French, German and Italian (and checked by native speakers of these languages) to encourage take-up by speakers of these languages. Unfortunately, the scope of the project did not permit translation into all European languages as this would have necessitated the employment of several external translators. A full list of the distribution methods can be found in Appendix C.

3. Results

The results presented in the following sections summarise the findings from the:

- focus groups (section 3.1)
- interviews (section 3.2)
- pilot survey (section 3.3)
- final survey (section 3.4)

3.1. Focus groups results

3.1.1. Demographics of the focus group participants

The tables below present a summary of the demographic data from the focus groups. Details of participants are provided in Table 43, Appendix D.

Table 1 Focus groups location and date

Focus group location and date	Number of participants	ID
Sheffield 6th March	8 participants	F5
London 23rd April	5 participants	F6
York 16th May	4 participants	F3
York 16th May	3 participants	F4
Stockholm 13th June	3 participants	F1
Stockholm 13th June	7 participants	F2
	30 participants in total	

Table 2 Focus group participants by sector

Sector	Count
Education sector	14
State healthcare	7
Charity/voluntary sector	3
Government or independent government funded	5
Industry	3
Other	2
Totals more than 30 as some participants work across more than one sector	

Table 3 Focus group participants by country

Country	Count
UK	23
Finland	2
Switzerland	2
Netherlands	1
Germany	1
Kuwait	1
Total	30

Table 4 Participants by World Health Organisation (WHO) region

WHO Region	Count
Europe	29
Eastern Mediterranean	1
Total	30

3.1.2. Key themes from the focus groups

3.1.2.1. User Groups

The clients and user groups served and supported by the focus group participants were varied and included: allied health professionals, bioanalytics students, dental hygiene students, doctors, faculty, government staff, health organisations, international clients, librarians, Master's students, NHS staff, nursing staff, nursing students, occupational therapists, pharmacy students, PhD students, physiotherapists, public health staff, radiography students, researchers, social work students, sports science students, undergraduate students, teaching staff. Not all focus groups were asked explicitly to define their user groups, so there may be some omissions to this list.

3.1.2.2. Roles

The focus group participants introduced themselves, where they worked, and their key roles within their jobs. The most frequently identified job roles across the focus groups were document supply, evidence-based practice and research, information literacy, literature searching, project work, systematic reviews, and teaching and training (Table 5).

Table 5 Job roles of the focus group participants

Job roles [Focus Groups]	
Budget management [F5]	Library induction [F1]
Business management [F3]	Library work – classic skills [F1, F5]
Cataloguing e-books and printed material [F2]	Literature searching [F1, F2, F3, F5, F6]
Circulation [F1, F2]	Management [F2, F3, F5]
Collaboration [F2]	Outreach [F2]
Collection management [F5]	Performance measurement [F4]
Communication [F3]	Presentations [F6]
Critical appraisal [F3]	Producing guidance [F1]
Current awareness [F3, F5, F6]	Project work [F1, F3, F5, F6]
Customer service [F2]	Quality assurance [F4]
Data analysis [F6]	Records management [F5]
Database implementation and handling [F2,F6]	Reference work [F2]
Dissemination of information[F6]	Reference management software [F1, F6]
Document supply [F1, F2, F5, F6]	Report writing [F5, F6]
Editorial work [F4]	Research skills and research support [F4, F5, F6]
Embedded librarianship [F3]	Social media [F5]
Enquiry work [F1, F5]	Staff management [F5]
Everything [F2, F5]	Statistics [F4]
Evidence-based practice and research [F1, F3, F4, F5, F6]	Strategic management [F4, F5]
Income generation [F1, F6]	Supervisory role [F1, F5]
Informatics [F6]	Systematic reviews [F1, F2, F5, F6]
Information literacy [F1, F2, F5, F6,]	Teaching and training [F1, F2, F4, F5]
Information needs research and assessment [F6]	Webmaster [F5, F3, F6]
Knowledge management [F1, F3, F4]	Writing bids [F6]
Leadership [F6]	

3.1.2.3.   Skills

Table 6 Skills needed to fulfil job roles identified in more than one focus group

Skills needed to fulfil their roles	Focus group
Advocacy	F3, F4, F5
Communication skills	F1, F2, F4, F5, F6
Critical appraisal skills	F1, F6
Influencing skills	F3, F6
Information literacy skills	F3, F5
Knowing about your subject, knowing sources of information, how to access them, deliver access.	F1, F2, F5
Marketing	F5, F6
Project management	F1, F3, F4
Search strategy skills	F1, F2, F5, F6
Teamwork	F3, F4
Teaching and training skills	F1, F2, F3, F6
Technical skills	F1, F2, F4, F6
Understanding user needs	F2, F5

Table 6 identifies the skills needed to fulfil the job roles. A key comment in focus group F4 highlighted the changing roles and skills in the profession in relation to the move from physical to virtual:

> *"So part of, part of what's happening… over the years the role has changed, hasn't it, significantly, from managing a physical paper collection to facilitating access to virtual electronic resources, and some of those are different skills, they're, you know, negotiating licences for example, they're doing deals, with publishers, erm, in, in ways that perhaps people, you know, certainly didn't use to be part of their role.* (Participant FG20, State healthcare, England)

Respondents identified the need for *"… a lot of communication skills…"* (Participant FG25, International health organisation, Switzerland). Similarly, another commented:

> *"I have to be able to communicate with different types of… categories, and people who come from outside and… so that's quite demanding, and always be helpful…"* (Participant FG22, Education sector, Finland)

Generally people agreed that *"…good communication skills are important"* (Participant FG9, Professional body, England). The need for good communication skills links strongly to other skills identified such as advocacy, marketing, influencing skills, understanding user needs, and teamwork.

Communication and people management skills were highlighted throughout and linked to a variety of roles:

> *"…people management skills… that service managers have to demonstrate and bring to the table… organising and motivating, and monitoring the performance of the team of people often comes into the picture."* (Participant FG20, State healthcare, England)

These skills *"come[s] with experience really, being on the job and having to manage teams…"* (Participant FG18, Government health organisation, England).

Other skills seen as important across a number of the focus groups were the ability to build effective search strategies, and knowledge of key information sources:

> *"I think a good knowledge of sort of key databases, erm, cos most of our information skills sessions are looking at getting information out of databases…"* (Participant FG2, Education sector, England).

> *"Most important skills… professional skills I imagine... er… knowing about… knowing your subject… knowing our sources of information, how to access them, how to, um, deliver access…"* (Participant FG23, Education sector, England)

> *"Maybe in-depth knowledge about how to search, so, er, searching skills are very important."* (Participant FG26, Industry, Netherlands).

Having the search skills, the respondents were keen to pass on those skills to others through teaching and training, which were seen as constituting one of their key roles:

> *"There's the skill of doing it and then there's the skill of having to show other people how to do it."* (Participant FG6, Education sector, England).

> *"I think the information literacy thing has, you know, become a sort of hugely dominant part of, kind of, the business we're in."* (Participant FG7, Education sector, England).

> *"I would say we really need to be good teachers, like information literacy or digital literacy aspect of our job. Just to transfer to our users."* (Participant FG17, State healthcare and Education sectors, England).

Participants also made reference to the *"…technical skills, which are associated with, you know, the organisation and retrieval of information…"* (Participant FG20, State healthcare, England). One participant commented on the number of IT enquiries they received: *"We get a lot of IT enquiries and they [the users] seem to think we can solve everything to do with IT"* (Participant FG10, Clinical Support Librarian, State healthcare and Education sectors, England). Others in this focus group agreed, with several concurring that, *"we create a lot of websites"* (Participants FG10, FG12, FG13) and one referring to the use of *"social media"* and asserting that *"any of that type of stuff, or technical skills is becoming important… experience in informatics, which is important to us"* (Participant FG12, Charity/voluntary sector, England).

Other skills identified were: ability to motivate people, abstracting, access, change management, collection management, data analysis, database skills, demonstrating impact, digital literacies, enquiry skills, evaluating information, experience, indexing, information retrieval, jack-of-all-trades, keeping up-to-date, metadata, negotiation skills, networking skills, organising information, partnership working, people skills, problem solving, reference interviewing, relationship management, research analysis, resource management, social skills, social media skills, systematic reviewing, technical professional skills, thesaurus construction, understanding research and web-mastering.

3.1.2.3.1. Personal qualities

In addition to the above skills identified, the focus group participants identified a number of key personal qualities or 'soft skills' that were needed to do their jobs:

> *"And I think there are a lot of soft skills as well, so like I said, the flexibility, erm, sometimes you may think, 'Why is an information professional involved with this?' But you just have to live with it because you will be involved with it...you're part of it, live with it! Er, being diplomatic, a lot of the time...and everyone, you know, come from a different angle and have their own agenda, and yeah, handling all those expectations, it's quite tricky."* (Participant FG13, Charity/voluntary sector, England).

The qualities that came up in conversation most frequently were flexibility (F1, F5, F6), adaptability (F2, F4, F5), confidence (F1, F2), and creativity (F2, F6). One participant identified the need to be able to do the job *"with a degree of confidence,"* and that *"...requires some critical reflection, er, which makes it a personal trait which is open-mindedness"* (Participant FG23, Education sector, England). Another had found it imperative to develop that confidence:

> *"You must develop a lot of self-confidence. I'm really shy, and I have to develop that because you must, er, say, 'Okay, I can do it, I can do it!'"* (Participant FG28, Education sector, Switzerland).

Other personal qualities identified in single focus groups were: diplomacy, discretion, intellectual versatility, patience, positivity, being pro-active, sympathy. Being sympathetic to people's needs linked to the people skills discussed above (Participant FG21, Government health organisation, England).

Some traits were identified as drawbacks or shortcomings: participants in Focus Group 5 suggested that, *"We're content to be too modest,"* (Participant FG7, Education sector, England), which had a negative impact on *"selling the service itself"* (Participant FG8, Government health organisation, Kuwait).

3.1.2.4. Skills acquisition

The participants identified a wide range of methods and approaches for acquiring the skills they needed to fulfil their roles. All of the following were identified just once within the focus groups: books, chartership, collaborations, communities of practice, from experts, graduate traineeships, helpdesks, health library professionals, in-house training, Internet, life experience, mentors, meta-analysis, placements, practice, professional bodies, qualifications, reading, social media, studying, talking to others, team-working, visiting practitioners, work experience, and working abroad.

A number of approaches were identified across more than one focus group:

<div align="center">Table 7 Skills acquisition</div>

Skills acquisition methods and approaches	Focus group
Colleagues	F1, F2, F3
Conferences	F1, F2, F5
Continuing professional development	F1, F2,F3, F4, F5
Courses	F2, F3, F4
Education	F5, F6
Experience or doing	F2, F3, F5, F6
Examples of good practice	F1, F2
Feedback	F2, F5
Lectures	F2, F5
Library school	F1, F2, F3, F5
Mailing lists	F2, F6
Master's courses	F2, F6
Networking	F5, F6
Observation	F2, F5, F6
Other job roles	F1, F5
Peers	F1, F5
Regional events and networks	F2, F3, F5
Self-directed learning	F2, F5
Seminars and short courses	F1, F2
Shadowing	F3, F5
Undergraduate degree	F2, F5, F6

The focus group participants identified a broad range of approaches for developing their skills, but they had acquired their skills predominantly from continuing professional development, work experience or education (including library school and short courses). A theme from the focus groups was that skills were acquired through *"a mixture of formal education and things on the job"* (Participant FG12, Charity/voluntary sector, England).

The experience of participant FG30 was mirrored throughout the focus groups:

> *"Well I was studying my degree in library and information science, and doing my, I did my Master's thesis too, and then of course I have been, er, learnt by doing, and from the older colleagues, and going to seminars and courses and reading and so on. Little by little. Furthering the knowledge, and well, you learn all the time, because there's new things coming all the time."* (Participant FG30, Education sector, Finland).

People valued learning from others, for example from *"a very strong librarian network"* and *"…shadowing and, um… sharing of good practice, it was a fantastic environment to learn"* (Participant FG10, State healthcare and Education sectors, England). Participant FG13 (Charity/voluntary sector, England) also mentioned *"networks"*, while mailing lists were mentioned in both Focus Group 2 and Focus Group 6.

One respondent, who had experience in both Europe and the United States, highlighted the difference between the European system of qualifying to be a librarian or information professional and the North American system, in which you came to the Master's with much more previous life experience and those *"skills from previous lives"* proved helpful (Participant FG25, International health organisation, Switzerland). A number of respondents had brought valuable skills or experience from previous jobs outside the sector, showing the opportunity and importance of learning from other sectors and professions: *"I've brought skills from that job to this… a lot of skills"* (Participant FG21, Government health organisation, England).

One person valued *"the various competency frameworks and things that exist"* that highlight not just competencies but also *"examples of behaviours you should have, or good behaviours to have"* (Participant FG16, Government health organisation, England). Others in this focus group (F3) were members of professional bodies that had their own professional qualifications, though participants in Focus Group 6 found that the cost of being members of such professional organisations was sometime prohibitive and a number of the participants agreed with participant FG11:

> *"I let it lapse [membership and professional qualification], and the reason I let it lapse was that I didn't think it was relevant… you rarely see jobs advertised with that requirement. And I think now the profession is open to so many, erm, different, you know, people with a variety of skills, and it's not just, erm, not just a profession strictly for information specialists who've done a degree or have got some very formal qualification, I think the sort of qualifications are a bit more varied now. And it all costs quite a lot of money to retain your membership, and I've actually found much more benefit by being parts of other groups, and not [name of professional body]."* (Participant FG11, Self-employed consultant).

The need for mentors, and continuing professional development was discussed as being critically important:

> *"Having colleagues as mentors and that was good, and it was about getting, um, being involved in CPD, so being at places like EAHIL, erm, and that does… generate confidence… critical appraisal of one's own skills and I would be frightened if there wasn't access to… such things, and I would be worried if, um, people going into the profession, certainly going into healthcare environments, erm, didn't you know, maybe didn't have a mentor in the way I did… I had colleagues who… were interested in developing their own careers so were able to demonstrate, if you like, good practice."* (Participant FG23, Education sector, UK).

Having examples of good practice was seen as important as most respondents shared the thoughts of participant FG4: *"I've definitely learned through doing…"* (Participant FG4, Education sector, England). The importance of learning by doing was repeated throughout the focus groups, the discussion highlighting the importance of the library degree as a foundation, but with on-the-job learning seen as building on that to develop sector-specific skills:

"But I would say that this [the library degree] is like the basis, but what really matters is what you learn on the job from colleagues, from seminars that you take, erm, and working. Simple working." (Participant FG27, State healthcare and Education sectors, Germany).

Another respondent in this focus group agreed:

> *"There's so many different types of libraries that you might want to work in, or information roles that you might work in, there's no way that a degree can cover all of those, so that's why you have to learn on the job. Really, it's so important."* (Participant FG29, State healthcare, England).

Teaching was discussed in Focus Group 5 and was seen as being one of the primary skills *"learned on the job"* (Participant FG4, Education sector, England). Another participant in this focus group commented on the importance of self-directed learning, and taking the initiative to fulfil a training need or develop a skill:

> *"There is some self-learning things like going online and, and trying to find things, you know that would add to your knowledge and your skills, you know, at work, finding answers to problems that sometime you face and cannot find an answer, so sometimes you rely on yourself, on teaching yourself some skills?"* (Participant FG8, Government health organisation, Kuwait).

3.1.2.5.   Skills development and training needs

The focus group respondents identified that they had ongoing training and development needs, with one respondent commenting, *"I'm still learning now..."* (Participant FG28, Education sector, Switzerland). A limitation of the methodology was that this question was not asked specifically in all focus groups due to time constraints.

The focus group participants identified a few skills training needs: advanced database search skills, knowledge of clinical study designs, critical appraisal, marketing, mobile learning and mobile technologies for access to information, positive thinking, research analytics, social media and systematic reviewing. All these skills were mentioned just once apart from systematic reviewing which was identified in two focus groups (F1, F2).

The training needs identified reflect new developments and changing trends: *"Technology has moved so rapidly...the Internet... and now... web 2.0 sources, social media"* (Participant FG11, Self-employed consultant). Another participant observed:

> *"In the job I do now which is systematic reviewing, working on systematic review teams, there's definitely a trend towards not just searching, but also sifting and appraisal, so you're in this halfway house between being, I don't know what you call them, like a research analyst, and a librarian. But you don't perhaps have the skills to be a full research analyst... I think if I wanna keep my job, I'm gonna have to learn more of the latter."* (Participant FG21, Government health organisation, England).

3.1.2.6.   Challenges

Keeping up to date with the pace of change was identified as a challenge, with specific mention made of national health sector reforms (Participant FG15, Government health organisation, England) and *"policy change"* (Participant FG23, Education sector, England). Participants also discussed the need to understand the *"broader context... stuff emanating from the government, or Europe..."*, and *"what the trends are in academia"* (Participant FG21, Government health organisation, England).

Participant FG8 (Government health organisation, Kuwait) felt that government policy changes were impacting on the workplace, *"…encouraging people in IT and in using information…trying to automise [sic] their work."* This participant added that, *"We're still behind… we're still in the developing process… and the government is changing policy and supporting us."* The challenges of keeping up-to-date were accentuated by being *"overwhelmed with information"* (Participant FG23, Education sector, England).

A number of challenges were identified in the focus groups relating to the changing working environment. There were concerns about job cuts and job security: *"They are cutting staff… so it's quite scary"* (Participant FG22, Education sector, Finland). This concern also recurred in Focus Group 4: *"Job security… or insecurity"* (Participant FG19, Education sector, England). Another respondent in this focus group commented on the *"creeping erosion of status"*, with posts being *"frozen for a while"* when they became vacant, and the 'down-banding' of job grades (Participant FG20, State healthcare, England). This was felt to give the impression that, *"You're not worthy of that level"* (Participant FG18, Government health organisation, England). There was also concern about *"political changes, obviously… on libraries, and all the implications for funding as well"* (Participant FG15, Government health organisation, England).

Participant FG22 was concerned that their organisation was expecting the library to generate income, and expand their collaborations:

> *"What they are expecting is that the library should earn money to run our work in our organisation, that we should do projects and be much more international, and I can't see that, how we can acquire money."* (Participant FG22, Education sector, Finland)

The move from physical to virtual libraries was seen as *"a particular challenge at the moment"* (Participant FG18, Government health organisation, England). This involved issues around providing access and negotiating licences across re-organised regional networks, *"providing a bigger platform"* (Participant FG18, Government health organisation, England). Intertwined with this type of re-organisation was the challenge of *"navigating your way through them, finding who are the new key people to be in touch with"* (Participant FG20, State healthcare, England).

One participant saw the *"massive access to information"* as a challenge which created more work for librarians in finding information for people, or training people in the skills to find it for themselves (Participant FG25, International health organisation, Switzerland). Another respondent, who worked in a hospital library, saw a problem with the organisation's response of mandating a technological solution:

> *"That's a big problem for us within my organisation, er, there are a few people who have access to computers or mobile devices or whatever, um, to access electronic content, but yet we are told by our management, you must go down the electronic route. A lot of people, erm, nurses in particular, really struggle, er, with basic computer skills, so things like how to use a mouse, what is a hyperlink, those kind of things, so if we move down the technology route too fast, er, especially as I'm the only person who's training in those skills, so with six thousand staff that's quite difficult to get them to that level, so we do drive them away…"* (Participant FG29, State healthcare, England).

A further information literacy challenge was a lack of awareness on the part of users:

> *"IT literacy skills, they expect they can find a lot themselves and they, they, don't appreciate what they are missing"* (Participant FG14, Professional body, England).

Another participant made a similar comment:

> *"There's also a growing perception... connected to the availability of electronic information, that people can find their own way to what they need to get hold of. There's such a plethora of information that's readily available that, erm, there isn't that need for an intermediary."* (Participant FG20, State healthcare, England).

This comment was then qualified by another participant: *"There isn't that* perceived *need for any intermediary."* (Participant FG19, Education sector, England).

Focus Group 3 discussed the possible benefits of such changes:

> *"I think there are lots of opportunities, and I think it's... it's making sure that our profession takes advantage of those opportunities and that we're not... either, um, not overshadowed, but you can see, you can see that other people might be... think they have some of the same skills that we have... we need a strong advocacy at all levels around our role."* (Participant FG16, Government health organisation, England).

Other groups discussed this issue, highlighting the need *"to keep the library important, and our work important in our organisation."* However, demonstrating impact was identified as a particularly difficult area: *"The impact that we have? It's really hard to quantify... I haven't evaluated that."* (Participant FG22, Education sector, Finland).

Having a direct impact on patients could be a source of pressure in itself:

> *"I guess the pressure that I kind of like felt on a day-to-day basis has completely shifted in the last five-ten years, cos you're much more sort of like frontline, impacting on service users."* (Participant FG19, Education sector, England).

Focus group 4 discussed the, *"quite challenging environment for librarians to work in, that where they're sort of directly influencing the decisions and having to justify..."* (Participant FG20, State healthcare, England).

Other challenges identified included open access (Participant FG17, State healthcare and Education sectors, England) and possible new roles around *"research data management"* (Participant FG2, Education sector, England). The members of Focus Group 5 felt that research was increasingly important for the future:

> *"Librarians don't have a strong culture of, of being research-active, erm, and I think that's something we need to change for the future in order to actually have that evidence to say this is what value we have."* (Participant FG4, Education sector, England).

Others felt there might be a tension here, and saw research as an ideal that in the real world practitioners were *"not going to have the time to do"* (Participant FG7, Education sector, England). Despite this, other members of the group felt *"that librarians as a whole are quite good at doing, like, smaller research projects, maybe not big academic research, but sort of little bits of project work…"* (Participant FG2, Education sector, England).

3.1.2.7.   Critical contributions

Participants in Focus Groups 1 and 3 felt that their main contribution to healthcare was through their evidence-based practice:

> *"…you know, interrogate the evidence, you know, critical appraisal, interrogate the evidence…"* (Participant FG23, Education sector, England)

Another respondent felt, *"I save clinicians' time... compiling the evidence base to help with day-to-day patient care"* (Participant FG14, Professional body). The same person could also identify a time when the information they provided had had a direct impact on saving money by evidencing a switch to a cheaper antenatal test. Focus Group 4 had a similar discussion, commenting *"our time is a lot cheaper than a consultant"* (Participant FG18, Government health organisation, England). Others had supported service redesign by providing evidence (Participant FG15, Government health organisation, England) and contributed to research funding being granted for clinical research (Participant FG17, State healthcare and Education sectors, England).

Other evidence-based initiatives included the compilation and dissemination of guidance bulletins, which had received positive feedback showing the work had had an impact. Users were reported to have said, *"We used this and changed our practice as a result of something that's on the guidance bulletin."* (Participant FG18, Government health organisation, England). Another participant explained how their evidence-based support had informed decision-making:

> *"…coming up with a kind of a, you know, three- or four-page synthesis of what the evidence is for the introduction or non-introduction of that technique, or procedure or whatever, into the organisation, so that's kind of… they're sort of plugged into a key decision-making node within the [organisation], really, and that's kind of, you know, the same sort of impact that your work is having [to FG18]."* (Participant FG20, State healthcare, England).

Participant FG16 (Government health organisation, England) agreed that they helped *"people be more productive in their work"* by organising the shared drive and website in such a way as to provide easy access to information. However, they also agreed that *"it is quite tricky to demonstrate that what you have done actually makes a difference."* They saw a potential solution in the trend towards being *"embedded in teams, and work[ing] with policymakers."*

Participant FG19 (Education sector England) identified an indirect contribution to healthcare but once again concurred that actually proving impact was particularly difficult:

> *"If I was going to say that I had an impact, it would be that I would be educating healthcare managers and future nurses and allied health professionals to know what evidence-based practice is and how they can apply it to their own practice, but on an individual patient basis I probably couldn't demonstrate that."*

Focus Group 6 participants also discussed the problem of demonstrating impact. They felt that they often impacted on healthcare through the evidence found in their literature searches, which contributed towards *"saving lives"* (Participant FG13, Charity/voluntary sector, England) but acknowledged that it could be difficult to gather evidence to prove this:

> *"It's very difficult to know how much… how much of an impact, how much of a change you actually make when it comes down to, sort of, treating patients, actually… we'd do the literature searches… and they'd just go into a black hole… we never really knew what – whether it had helped them actually make a decision, what the decision was, and what the impact of that decision had been on the population at large."* (Participant FG11, Self-employed consultant).

Other respondents in the same focus group agreed:

> *"It's difficult for us to prove what the final outcome would be for a patient"* (Participant FG13, Charity/voluntary sector, England).

> *"I think it's always very difficult… it would be so many years down the road before anybody could say whether or not that intervention had had a positive or negative effect. …But we've tried to… try and quantify what we've done… through our evaluations."* (Participant FG12, Charity/voluntary sector, England).

3.1.3. Summary from the focus groups

Table 8 Summary of findings from the focus groups

Theme	Findings
Demographics	The focus groups were centred in Northern Europe and therefore present a bias. However, Focus Groups 1 and 2 took place at the EAHIL conference with participants attending from EAHIL's membership.
User Groups	Diverse range of user groups identified.
Roles	1. Evidence-based practice and research 2. Literature searching 3. Information literacy 4. Teaching and training 5. Systematic reviews 6. Document supply 7. Project management 8. Current awareness
Skills	1. Communication skills 2. Search strategy skills 3. Teaching and training skills 4. Technical skills 5. Project management 6. Advocacy 7. Knowing about your subject, knowing sources of information, how to deliver access
Skills acquisition	1. Continuing professional development 2. Experience or doing 3. Library school 4. Colleagues 5. Conferences 6. Courses 7. Observation 8. Regional networks or events 9. Undergraduate degree
Skills training needs	1. Systematic reviews 2. Advanced database search skills 3. Knowledge of clinical study designs 4. Critical appraisal 5. Marketing 6. Mobile learning and mobile technologies 7. Positive thinking 8. Research analytics 9. Social media and technology
Challenges	1. Dealing with policy changes and changes in the work environment 2. Job security and the impact of job cuts 3. Financial demands and constraints 4. Move from the physical to the virtual 5. Providing access to information 6. Perceptions of user about their own skills, and those of library professionals and the effect of these on the role 7. Advocacy 8. Demonstrating impact 9. New roles and opportunities
Critical contributions	1. Evidence based research and practice 2. Educating health information professionals
Website	A wide range of things identified as possible items for a websites to support skills development, career development and best practice. Concern expressed regarding potential duplication of what was being done elsewhere.

3.1.4. Website needs and requirements

A wide range of things were identified for potential inclusion on any future website developed to support health information and library professionals. The only two items that were identified more than once were mentors, and tutorials. All the others were commented on in just one focus group: case studies, career development topics, career profiles, collection management support, consumer health information, cross-sector profiles, current awareness bulletins, expertise, FAQs, international contacts, job descriptions, keeping up with trends, librarian helpdesk, links to professional bodies, lists of library and information courses, lists of experts, marketing aids, NHS guide, online discussion group, open access materials, policy implications, portal, promotion of cross-sectoral engagement, research interests, resources, signposting, sharing of best practice, shadowing opportunities, skills-swap, skills information, social media, teaching tips, tips on searching and critical appraisal, training opportunities, and videos depicting a day in the life of health information professionals.

Selected responses from the focus groups are presented below.

3.1.4.1.   Focus Group 1

Participant FG22 (Education sector, Finland) recommended an 'ask an expert' feature:

> *"I think it would be interesting to have a kind of, er, international group where you could quite freely ask, for example, something that, that you are interested in or that you can't get the answer to from your colleagues…"*

Participant FG23 (Education sector, England) agreed that this would be a useful resource; however, this participant also commented that *"the [mailing] lists do that quite well."*

Participant FG21 (Government health organisation, England) commented:

> *"I need to know what's going on, what the trends are… I'm in danger of losing touch"*

Participant FG23 (Education sector, England) agreed with this.

3.1.4.2.   Focus Group 2

Participant FG27 (State healthcare and Education sectors, Germany) also wanted to be able *"to contact somebody if I have a concrete problem."* Participant FG24 (Industry, England) wanted links to support pages and specified that any sources linked to should be available *"open access"*. Participant FG28 (Education sector, Switzerland) wanted links to *"tutorials, to materials, to trainings that can be useful to develop our skills and competencies"* and others agreed. It was again noted that other sites do this within the NHS, but that these may not be accessible for people outside the NHS.

Participants FG26 (Industry, Netherlands) and FG27 (State healthcare and Education sectors, Germany) also wanted an overview of library education options across Europe:

> *"More information on library education... and how does it compare, so how does the library education in the Netherlands compare to the library education in Germany and the UK…so if you are interested in a library education why not travel to the country where they find, where they hope to find the best library education?"* (Participant FG26, Industry, Netherlands).

3.1.4.3.   Focus Group 3

Respondents in this group also wanted links to online resources, and *"A discussion forum for hints and tips"* (Participant FG14, Professional body, England). However, others commented that this kind of thing is available from other sources.

Participant FG16 (Government health organisation, England) wanted supporting evidence for demonstrating impact, and information on future trends:

> *"Some facts and figures, or evidence that we can use in our work when we're sort of advocating our role… what are the trends… what does the future hold… what sort of things should we be developing… to help us plan ahead."*

3.1.4.4.   Focus Group 4

Respondents were concerned that there had been websites with valuable information that had been lost or were no longer being updated, such as *"the LIS Research Coalition"*[1] (Participant FG19, Education sector, England) and *"the old National Library for Health"* (Participant FG18, Government health organisation, England). It was felt that the proposed project website could step in to fill these gaps.

3.1.4.5.   Focus Group 5

Respondents were quite keen on seeing *"a video about a day in the life of a clinical librarian"* (Participant FG6, Education sector, England). They felt that it would be beneficial *"from a new professional perspective"* to have *"a Day in the Life series"* (Participant FG2, Education sector, England).

> *"The Day in the Life idea… I thought that was an excellent idea, because health librarianship is, it's practised in so many diverse settings…so it would be very interesting – certainly for… you know ,somebody who was new that was coming into, erm, information practice… I think that's, that would be a great idea and very original."* (Participant FG4, Education sector, England)

However, once again others thought this had been done elsewhere in the past (Participant FG7, Education sector, England).

Other suggestions were for *"tutorials"* on career development and skills (Participant FG8, Government health organisation, Kuwait) and *"teaching tips"* (Participant FG1, Education sector, England). However, other participants thought that the latter were already available on other sites such as LILAC[2] and commented that, *"it doesn't seem to make sense to recreate loads of stuff"* (Participant FG6, Education sector, England).

Participant FG7 (Education sector, England) thought that a gap existed in information about *"collection management"*, while others thought that opportunities for shadowing and mentoring would be good (Participants FG2 and FG4).

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[1] http://lisresearch.org/
[2] www.lilacconference.com/

Participant FG5 (Education sector, England) thought that something to promote *"cross-sectoral engagement"* would be useful:

> *"Things which create opportunities to actually meet and engage across sectors, and to talk about some of the issues that affect all of us, and some of the skills, to broaden our, our awareness of the, the challenges and rewards of, um, each other's roles, I think that would be valuable."*

3.1.4.6.   Focus Group 6

Participant FG9 (Professional body, England) commented: *"I guess what I'd be really interested in is sort of job descriptions for different posts in the profession."* Participants FG12 (Charity/voluntary sector, England) and FG13 (Charity/voluntary sector, England) agreed that it would be good to be able to see the skills needed and the job descriptions, while another respondent commented that it would be useful to *"hear what someone's personal experience is and what their actual job description is"* (Participant FG10, State healthcare and Education sectors, England).

Other discussion focused on the sharing of *"research interests"* (Participants FG12, Charity/voluntary sector, England, and FG10, State healthcare and Education sectors, England).

3.1.4.7.   Things that were not wanted on the website

In addition to the concerns already reported regarding duplication of what is available elsewhere, participants in some focus groups identified things that they explicitly did not want to see on a website.

> *"I'll tell you what I don't want from a website. Er, I want it to be clean and… straightforward, and I don't want a page full of, erm, recommendation links, I don't want to have to download anything… I mean, maybe I'm being facetious, but it needs to be controlled."* (Participant FG23, Education sector, England).

Participant FG21 (Government health organisation, England) agreed, and participant FG23 then went on to explain further:

> *"I'm overwhelmed. It needs to be absolutely clean and so lean… maybe it's about the format or website design... I suppose what I am talking about is editorial policy."*

Participant FG22 (Education sector, Finland) was also concerned about being able to find the resources if they were not properly categorised, and also expressed concerns about the continuity of any such website:

> *"And how you find them if they are not edited and categorised… And if it's a project, so how it will continue in the future, so who will be responsible for it."*

Participant FG20 (State healthcare, England) also stated *"…a negative thing would be that it [the potential website] doesn't replicate stuff that people get through other sources… it has to have a USP."*

These comments present valid concerns and arguments for consideration in taking the project forward.

3.2. Interview Results

At the EAHIL Stockholm Workshop event, eight individual interviews were carried out. These were recorded and transcribed, and analysed thematically.

3.2.1. Demographics of the interviewees

An overview of the interview participants is provided below (full profiles with key elements from the analysis are summarised in Appendix D).

Six participants were from the HE sector, with the other 2 participants from State healthcare. Six participants were based in Europe (2 Sweden, 1 UK, 1 Republic of Ireland, 1 Finland and 1 Turkey), and two in the Americas (1 United States and 1 Caribbean).

Table 9 Job titles of the interviewee participants

Job title
Associate Professor
Library Director/Faculty Member
Health Promotion Librarian
Library Director/Adjunct Professor
Library Director
Head of Planning
Sub-Librarian
Information Specialist

All the participants were educated to Master's level in Library and Information Science. Two people had Master's qualifications in another subject in addition to their library qualification. Three of the participants had PhD qualifications. Interviewee 1 commented on how the PhD qualification could *"open doors"* and had given *"credibility"*. One person mentioned that they had professional chartership.

The interviewees had a broad range of past experience. Three had worked in national libraries, four had academic library experience, one had worked in a school library, one in a law library, one in a government library and one in the voluntary sector. In addition, one had done a library traineeship, others had worked in various part-time maternity cover posts, temporary roles and para-professional roles, one had done freelance information work, and a number had worked outside the profession before coming into libraries (e.g. in teaching).

A number of themes emerged from the interviews.

3.2.2. Key themes from the interviews

3.2.2.1. Users

The interviewees served a *"diverse"* range of users (Interviewees 5, 7). Interviewee 3 commented on serving *"anybody and everybody"*. Identified user groups included:

Table 10 Main user groups served by the interviewees

User Groups [Interviewee]
Doctors and medical students [2, 3, 4, 5, 6, 7]
General public [3, 5]
Nurses and student nurses [2, 3, 8]
Researchers [4, 6, 7, 8]
Students [2, 4, 5, 6, 7, 8]
Teachers [3, 6]

Other user groups identified were: patients, physiotherapists, policy makers, practice nurses, the public, public health workers and students, schools and schoolchildren, tourists, the university hospital, visiting scholars, and the wider organisation.

3.2.2.2. Nature of the work and the sector

Everyone commented positively on their job satisfaction (Interviewees 1, 2, 3, 4), and their enjoyment of their work, using words such as *"hugely satisfying"*, *"interesting"*, *"varied"*, *"rewarding",* and one person (Interviewee 8) noting, *"I feel very privileged that I have such nice work."*

Interviewee 7 did state the work can be *"difficult"*, whilst Interviewee 3 found aspects of the job *"stressful"*, particularly the changing environment and the heavy workload. However, there was hugely positive discussion about the nature of the work and the working environment, with the *"fast pace"* of change bringing a *"vibrancy"* to the working environment (Interviewees 2, 3). Interviewees commented on working within supportive teams, with supportive colleagues, and within supportive organisations:

> *"I think one of the benefits of working in librarianship, librarians are very very generous with their time, with sharing practices, with sharing their knowledge."* (Interviewee 7)

Interviewee 1 commented on not always being able to see the outcome of library activities and it then being difficult to see how you contribute, *"...because I think librarians work in a very abstract world where they don't necessarily see the fruits of their labours, as the expression goes, and so any time I see something tangible, I think, I'm really very happy about that."* The same person felt that librarians undervalued themselves, though a number of respondents reported having felt that they and their library services were valued (Interviewees 1, 3, 5, 7).

3.2.2.3.   Job roles

The broad nature of the work was discussed by a number of the interviewees, with Interviewee 7 stating *"I think we are trying to be a jack-of-all-trades at the moment…"*. The roles identified by multiple respondents are identified in Table 11.

Table 11 Job roles identified by the interviewees

Job roles [Interviewee]	
Acquisitions [1, 3, 6]	Literature searching and information retrieval [1, 4, 5, 8]
Budgets and costings [1, 3]	Management [1, 2, 3, 5, 6, 7]
Change management [2, 5, 7]	Marketing and promotion [3, 5, 8]
Circulation [2, 4]	Meetings [1, 3]
Collaboration [1, 3, 7, 8]	Outreach [1, 3, 7]
Collection development [1, 3]	Patient information [3, 5]
Communication [6, 8]	Planning [2, 6]
Customer service [6, 7, 8]	Project work [1, 3, 5, 6, 7, 8]
Demonstrating impact [3, 5]	Publishing [1, 3, 7]
Digital and e-resource collections management [2, 7, 8]	Quality and accreditation processes [3, 6, 7, 8]
Education [1, 5, 8]	Research skills and research support [1, 4, 6, 7, 8]
Everything [4, 7]	Service provision and management [2, 3, 4, 5, 7]
Evidence-based practice [1, 3, 4, 5, 7]	Staff management [3, 6, 7]
Information literacy and library instruction [1, 3, 6, 7, 8]	Strategic management [3, 5, 7]
Knowledge sharing, facilitation of [4, 5, 6]	Supporting users and understanding user needs [1, 2, 3, 7, 8]
Leadership [1, 2, 6, 7]	Teaching and training [1, 2, 3, 4, 5, 7, 8]
Library assistant roles [3, 4]	Webmaster [5, 8]
Liaison [7, 8]	Writing [1, 3]

The roles in Table 22 could be further categorised into two broad areas: evidence-based roles, and management roles. The management roles could be further categorised into three areas: (1) generic management; (2) communication management; and (3) library service management.

Categorisation of job roles	Roles identified in the interview data
Evidence-based practice	Evidence-based practice [1, 3, 4, 5, 7]; Information literacy and library instruction [1, 3, 6, 7, 8]; Teaching and training [1, 2, 3, 4, 5, 7, 8]; Education [1, 5, 8]; Literature searching and information retrieval [1, 4, 5, 8]; Research skills and research support [1, 4, 6, 7, 8]; Patient information [3, 5]
Management Generic management skills	Management [1, 2, 3, 5, 6, 7]; Change management [2, 5, 7]; Quality and accreditation processes [3, 6, 7, 8]; Service provision and management [2, 3, 4, 5, 7]; Staff management [3, 6, 7]; Planning [2, 6]; Project work [1, 3, 5, 6, 7, 8]; Leadership [1, 2, 6, 7]; Strategic management [3, 5, 7]; Management [1, 2, 3, 5, 6, 7]; Budgets and costings [1, 3]; Customer service [6, 7, 8]; Supporting users and understanding user needs [1, 2, 3, 7, 8]
Communications management	Communication [6, 8]; Marketing and promotion [3, 5, 8]; Collaboration [1, 3, 7, 8]; Outreach [1, 3, 7]; Liaison [7, 8]; Knowledge sharing, facilitation of [4, 5, 6]; Writing [1, 3]; Publishing [1, 3, 7]; Demonstrating impact [3, 5]; Meetings [1, 3]; Webmaster [5, 8]
Library service management	Collection development [1, 3]; Circulation [2, 4]; Digital and e-resource collections management [2, 7, 8]; Acquisitions [1, 3, 6]; Library assistant roles [3, 4]

All the other job roles listed were commented on by only one interviewee each. These were: Abstracting, access, administration, advocacy, analyst, archives management, Books on Prescription service, business impact mapping, career development support, cataloguing and classification, coaching, competence planning, conservation, co-production, course development, course director, creating trust, cultural role, curriculum development, database management, decision making, drafting papers, embedded information work, encouraging others, enquiry work, exhibition work, filing, health promotion, income generation, indexing, industrial relations, innovation, influencing, information resource management, inter-library loans, IT, keeping up-to-date, knowledge management, knowledge of resources, legal deposit, licence agreements, meta-analysis, motivation, needs analysis, negotiating, online instructions, opportunity recognition, organisational culture, outreach, paperwork, performance management, policy development, preservation, principal investigator, problem-based learning support, reviewing work practices, risk management, set examples, sharing best practice, signposting, social media planning, special collections, stakeholder management, statistics, succession planning, supervising, survival, sustainability, surveys, teamwork, thinking, tourism, translating, understanding information, work planning.

3.2.2.4.   Personal qualities and attributes.
Interviewees commented on a range of personal qualities that either they had, or they felt were needed in the profession.

One person (Interviewee 1) commented on their *"extremely extrovert personality"*. The need for a more extrovert personality was reinforced in other interview conversations in which interviewees discussed the need to be *"confident"* (7, 8), *"chatty"* (1) and *"very verbal"* (1), and to have

"openness" (7) and *"love sharing"* (7), as well as to have *"a marketing attitude"* (8). No one said they had an introverted personality, though one interview said that maybe librarians were *"modest"* (1). It is possible that those with more introverted personalities would not have agreed to be interviewed.

Analytical ability and having *"organised minds"* were also highlighted as personal qualities (Interviewee 1), together with being *"hardworking"* (7), *"flexible"* (3) and *"having a pride in the work"* (4, 6). Two people commented that they were *"reflective"* (1, 7), with one person commenting on the importance of being reflective, and how keeping a reflective journal benefited them:

> *"I think it's also very important that practitioners are, are reflective and are evidence-based practitioners, so I think those… I think [it] would [be] important to highlight that and maybe have examples of how people are using it. I suppose, I personally keep a reflective journal and I find it helps me hugely when I go to do my CV or when I'm preparing for interview because I have examples there, um, and I think in the health sciences an awful lot of the health professionals have been trained to be reflective practitioners, so even if anything else all you get from it is an understanding of what a reflective practitioner is, I think that will help you hugely in understanding where the professions you're supporting are coming from."*
> (Interviewee 7)

"Curiosity" and *"being interested"* were identified as desirable qualities (2, 6), together with creativity (7) and being innovative (1, 2), as it was deemed important to have the ability to *"re-invent"* yourself or your service and do things differently (1, 3).

Interviewee 7 was *"career-minded"* and *"liked learning"*, while also feeling the need to be *"encouraging"* of others. Interviewees 7 and 8 described themselves as being *"lucky"* with the career opportunities they had had, with all the interviewees reporting positive experiences of the profession:

> *"'I think about myself comparing to some of my friends who are in jobs as a doctor in biochemistry or that, I feel that I'm really lucky, I'm lucky to be here and I was lucky to participate maybe on cooperation project, and I think it's, it has given very much…"*
> (Interviewee 8)

3.2.2.5. Knowledge

One interviewee (2) talked particularly about the importance of having professional knowledge i.e. *"professional competencies"* and also *"professional awareness"*. Examples of key knowledge areas that interviewees felt were important fell into these two broad areas. For example:

- Professional competencies: Big data, databases, knowledge dissemination, information management, information management systems, metadata, open resource management, semantic web, knowledge of authors (2, 5)
- Professional awareness: new technologies, knowledge of science and scientists do, knowledge of social media, knowledge of trends (2, 5)

Interviewee 1 commented that when you *"know the larger context"* then *"it gives utmost credibility"*.

3.2.2.6. Skills

The interviewees were also asked to comment on the key skills they needed to enable them to fulfil their job roles (Table 13).

Table 13 Key skills identified by the interviewees

Key Skills [Interviewee]	
Academic writing [1, 2]	Medical database searching e.g. PubMed [5, 6]
Communication [3, 6, 7]	Motivation [1, 6]
Database knowledge [2, 3]	Organisational skills [1, 6, 7]
Information literacy [2, 5]	People skills [1, 3, 6, 7]
Leadership [1, 6, 7]	Research skills [1, 8]
Listening [3, 6]	Project management [6, 7, 8]
Literature searching [1, 2, 3, 5]	Teaching skills [1, 2, 4, 5]
Management [1, 3, 4, 7]	Teamwork [1, 3, 7]
Marketing [3, 8]	

Other key skills identified by single interviewees were: analytical skills, bibliometrics, business skills, ability to be calming and comforting, change management, classification, core library skills, data manipulation and management, data presentation, ability to digest information, English language skills, evidence-based research, experimental design, flexibility, horizon scanning, human resource management, ICT, indexing, inductive skills, influencing, knowledge management, language skills, library service management, meta-analysis, negotiation skills, opportunity recognition, pedagogical skills, presentation skills, randomised controlled trials, reference interviewing, report writing, research methods, ability to be proactive, public speaking, reflective, referencing, sense-making, service development, social skills, statistics, strategic management, systematic reviews, technical skills, time management, understanding of science and what scientists do, visioning.

Interviewee 3 commented:

> *"I think most useful, you forget to some extent that you've got that core library skills, and that information, and your values, ….that becomes inherent, it's, it's sort of part of what you do, you don't think about it."*

Interviewee 1 felt that organisational skills were unappreciated, and added: *"I think librarians don't realise just how skilled they are"*, particularly with reference to guiding and supporting research.

3.2.2.7. Skills acquisition

Interviewees acquired their skills in a variety of ways, as shown in Table 14.

Table 14 How the interviewees acquired their skills

Skills acquisition [Interviewee]
Colleagues [3, 5, 6, 7]
Conferences [2, 5, 8]
Continuing education [2, 8]
Courses [6, 8]
Education [1, 2, 4]
Experience [1, 5, 6, 7]
Library school (specifically) [1, 3, 6, 7, 8]
Networking [5, 6, 8]
Work experience [1, 3, 4, 6, 7, 8]

Other methods of acquiring the key skills needed to carry out the job roles were: in-house training, internship, internet, knowledge sharing, learning group, life skills, listening to presentations, mentors, from making mistakes, medical librarians, peers, people, professional organisations, reading, researching, seminars, study excursions, training courses, and workshops.

The most frequently-mentioned method of acquiring the skills needed was through work experience, followed by library school. Interviewee 4 commented specifically on this combined learning experience:

> *"Working basically… education, but basically I've learned just about everything I've learned working. I've always worked in libraries, before I went to library school, during library school, and after library school. But it's a combination of both I suppose."*

Three individuals reported having been influenced by others in their career. Some of these instances related to observing other library professionals in their library roles, going into libraries and observing practitioner librarians (Interviewees 1, 3). Other positive influences came from managers, inspirational speakers at conferences, and academics or educators (Interviewees 1, 3, 7).

3.2.2.8.   Skills development and training needs

The interviewees felt they had skills development and training needs. Interviewee 7 commented, *"I'll always have training needs."* Interviewees identified those needs as being authoring skills, research data management skills (2 interviewees), research methods skills, language skills, and technology skills (2 interviewees).

3.2.2.9.   Challenges within the profession

With regards to the challenges faced within the profession, there were no overarching themes.

A potential change in leadership at the top of the organisation was seen by one interviewee as being possible challenge for the future, and the problem of getting someone with the right skills to manage and understand the needs of a merged library and IT service (Interviewee 1). Interviewee 7 also discussed staff changes as a challenge, but focusing instead on staff losses. They observed that in the context of the economic recession, matters were getting to *"a critical point now that if we continue to lose more staff it will actually negatively impact on the service."* These changes brought about the need for a review of work processes, which some staff found difficult, and as a manager, the interviewee faced the challenge of dealing with industrial relations. Interviewee 8 was also feeling the pressure of managing budgets and resources.

Interviewee 8 identified keeping up-to-date as a constant challenge, supported by Interviewee 4 specifically in terms of *"keeping up with the technology".* Another interviewee discussed workplace challenges as being *"implementing new technologies"* and knowing users' expectations in this context, and planning services accordingly (Interviewee 2). Interviewee 3 was also feeling the pressures of change, with technology being one of them: *"the move from physical to electronic"* and the resultant shift from traditional library work to *"information work that has a high profile for the organisation".*

Interviewee 6 referred to the need to *"measure what we do"* in order to justify the service's existence and for accountability, and described it as being *"very difficult".* Interviewee 7 also

highlighted a challenge around deciding how to engage with users, and what services to offer in a climate of staff cuts. Interviewee 8 commented that marketing the library was a challenge, as did Interviewee 5 who had a new job role in which marketing the library was a challenge on two counts: *"that a library is more than books, and that the personnel within the library walls has a lot of competence that should be used in the health area."* Interviewee 6 shared this concern, saying that librarians should take a leading role and *"be self-confident and brave and go out… go outside the walls"* and *"listen"* to *"the student, or the patient, or the researcher".* Interviewee 8 commented that *"...the library needs to be very active… we also need to have a future."*

Interviewee 3 commented on the image of libraries and the perception that they are no longer needed because *"it's all free on the Internet".* Another interviewee (1) felt that librarians are *"modest people"* and need to *"grab a little more acknowledgement for themselves."*

3.2.2.10.   Critical contributions to healthcare
The interviewees were asked to reflect on times when they felt they had made a critical contribution to healthcare.

3.2.2.10.1.   Interviewee 1
This person could identify times when they had made a critical contribution through their work stating that this was often *"acknowledged"* which was *"nice".* These contributions were through *"collaborative research"* and *"co-authoring"*:

> *"I like co-authoring and even if I'm, you know, the sixth author on a research project, if it's a really interesting project, and one that I feel I've made a contribution to, it's nice to be acknowledged… we gave presentations at, um… medical education conferences, um… I think – and I've been able to present at those myself, um, you know, I've felt very valued as a, as an equal, and as a collaborator."*

The same interviewee had also received teaching awards, and awards from a professional body that recognised their contribution to teaching over a number of years.

3.2.2.10.2.   Interviewee 2
Interviewee 2 felt that their contribution had been through the new services that they had planned and delivered. That aspect of their role had given them *"job satisfaction".*

3.2.2.10.3.   Interviewee 3
Interviewee 3 had two very different areas where they had been able to make a contribution. Firstly, they had made a real difference to a member of staff who was experiencing a personal tragedy. The interviewee had spent considerable time and effort, fighting for support for the member of staff. Again these efforts were acknowledged, *"And a lot of people were coming up and saying, thank you so much for what you were doing… it was just amazing from a work perspective."*

Secondly, this person had fought for the *"survival"* of their service during a time of organisational change, which was *"a huge amount of work"* and *"stressful".*

3.2.2.10.4. Interviewee 4

Interviewee 4 felt their contribution was through their teaching and giving medical students the *"skills at the start of their career that they wouldn't otherwise have."*

3.2.2.10.5. Interviewee 5

This person was currently working on an evidence-based project and commented that, *"I think that's a way of showing our importance."* The project focuses on supporting adults with illnesses needing rehabilitation, and impacts directly on the evidence-based treatment decisions for patients. The librarian's role in providing evidence and guidance plays a critical supporting role. The skills and best practice have been developed over a number of years.

3.2.2.10.6. Interviewee 6

Interviewee 6 felt they had made their contribution within the context of recruitment and selection by developing a recruitment model that had been adopted by the wider organisation. The model identifies competencies for teams and projects, and impacts then on the achievement of future goals in the organisation.

3.2.2.10.7. Interviewee 7

Interviewee 7 could think of a number of areas where they had made a contribution. One was through the training that they had developed and delivered, particularly EndNote training, that had continued to be used over a long period of time, and had therefore been proven to be useful and sustainable: *"so it's very nice to know that it had continued, so it was actually a sustainable model, and at the time… that was quite difficult to implement."*

Student support was another aspect of the work that was seen as being useful:

> *"I think, as a manager you see… you know, the stressful student, and being able to talk to them and calm them and comfort them, and to know that they've left with a, a burden lifted, I think that's hugely rewarding."*

Finally, the interviewee highlighted work they had done on systematic reviews as making a real contribution to healthcare:

> *"I felt systematic reviews were an ideal opportunity for me to highlight, 'This is what I do as a librarian, this is what I know as a librarian,' and, and to work with colleagues in the health sciences… and support their work and a huge amount of those… systematic reviews were published, and I was acknowledged, and then I had the opportunity to actually contribute and work on two systematic reviews while I was there as well, so I felt for me, it gave me the opportunity to develop my skillset because I would have been a bit hesitant about things like meta-analysis and stuff like that."*

3.2.2.10.8. Interviewee 8

This person felt their work as an embedded information specialist made a direct contribution to the work of a healthcare team, and they found this work satisfying.

3.2.3. Website needs and requirements

The interviewees identified the following things that they would like to see on a website to support their continuing professional development and working practice:

Table 15 Things the interviewees might want on a website to support their professional development and working practice

Website
Examples of best practice [5, 6, 7, 8]
Examples of competency development [6]
Courses [3, 8]
Customer service training [3]
Examples of how people are using evidence-based practice [7]
Evidence-based research [2]
Sharing expertise [7]
Sharing knowledge [7]
Mentoring [1]
Advice on partnership working [3]
Promotion of professional organisation [7]
Examples of how people are using reflective practice [7]
Examples of skills development [6]
Research articles on competencies in LIS [6]
Software [2]
Tools [2]
Translational research [2]

3.3. Pilot survey summary results

The initial findings from the survey were presented in an interim report to EAHIL, and a summary of these findings was presented at the iConference in Berlin, March 2014. The poster presentation with summary results is provided in Appendix F, and the associated paper in Appendix G. Subsequently further analysis of the pilot was carried out, and the full results are presented below.

The pilot survey was distributed at the EAHIL workshop in Stockholm, Sweden during June 2013, prior to a full survey being distributed via EAHIL and other mailing lists. Ninety-eight questionnaires were distributed and 47 completed responses were received, giving a response rate of 48%. The survey questions are provided in Appendix A. The majority of questions were open-ended; this allowed the researchers to scope out the range of likely responses, with a view to developing the categories for the final survey. Responses were quantitised for the purposes of analysis, with additional qualitative analysis where appropriate.

3.3.1. Age of respondents

The majority of respondents (62%) were between 35 and 54, as shown in Figure 1.
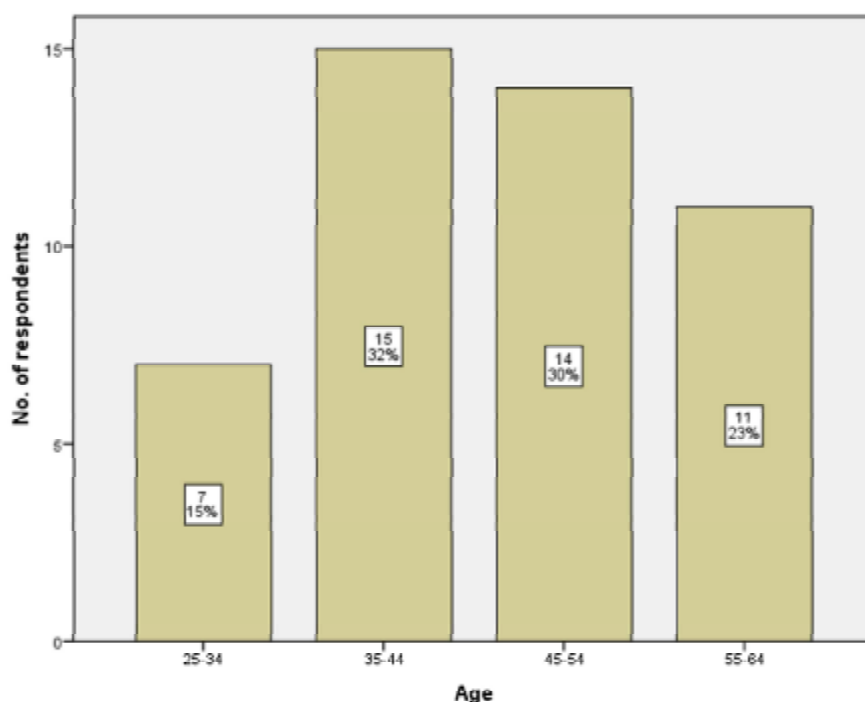
Figure 1: Pilot questionnaire respondents by age

3.3.2. Gender of respondents

The majority of respondents were female (72%, Figure 2).
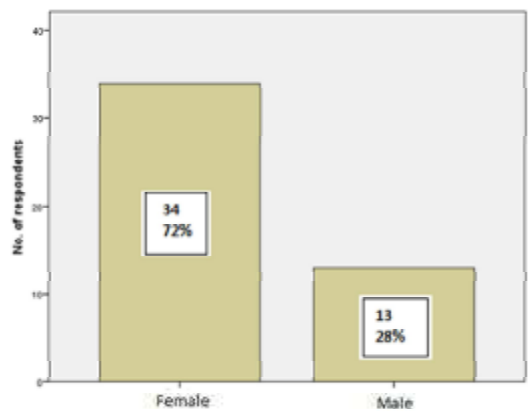
Figure 2: Pilot questionnaire respondents by gender

3.3.3. Countries in which respondents work

Sweden was the most common country of origin (

Figure 3), which may be expected given where the questionnaire was distributed. Respondents came from a wide range of European countries, with three respondents coming from further afield (the Caribbean, United States and United Arab Emirates).
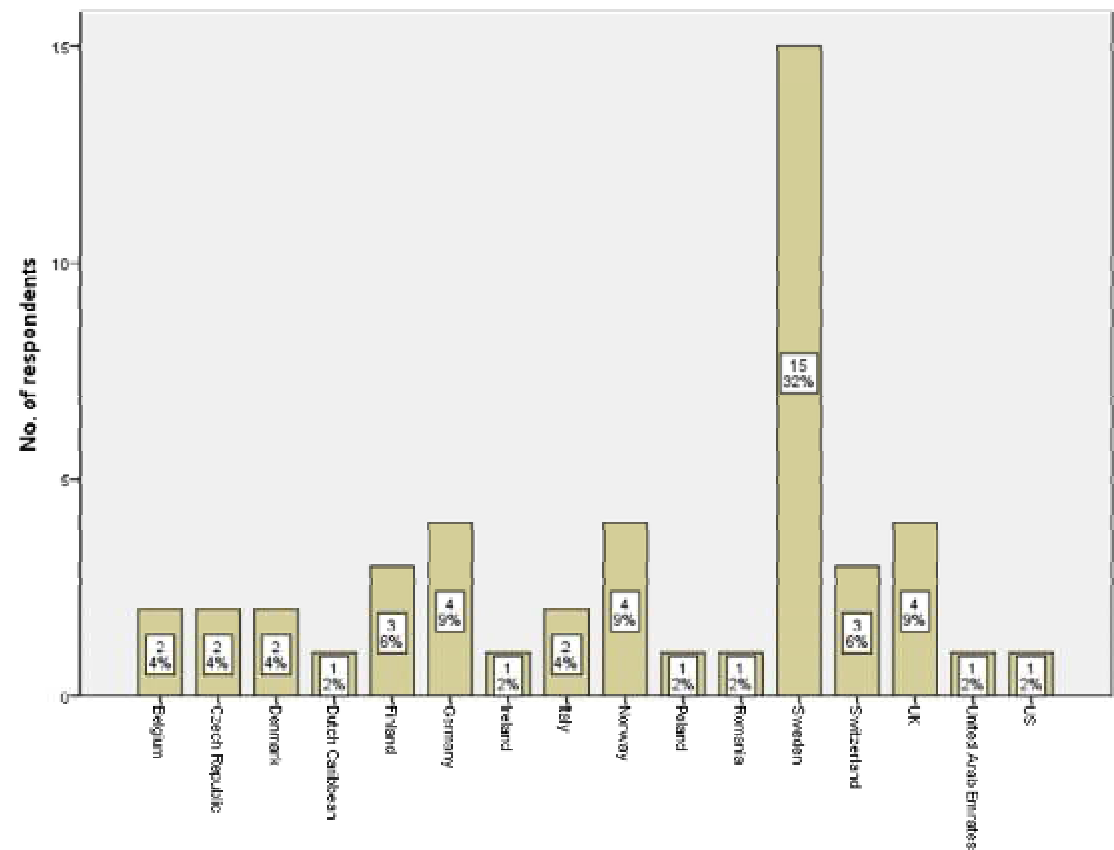
Figure 3: Pilot questionnaire respondents by country

3.3.4. Type of organisation in which respondents work

Most respondents came from the education sector or state healthcare, or a combination of the two (87%, Figure 4). The remaining individuals worked in industry, independent organisations or government-funded bodies.
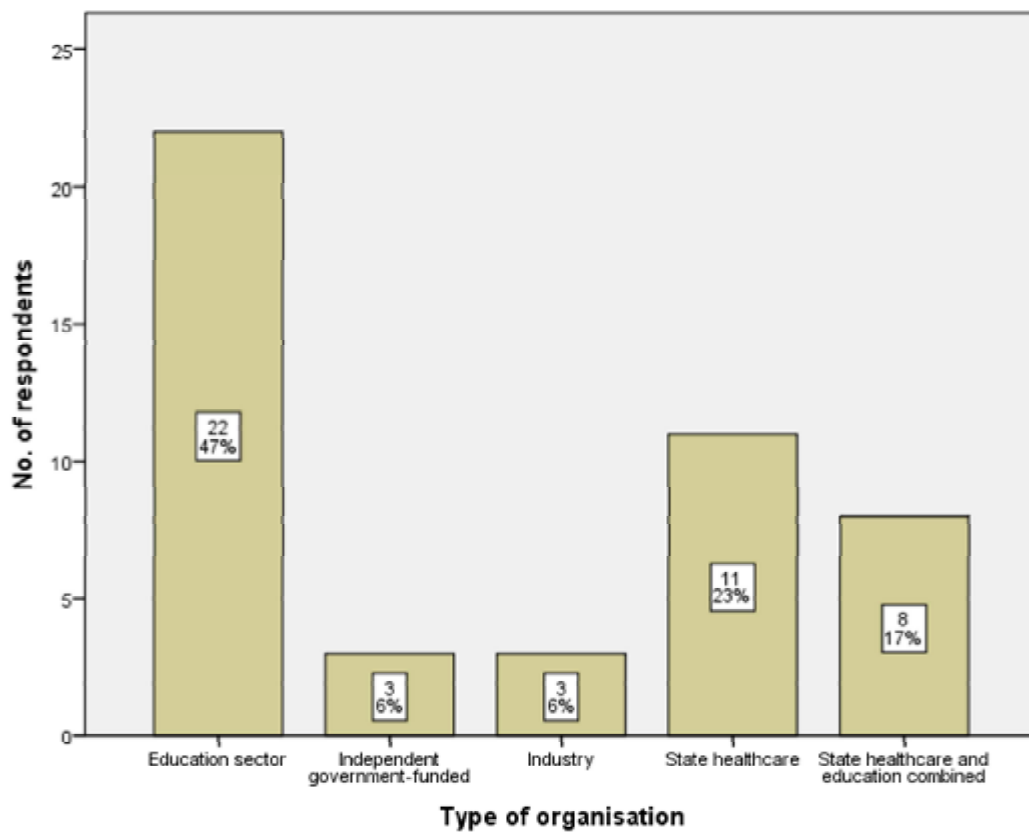
Figure 4: Pilot questionnaire respondents by organisation type

3.3.5. Respondents' main user groups

Clinicians, students, and researchers were the main user groups for the majority of respondents (Figure 5), with more than half of respondents identifying these user groups. It should be noted that respondents could select multiple user groups; the counts in Figure 5 therefore sum up to more than 47.
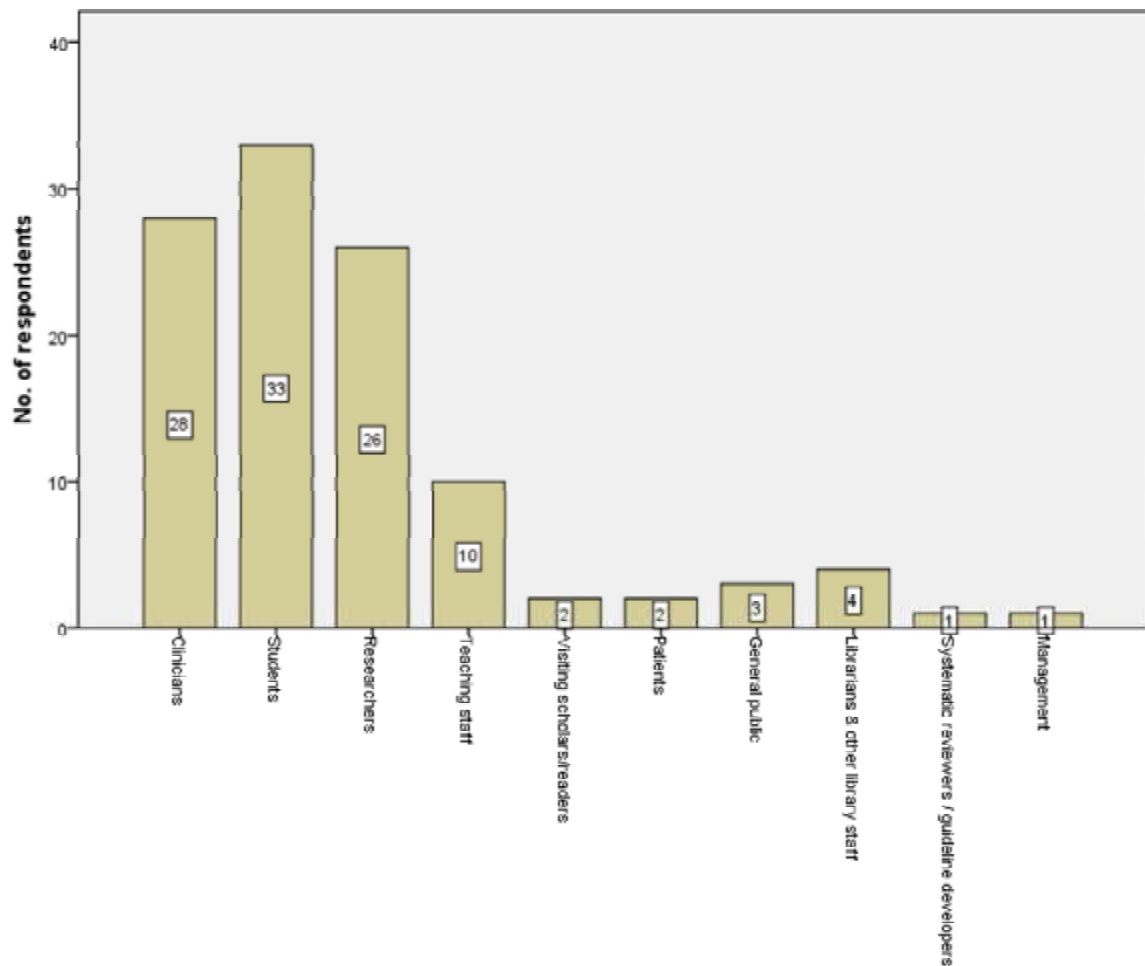
Figure 5: Pilot questionnaire respondents by main user groups

Table 16 shows a more detailed breakdown of respondents' main user groups, splitting clinicians and students into sub-groups. Responses total more than 100% as respondents could select more than one user group.

Table 16: Pilot questionnaire respondents by main user groups

	Count	% of respondents
Clinicians	28	59.6%
of which Doctors	3	6.4%
of which Nurses	3	6.4%
of which Veterinary surgeons	1	2.1%
Students	33	70.2%
of which Undergraduates	17	36.2%
of which Postgraduate taught	8	17.0%
of which PhD	12	25.5%
Researchers	26	55.3%
Teaching staff	10	21.3%
Visiting scholars/readers	2	4.3%
General public	3	6.4%
Patients	2	4.3%
Librarians & other library staff	4	8.5%
Systematic reviewers / guideline developers	1	2.1%
Management	1	2.1%

3.3.5.1.   Job titles

Twenty five respondents (53%) had the title 'Librarian' or a title which included the word 'librarian' (e.g. Senior Librarian, Medical Librarian, Liaison Librarian). A further eight (17%) had 'library' or 'libraries' in their title (e.g. Library Director, Library Assistant), giving a total of 33 (70%) who had one or more of the terms 'librarian/library/libraries' in their title.

21 respondents (45%) had a title which implied a leadership/management role, with the most common of these being Director/Library Director/Director of Libraries (eight respondents, 17%). Other titles in this category were Head Librarian (three respondents, 6%); Deputy Head Librarian (two respondents, 4%); Head of the Department of Information and Special Services (one respondent); Head of [a particular department/sub-division] (four respondents, 9%); Policy Advisor (one respondent); Regional Manager (one respondent); and Knowledge Management, Manager II (one respondent).

Five respondents (11%) had the term 'information' in their title, with four of these (9%) being 'Information Specialist' or variants thereon, and the remaining one being the Head of the Department of Information and Special Services mentioned above. One respondent had the term 'knowledge' in their title ('Knowledge Management, Manager II').

Four respondents (9%) had a title which implied a primarily educational role. These were as follows, with one respondent each: Training Specialist; Coordinator External Education; Associate Professor; and Senior Librarian / Head of user education services.

Two respondents (4%) had the term 'research' in their title. These were as follows: Research Librarian, and Science Information Specialist / Research Support.

Totals add up to more than 100% as some respondents had a title which covered two of these categories (e.g. 'Head Librarian') and some gave two titles (e.g. 'Senior Librarian / Head of user education services'). It should also be borne in mind that many titles were translated into English from their language of origin (usually by the respondent, and in one case by the researcher).

3.3.6. Key elements of respondents' roles

The most frequently-mentioned job role was teaching or training, with 29 respondents (62%) mentioning this area (Figure 6). Within this, 17 respondents (36%) mentioned information literacy training specifically, although it should be noted that this was one of the examples given in the question and was therefore likely to be at the forefront of respondents' minds. Other types of training mentioned specifically included data management training (1 respondent); critical appraisal training (1 respondent) and evidence-based medicine / research training (1 respondent).
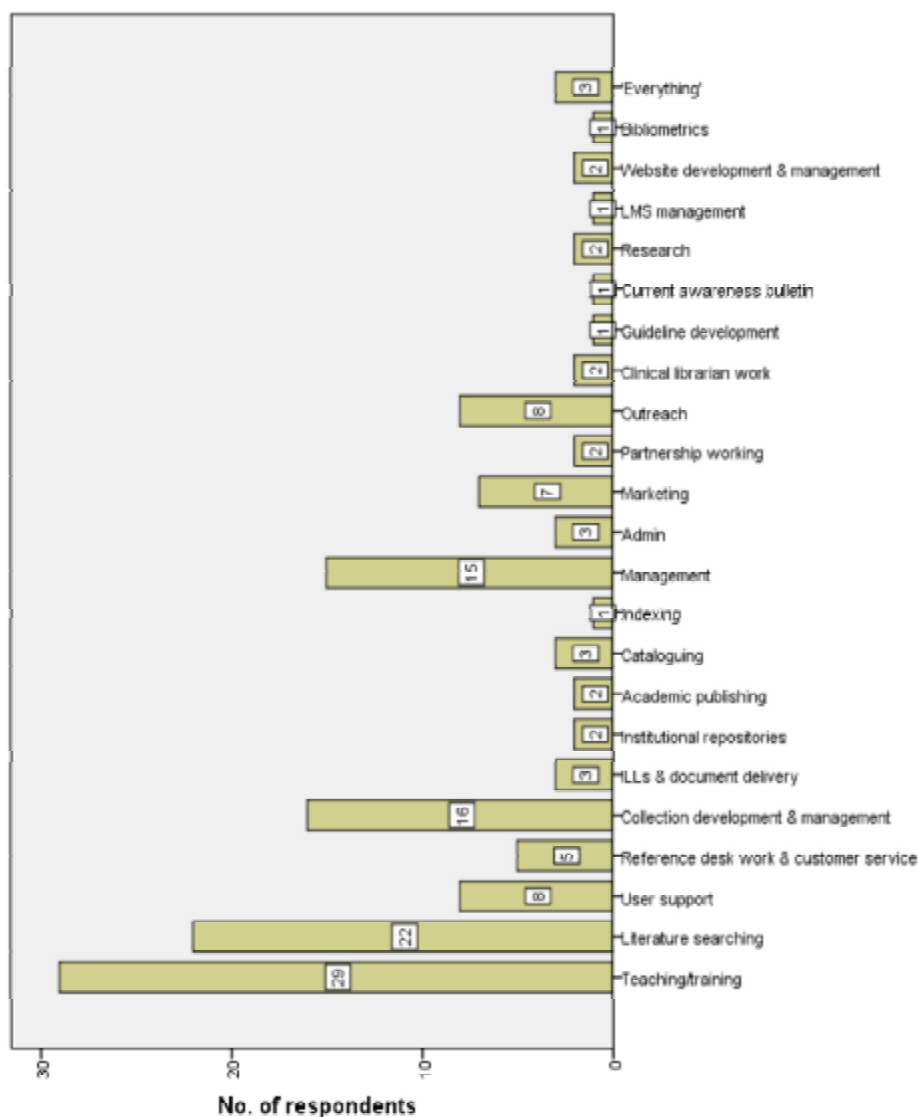
Figure 6: Pilot questionnaire respondents by key element of role

The next most common category was literature searching, mentioned by 22 respondents (47%), although again it should be noted that this was one of the examples given in the question and respondents may thus have been more likely to mention it.

Roles related to collection development and management came in third with 16 mentions (34% of respondents). This covered a range of roles including purchasing resources, negotiating licenses, and providing access to the resources.

This was closely followed by management roles with 15 mentions (32% of respondents). This category covers a number of different areas, such as strategic management, budget management, staff/competence management and quality management.

Other roles mentioned by a significant minority of respondents included user support (8 respondents, 17%); outreach (8 respondents, 17%); and marketing (7 respondents, 15%). There was also a long 'tail' of different roles mentioned by only one or two respondents, showing the diverse range of tasks carried out by health librarians and information professionals. These included work on institutional repositories (2 respondents); clinical librarian work (2 respondents); website development and management (2 respondents); their own research (2 respondents); indexing (1 respondent); current awareness bulletins (1 respondent); guideline development (1 respondent); and bibliometrics (1 respondent). On a related note, three respondents said they did 'everything' (or nearly everything) and this is a theme which has emerged in the data.

3.3.7. Key skills

Respondents were asked to identify the key skills needed to do their jobs. Results are shown in Figure 7, below:
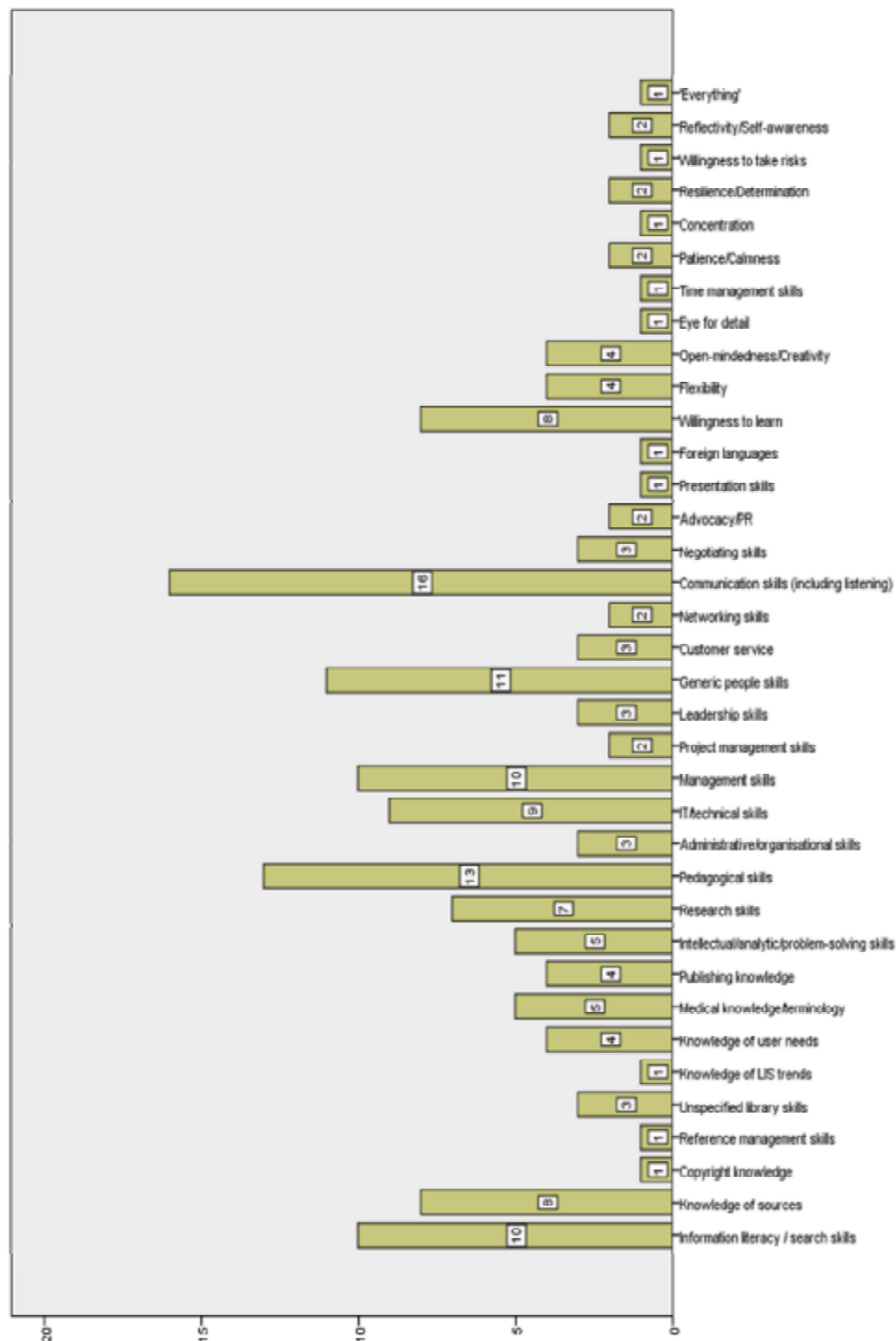
Figure 7: Pilot questionnaire respondents by key skill

These skills and attributes can be grouped into broad categories as follows:

Table 17: Classification of respondents' key skills

LIS skills & knowledge	Information literacy / search skills
	Knowledge of sources
	Copyright knowledge
	Reference management skills
	Unspecified library skills
	Knowledge of LIS trends
Knowledge of other areas	Knowledge of user needs
	Medical knowledge/terminology
	Publishing knowledge
Research skills and other intellectual skills	Intellectual/analytic/problem-solving skills
	Research skills
Pedagogical skills	Pedagogical skills
Administrative/organisational skills	Administrative/organisational skills
IT/technical skills	IT/technical skills
Management skills	Management skills
	Project management skills
	Leadership skills
People/communication skills	Generic people skills
	Customer service
	Networking skills
	Communication skills (including listening)
	Negotiating skills
	Advocacy/PR
	Presentation skills
Foreign language skills (includes a communication element, but also the actual knowledge of the language, hence in a separate category)	Foreign languages
Personal qualities	Willingness to learn
	Open-mindedness/Creativity
	Eye for detail
	Time management skills
	Patience/Calmness
	Concentration
	Resilience/Determination
	Willingness to take risks
	Reflectivity/Self-awareness
'Everything'	'Everything'

Soft skills were seen as greatly in demand, with communication skills mentioned most frequently by 16 respondents (34%) and generic people skills mentioned by 11 respondents (23%). Pedagogical skills were also viewed as highly important, mentioned by 13 respondents (28%). LIS-specific skills came slightly further down, with information literacy and/or search skills mentioned by 10 respondents (21%) and knowledge of sources mentioned by eight (17%).

It is interesting to consider the apparently lower usage of LIS-specific skills in the light of the focus group data. Focus group participants often struggled when asked about their key skills, and tended to mention softer skills first. LIS-specific skills tended to be mentioned later, prompted by discussion with other participants or by the focus group facilitator. The research team hypothesised that participants found it difficult to clearly identify their professional skills and knowledge, and/or that they saw these as a 'given'. It is possible that the same thing has happened in the case of the questionnaire respondents; certainly, two participants mentioned generic library skills as something of an afterthought. This was not the case in the final questionnaire, when respondents were presented with a series of tick boxes rather than the open-ended text box used to gather exploratory data in the pilot questionnaire (see sections 3.4.6 and 4.5 for further discussion of this).

Management skills were also mentioned by a relatively high proportion of respondents (10 respondents, 21%). Many respondents did not specify a particular area of expertise within the broad category of 'management skills', but a few made specific mention of areas such as people management (3 respondents, 6%); change management (2 respondents, 4%); financial management (2 respondents, 4%); and strategic management (1 respondent).

IT and technical skills followed closely on the heels of management with nine mentions (19%). It is interesting to compare this with the responses to the question about skills which respondents need to develop further: 15 respondents (31%) said they needed to develop their skills in various aspects of IT. This may suggest that respondents see technical skills as increasingly necessary for their jobs in the future.

Research skills were also mentioned by a significant minority of respondents (7 respondents, 15%). Interestingly, these skills were employed in a variety of different contexts. At least one respondent (an Associate Professor) used them to carry out his own research, which formed a key part of his role. Other respondents specified that they used research skills to carry out surveys or performance. Still others found knowledge of research methodology useful in assessing evidence, with one respondent specifying *"knowledge about different types of study methodology, grades of evidence"* as a key skill.

The most frequently-mentioned personal attribute was willingness to learn or intellectual curiosity, mentioned by eight respondents (17%). This is unsurprising in view of the range of different tasks carried out by health librarians and information professionals; comments relating to the changing skillset, and to the perception that (some) information professionals do 'everything', recur throughout the data.

Other than willingness to learn, there seemed to be relatively little consensus about the personal qualities required for the job; indeed, some could be viewed as potentially contradictory (e.g. 'calmness' versus 'willingness to take risks'). Again, this may reflect the wide range of roles carried out by LIS professionals working in the health sector.

3.3.8. How respondents acquired these skills

Bar chart (horizontal) titled "No. of respondents" showing:
- Other: 2
- Reading: 4
- Conferences: 5
- Life: 3
- Online learning: 12
- Professional networks: 29
- Shadowing: 8
- Mentoring: 7
- Short courses: 29
- University degree in other subject: 14
- University degree in library/information studies: 15
- Within the workplace: 45
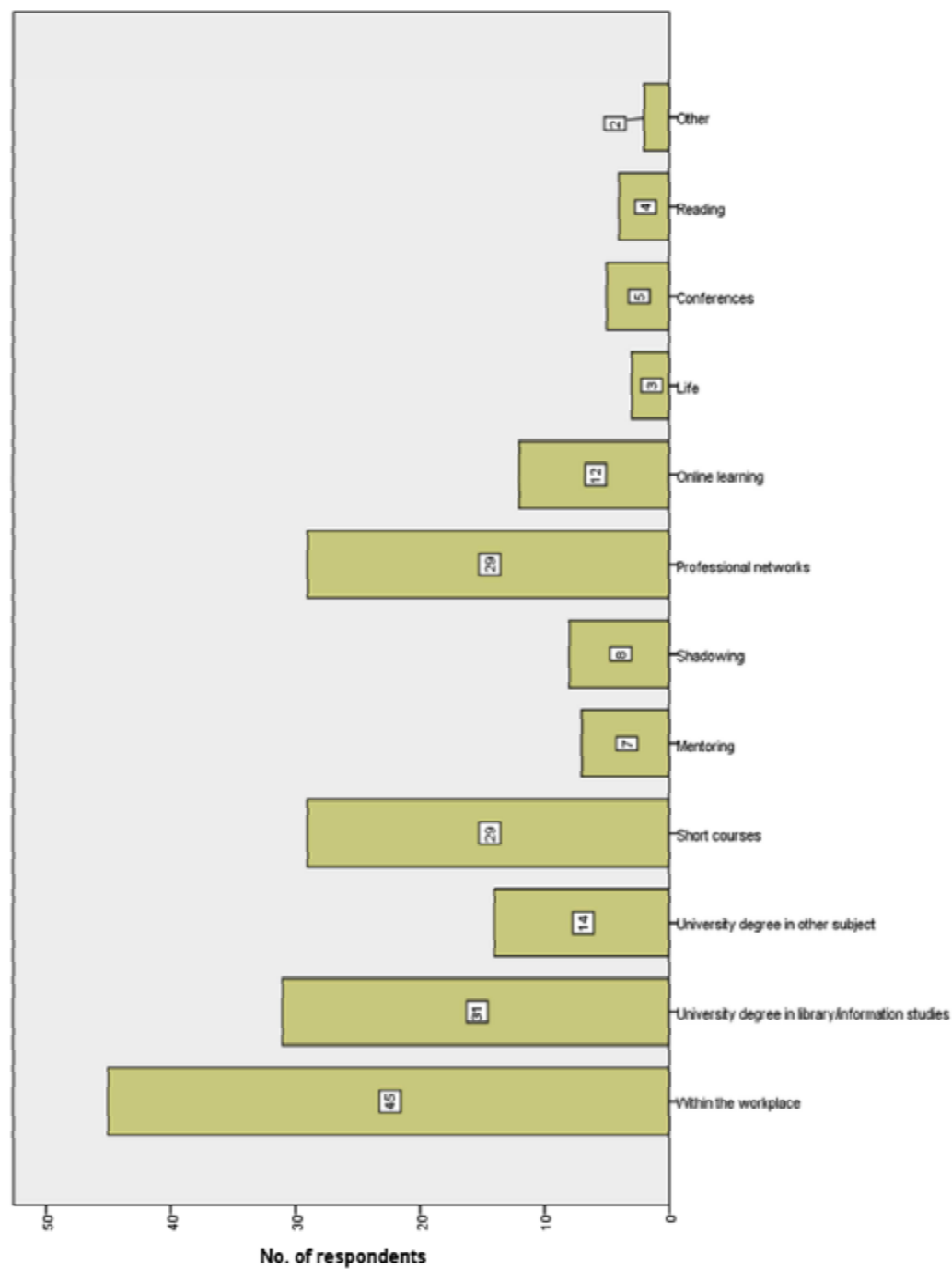
Figure 8: Pilot questionnaire respondents by skill acquisition

3.3.9. Skills development and training needs

Questionnaire respondents were also asked if there were any areas in which they needed to develop their skills; responses are shown in Figure 9.
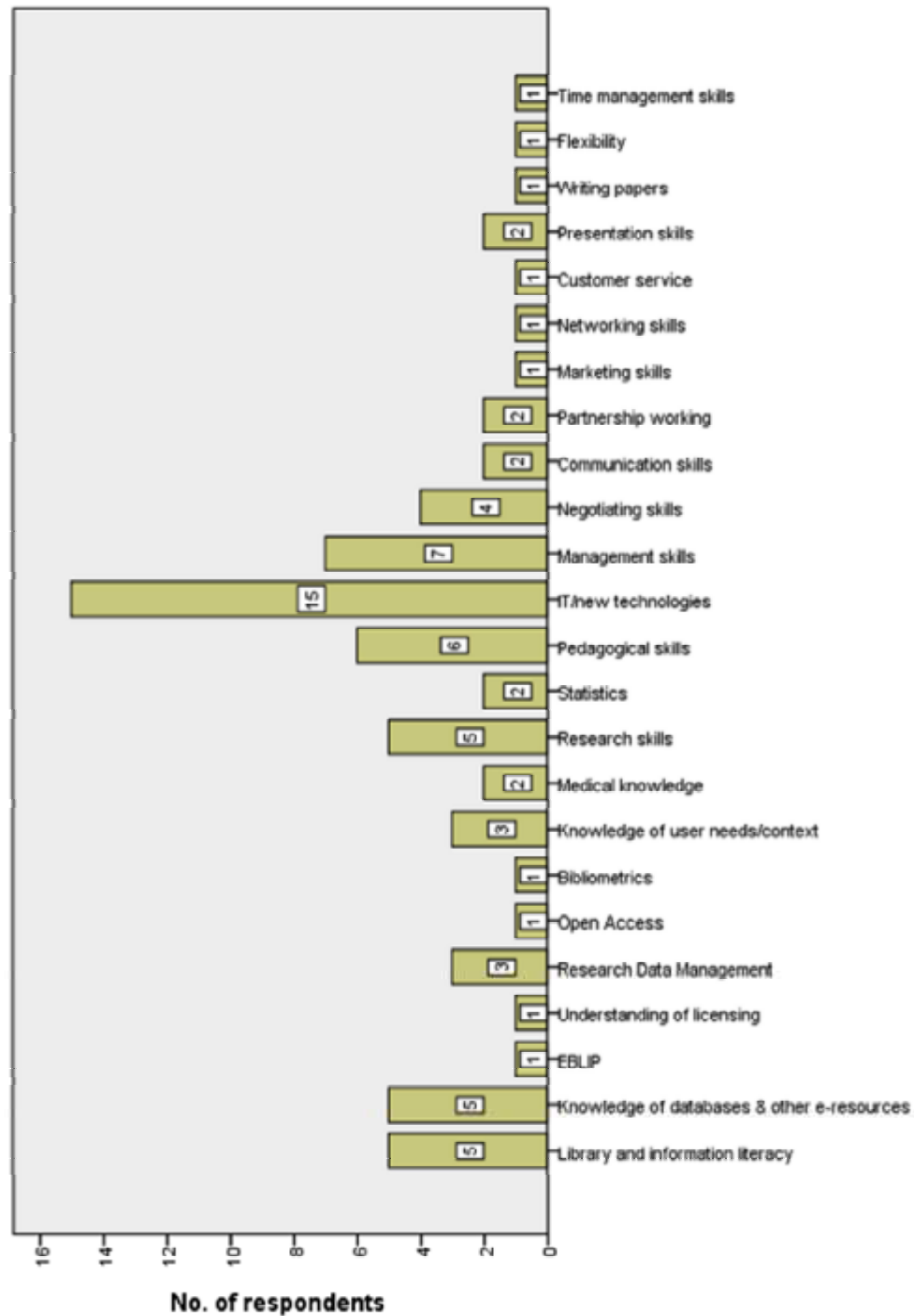
Figure 9: Pilot questionnaire respondents by skill that needs developing

The areas where development is needed can be grouped into broad categories[3] as follows:

LIS skills & knowledge	Library and information literacy
	Knowledge of databases and other e-resources
	EBLIP
	Understanding of licensing
	Research Data Management
	Open Access
	Bibliometrics
Knowledge of other areas	Knowledge of user needs/context
	Medical knowledge
Research skills	Research skills
	Statistics
Pedagogical skills	Pedagogical skills
IT/new technologies	Unspecified IT skills
	m-libraries
	e-learning
	Social media
	Library Management Systems
Management skills	Generic management skills
	Leadership skills
	Strategic management skills
	Budget management skills
	Staff management skills
	Competitor analysis
People/communication skills	Negotiating skills
	Communication skills
	Partnership working
	Marketing skills
	Networking skills
	Customer service
	Presentation skills
	Writing papers
Personal qualities	Flexibility
	Time management skills

IT and new technologies were the most frequently mentioned theme, cited by 15 respondents (31%). This is unsurprising, as new technologies and tools are by their very nature unlikely to have been addressed in previous education or training. Within this category, some specific areas were mentioned, such as m-libraries (the use of smartphones, tablets, apps etc. in libraries), mentioned by 3 respondents (6%); e-learning (3 respondents, 6%); social media (2 respondents, 4%) and library management systems (1 respondent).

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[3] The sub-categories differ from those listed for the 'key skills' question, as they emerged inductively from respondents' own words.

Management skills were mentioned as an area for development by a significant minority of respondents (7 respondents, 15%). Within this category, the most frequently mentioned area was leadership skills (5 respondents, 10%), followed by strategic management skills (4 respondents, 8%); budget management skills (3 respondents, 6%); and finally, staff management skills and competitor analysis with one respondent each. The last-mentioned area was mentioned by a respondent who works for a database vendor, which accounts for the greater business focus.

Pedagogical skills were also mentioned by a significant minority of respondents (6 respondents, 13%), while research skills were cited by five respondents (10%), with a further 2 (4%) mentioning statistics specifically.

Aside from the areas discussed above, there seemed to be relatively little consensus on the skills that need developing; the graph is relatively flat, with a large number of areas each mentioned by a minority of respondents. Once again, this reflects the range of roles carried out by health information professionals. It may also reflect differences in respondents' training, life experiences and career development paths, although further research would be required on this point.

It is also notable that 13 respondents (28%) made reference to developing existing skills and/or keeping up-to-date. Comments included, *"Always looking to hone existing skills"* and *"In different trends like research data - there is always something to develop!"* This sheds a rather different perspective on the quantitative data, suggesting a commitment to lifelong learning rather than a worrying lack of necessary skills. Taking the figures in isolation, it might have appeared a cause for concern that five respondents each cited 'Library and information literacy' and 'Knowledge of databases and other e-resources' as areas needing development, but the qualitative context suggests that respondents are building on extant knowledge rather than identifying a need to develop skills from scratch:

> *"More knowledge about databases, searching methods"*

> *"Hard to keep up with the changes and developments in all databases we can access"*

Similarly, one respondent cited the need for a range of new skills due to having taken on a new role:

> *"I am now moving into management role so need skills in leadership, budget and strategy."*

This focus on lifelong learning was reflected in the qualitative data from the focus groups (section 3.1.2.5) and interviews section 3.2.2.8).

3.3.10. Challenges

The challenges identified (Figure 10) aligned quite well with the responses to the question on skills which need developing, suggesting a link between the challenges health information professionals face and the recognition of skills needed to face them. The most frequently-mentioned concern was budget, mentioned by 14 respondents (30%). The majority of respondents did not expand on this or provide further details, perhaps implying that it is a general concern which affects all areas of service provision. However, a few respondents explicitly linked it with the difficulties of providing a high-quality collection when resources are limited, with one specifically mentioning journal prices: *"Prices – we cannot afford all journals and resources our users need."* In some responses, mention of budget co-occurred with concerns about staffing levels (mentioned by 5 respondents, 11%) and time and workload (8 respondents, 17%). These are logical connections to make, as budget will necessarily affect staffing.

Budgetary concerns were closely followed by issues relating to new technologies (13 respondents, 28%). A number of specific areas were mentioned, such as apps, e-learning, virtual libraries and e-resources; however, no one area stood out in the pilot data. Keeping up-to-date (12 respondents, 26%) was another key challenge, and unsurprisingly was closely linked to new technologies, but also covered other areas such as new tools and resources, and new developments in both the healthcare sector and the LIS sector. This in turn linked to other themes in the data, such as lack of appropriate skills among existing staff members (6 respondents, 13%); meeting user needs (9 respondents, 19%); and user retention and the perception of the library as irrelevant (6 respondents, 13%). Promotion, which could help to combat this last problem, was another of the most frequently-mentioned concerns with 11 respondents (23%).

Figure 11 (p. 56) shows the interactions between the various challenges identified by health information professionals in the pilot survey.

As well as the issue of communicating the value and relevance of the library to users and potential users, five respondents (11%) mentioned communicating with paymasters (such as university management) as a challenging area. Four out of these five respondents worked in the education sector. The majority felt that there was a lack of support for libraries and information from management, with one commenting that they needed to *"Fight for the libraries' position at the university"* and another expressing concerns about a *"Possible change of leadership away from core values."*

Various skills were specifically mentioned as challenging areas, of which by far the most frequently-cited was teaching (9 respondents, 19%). This supports the previously-mentioned finding that 6 respondents (13%) identified teaching as an area in which their skills needed developing. Interestingly, however, the group of respondents who identified teaching as a challenge showed very little overlap with the group of respondents who identified it as an area for skills development. This may in part be explained by the fact that some of the respondents who wanted to develop their pedagogical skills expressed this in terms of further development of existing skills; therefore it could be hypothesised that they are confident teachers who nonetheless recognise the need for lifelong learning.

Three respondents (6%) mentioned the range of skills required; this was supported by the variety of skills cited by respondents as posing a challenge in the workplace. These included information literacy and search skills (2 respondents, 4%); research and evaluation (2 respondents, 4%); under-standing of scientific communication (2 respondents, 4%); leadership skills (2 respondents, 4%); budgeting skills; statistics; and bibliometrics (1 respondent each). Interestingly, although promotion was identified as a major challenge, as noted above, responses to the 'Skills that need developing' question showed that only two respondents (4%) identified marketing skills as an area that needed development. However, analysis of what was said (and what was *not* said) in the interviews and focus groups suggests that health information professionals do indeed need to work on their ability to communicate their skills and how they add value; this is discussed further in section 4.5.
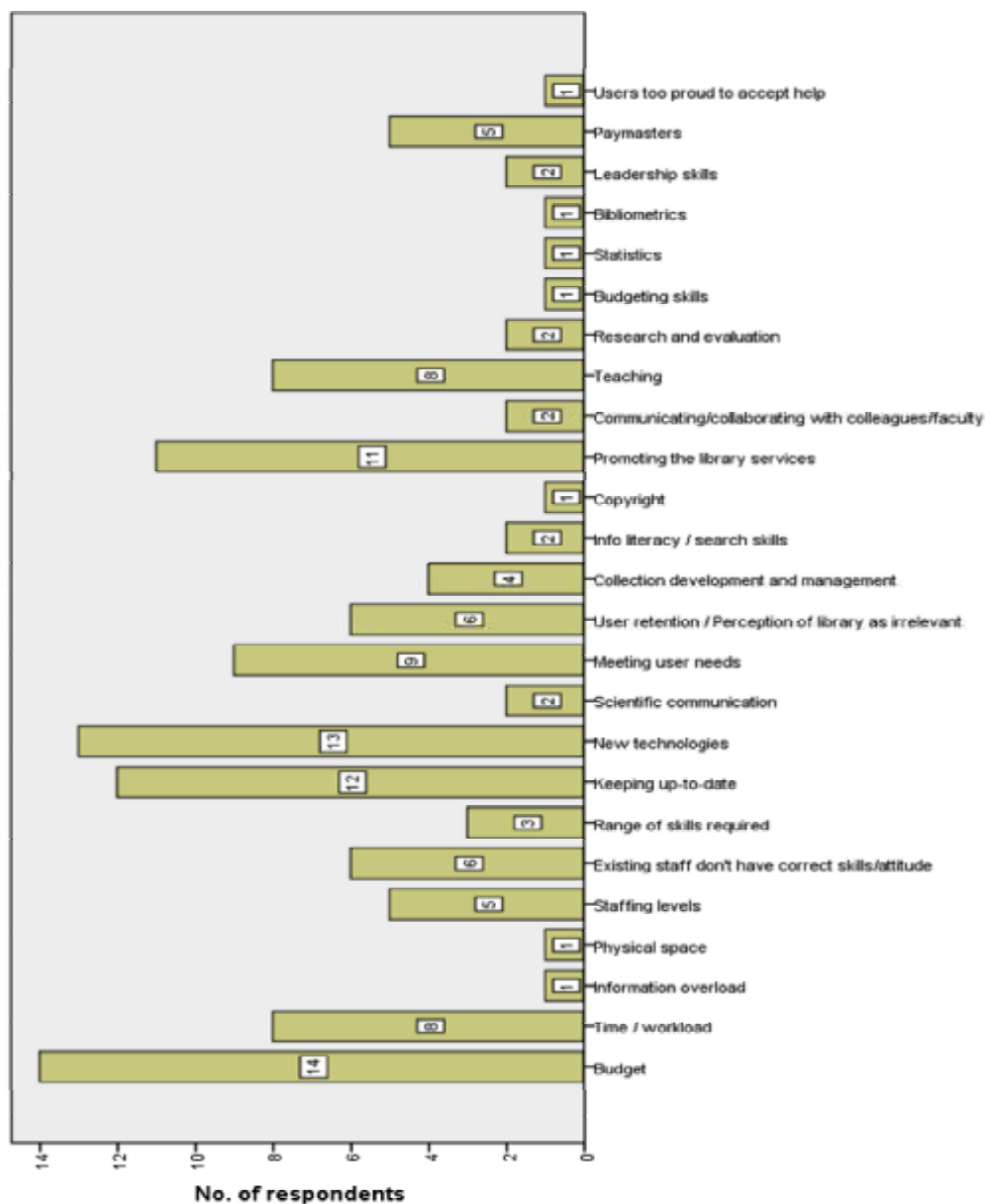
Figure 10: Challenges faced by respondents (pilot questionnaire)
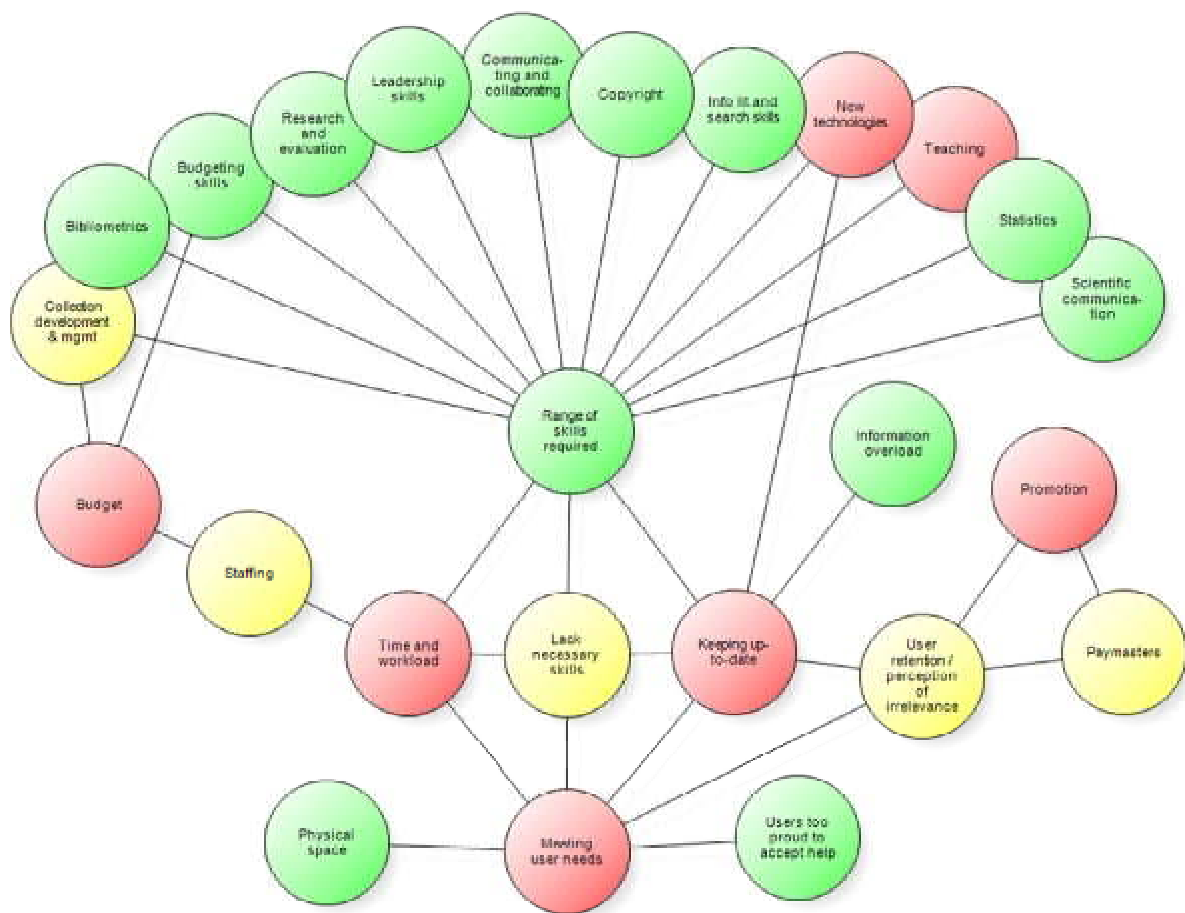
Figure 11: Challenges mentioned by pilot survey participants, where red circles = challenge was mentioned by 8 or more respondents, Yellow = mentioned by 4-7 respondents, Green = mentioned by 1-3 respondents

3.3.11. Critical contributions to healthcare

Participants were next asked to give an example of a time when they felt they had made a real impact in their job. 42 respondents completed this question, with five leaving the text box blank. Responses were entered into nVivo and analysed thematically. Where appropriate, responses were also quantitised, to indicate the most frequently mentioned themes.

Participants' responses made reference to a broad range of areas of expertise, once again confirming the findings on key elements of the role (Q5) and key skills (Q5). These are summarised in Table 19 below.

Area of expertise	Number of mentions
Search skills and information literacy	12
Teaching or training	11
Promotion and outreach	4
Bibliometrics	3
Management	3
Designing course materials	3
Reference management software	3
Research	3
Scholarly publishing	3
Improving library space	2
m-libraries (use of mobile devices and apps in the library context)	2
Providing access to materials	2
Support for systematic reviews and guideline development	2
Conference organisation	1
Evidence-based library and information practice (EBLIP)	1
Foreign language skills	1
Health Technology Assessments	1
Institutional repositories	1
Research Data Management	1

By far the most frequently mentioned areas of expertise were search skills and information literacy, and teaching or training. This tallies with the responses detailed in sections 3.3.6 and 0, which identified these areas as key skills and key elements of respondents' roles. Analysis of the examples of impact showed that in six cases these areas co-occurred, as respondents were referring to teaching information literacy skills to library users, most commonly students:

> "Teaching Master's students in pharmaceutical sciences about searching and evaluating information each year"

However, search skills and information literacy were also mentioned in other contexts, where the respondent had performed the search themselves:

> "Several times I have felt that my work has been important for researchers; that my skills in systematic information searching and English terminology has made a difference."

Conversely, mentions of teaching did not always relate to information search skills. In several cases respondents did not specify what they had been teaching, but one respondent cited several topics in addition to literature searching:

> "Educating PhD students is always nice. They seem to not know everything about literature search, reference management, bibliometrics, publishing."

One respondent specified that the teaching had taken place in an e-learning context.

In some cases, respondents specified particular library users or other individuals who had benefited from the examples of impact. These are summarised in Table 20 below:

<div align="center">Table 20: Customers mentioned by respondents</div>

Type of user	Number of mentions
Students	13
Academic or research staff	6
Clinicians	4
Management	3
Colleagues	2
Systematic reviewers and guideline developers	2
Customers*	1
Patients	1

* This respondent worked for a database provider, and the customers in question were therefore librarians.

Students were mentioned most frequently, appearing in 13 responses. This tallies with the responses in section 3.3.5, which showed that students constituted the largest user group. In four cases, the respondent specified that the students in question were doctoral students, while MA students were mentioned twice.

It is also notable that only one respondent mentioned a patient, and even in this case, the information was provided to the doctor treating the patient, rather than directly to the patient themselves. In other cases, the impact on patients can be inferred:

> "Providing support for the development of evidence-based guidelines and processes for use in the hospital"

However, in the majority of cases, respondents were removed from the patient context (e.g. teaching information literacy skills to future clinicians). Again, this tallies with the results given in section 3.3.5, which showed that only two respondents cited patients as a main user group, with three mentioning the general public. This raises a question as to who is providing health information to these potential user groups, and are the library and information staff communicating and liaising with them.

Many respondents – although by no means all – provided some sort of 'evidence' of their impact in their responses. Twelve of them gave examples of innovations or changes in their services; the range of examples was diverse, and covered several of the areas of expertise identified above.

> "Developed a tool to deliver documents instantly, available 24h/24 worldwide as automatized as possible. We are now able to deliver articles, more articles with less staff, faster and cheaper, thanks to technology i.e. for a FDA submission."

> "Implementing and marketing our institutional repository"

> "New strategy for the library; New vision/mission; New targets"

Six respondents mentioned instances when they had been thanked, or received positive feedback, and therefore knew that they had made a difference to those particular users. Similarly, three respondents said they had been mentioned in the acknowledgements to a publication, and/or listed as co-authors.

> *"Lead on a project to identify differences in search syntax across different databases/interfaces. The results informed the team and we have presented more widely. Feedback received has been very positive and therefore feel this work has been of use to a variety of people."*

> *"Any time I was asked to co-author a research paper, was listed in the acknowledgements in the article, received a teaching or research award, or sometimes an unsolicited note of thanks. I.e. a concrete indication that I have made a difference."*

Four participants gave responses which included a time-critical element. In two cases, an intervention had helped the library or a user to perform tasks more quickly and efficiently, while in the other two cases, assistance from a librarian had helped the user to meet a deadline. Both of the latter cases related to reference management for PhD theses due for immediate submission:

> *"A nurse that was going to send in her thesis the same day got problem with her EndNote, the reference list looked strange. She ran into the library and I helped her fix it. She wrote a thanks in the acknowledgements in her thesis."*

Three respondents felt they had made an impact when students had *"learned something they didn't know before"*; unsurprisingly, all these responses related to a teaching context. A further three respondents cited times when they had carried out research, and this had subsequently had an impact on practice.

> *"Results of my research has an impact on the content of courses / curriculum"*

Four respondents cited actions which had resulted in increased visibility of the library – e.g. through signage, embedding in the curriculum, or high attendance at events. This is particularly important in view of responses in section 0, which identified promotion of the service, and the perception of the library as irrelevant, as major challenges for several respondents. One response on the 'visibility' theme demonstrated how assistance with bibliometrics – in this case for a key member of senior management – resulted in excellent word-of-mouth advertising:

> *"When I help the CEO of the hospital to find out citations, h-index: he was pleased indeed and spent half a year bragging about us. And now they (hospital) see us as a partner - a natural one."*

However, it should also be borne in mind that this is an outcome for the library, which does not directly benefit recipients of healthcare. The phrasing of this question was changed slightly in the final survey in order to elicit responses which focused more directly on participants' contribution to effective healthcare.

3.4. Final Survey Results

3.4.1. Demographics

The main survey was distributed throughout Europe and beyond via professional health information mailing lists, health information contacts, professional bodies, Facebook, and other social media sites. As a result the sample is a convenience sample and cannot be deemed to be representative of the health information profession as a whole. There were 513 usable responses.

The demographic data shows that the health information and library profession is female-dominated (Table 21).

Table 21 Gender of the survey respondents

Response	Number	Percentage
Male	77	15%
Female	429	84%
Rather not say	7	1%
Total	513	100%

There is a fairly even distribution of age ranges within the profession, with no evidence of an aging workforce (Table 22). It is encouraging to see that younger people are entering the profession, giving an opportunity for workforce development and succession planning.

Table 22 Age distribution of the survey respondents

Response (Age range)	Number	Percentage
18-24 (A1)	8	1.56%
25-34 (A2)	101	19.73%
35-44 (A3)	132	25.59%
45-54 (A4)	142	27.74%
55-64 (A5)	109	21.29%
65 or older	13	2.54%
Rather not say	8	1.56%
Total	513	100%

The respondents came from 32 countries around the world (Table 23), and those countries representing five of the six World Health Organisations (WHO) regions: Africa, the Americas, Europe, the Eastern Mediterranean, and the Western Pacific, with only South East Asia not being represented. Many of the respondents were from Europe. However, there is an opportunity for EAHIL as an organisation to greatly increase its membership. The majority of respondents to the survey reported not being members of EAHIL (Table 24).

Further analysis of the data broken down by country shows the distribution of EAHIL members and non-members by country (Figure 12 and Figure 13). In the UK, France, Germany, Spain and Switzerland there are people who are interested in the work of EAHIL as they completed the survey but are not members. These countries would be ones to target to increase membership. People did respond to the survey from outside Europe, mainly Canada and the United States, and these respondents may be interested in travelling to Europe for conferences and workshops.

Table 23 EAHIL membership of the survey respondents by country

Country	Non-member	EAHIL Member	Country	Non-member	EAHIL Member
Algeria	1	0	Lithuania	0	1
Austria	6	0	Netherlands	1	6
Belgium	0	4	New Zealand	1	0
Canada	47	0	Norway	2	3
Cote d'Ivoire	1	0	Philippines	1	0
Croatia	0	3	Poland	0	1
Czech Republic	0	1	Portugal	0	4
Denmark	0	1	Russia	0	1
Finland	0	4	Slovenia	2	3
France	62	4	Spain	8	9
Germany	15	3	Sweden	1	9
Greece	0	1	Switzerland	16	8
Ireland	0	9	Turkey	0	2
Italy	12	7	UK	168	56
Korea	1	0	Uruguay	1	0
Lebanon	1	0	United States	24	0

Table 24 EAHIL membership

Response	Number	Percentage
Yes	141	27.34%
No	372	72.66%
Total	513	100.00%
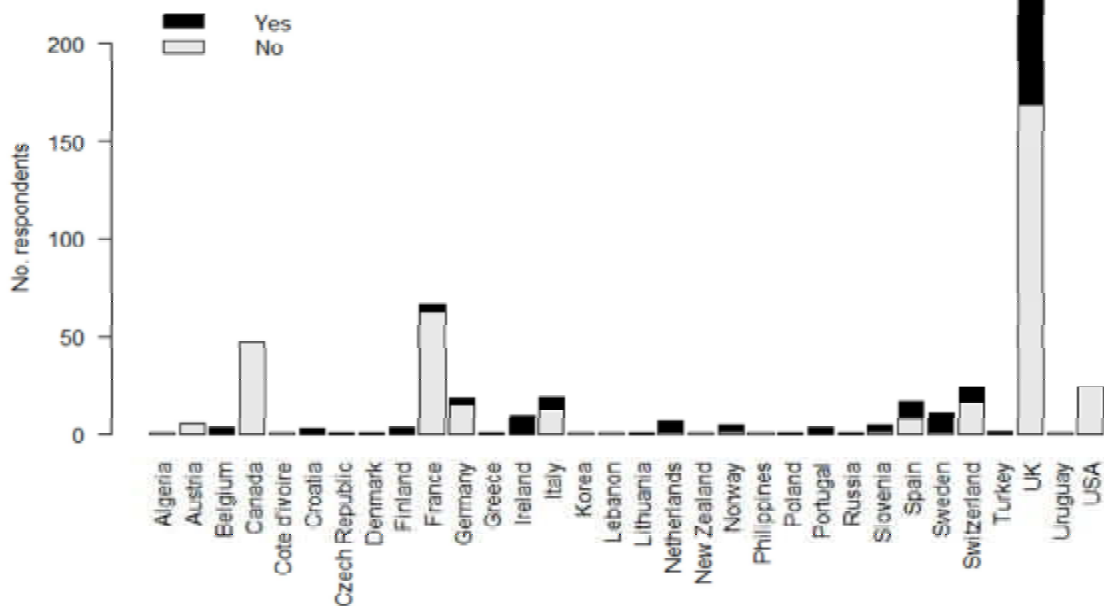
Figure 12 EAHIL membership by country
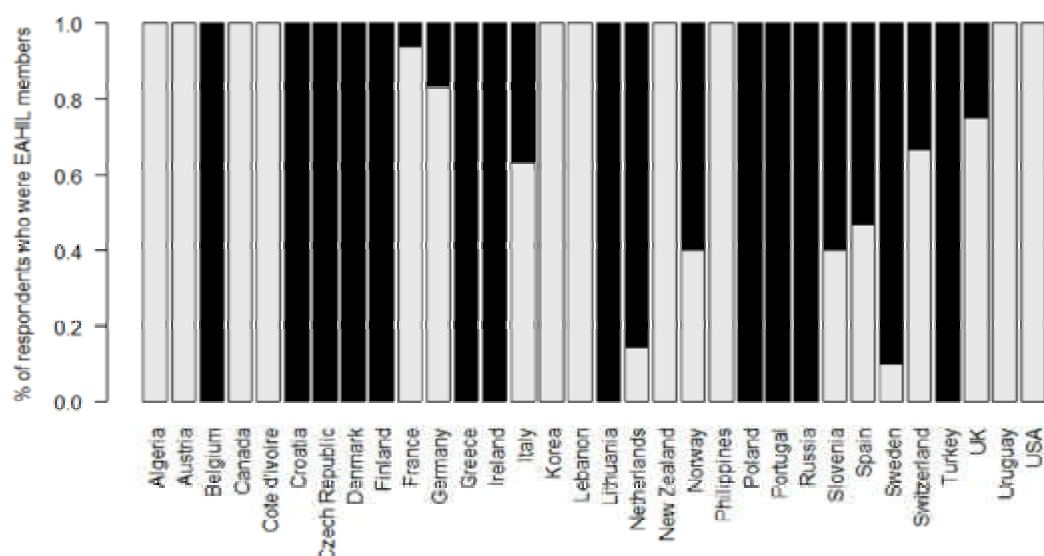
Figure 13 Percentage of respondents from each country who are EAHIL members (Black represents EAHIL membership, white is non-membership)
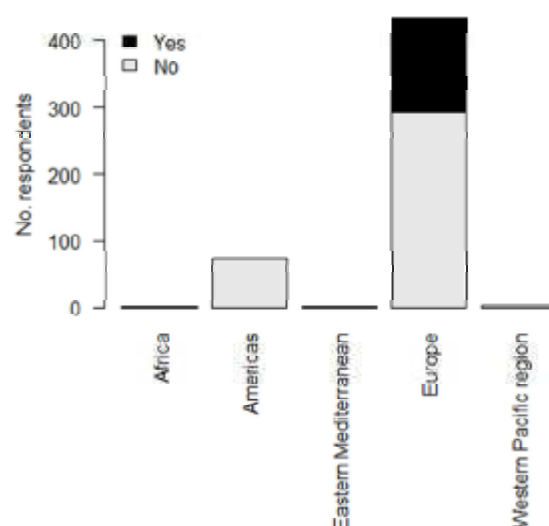
Figure 14 Percentage of respondents who are EAHIL members split by WHO region (Black represents EAHIL membership, white is non-membership)

All the respondents that identified themselves as EAHIL members work within Europe (Figure 14). Of the European respondents (based on WHO's regional categorisations), 32% of the respondents are members of EAHIL.

The majority of respondents (386, 75.39%) were members of other professional organisations (Table 25). These are listed in Appendix H (Table 44), and numbered 171 different professional bodies, organisations and associations. The most frequently cited organisations were Chartered Institute of Library and Information Professionals (CILIP; n=161), Canadian Health Libraries Association (CHLA; n=34) and Medical Library Association (MLA; n=25).

Table 25 Membership of other organisations

Response	Number	Percentage
Yes (A1)	387	75.39%
No (A2)	126	24.61%
Total	513	100%

3.4.2. Job Titles

The respondents were asked to give their job titles and these were analysed thematically. Three hundred and thirty respondents (64%) had titles including the terms 'librarian', 'library' or 'libraries', or equivalents in other languages (e.g. Health Sciences Librarian, Library Director, Library Assistant, *Bibliothécaire Adjoint Spécialisé, Diplom-Bibliothekarin*). Seven respondents (1%) were archivists or had the term 'archive' in their titles. 131 respondents (26%) had titles including terms related to information, or equivalents in other languages (e.g. Information Specialist, Information Manager, *Documentaliste* (= information specialist), while 35 respondents (7%) had titles including the term 'knowledge' or equivalents in other languages (e.g. Library & Knowledge Services Manager, *Wissensmanagerin* (= knowledge manager). Only one respondent had a title including the word 'data'. This demonstrates the continued relevance of the terms 'library' and 'librarian' in the health information sector, while the terms 'knowledge' and 'data' do not currently appear to be in common use, and archivists are rare in the sector. These figures broadly confirm the findings of the pilot survey, in which 70% of respondents had a title including the terms 'librarian', 'library' or 'libraries', 11% had titles relating to information, and only one respondent had the term 'knowledge' in their title.

One hundred and forty-seven respondents (29%) had titles which implied a management role (e.g. Library Manager, Library Director, Head of Libraries, *Responsable, Leiterin*, etc.). This did not include terms such as 'knowledge manager' and 'information manager' which are usually used to refer to information roles rather than posts involving strategic management or people management. The pilot survey, which was carried out at the EAHIL workshop in Stockholm, had shown a larger proportion of respondents in management roles (45%). This could suggest that individuals in management roles are more likely to attend this type of conference, or it could have been purely chance due to the small size of the pilot survey. In any case, it suggests that the final survey was successful in reaching a wider range of individuals at different levels.

Nineteen respondents had a title which implied an educational role (e.g. Lecturer, Assistant/Associate Professor). Other roles included clinical librarian roles (17 respondents, 3%); outreach[4] or community engagement (15 respondents, 3%); research (12 respondents, 2%); and collection development & management or e-resources roles (10 respondents, 2%). Three respondents (1%) were involved in systematic reviews or guideline development.

Nine respondents (2%) had a title including the term 'technician', or equivalents in other languages (e.g. *técnico*). This term seemed to be primarily used outside the UK to refer to roles which involved

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[4] The term 'outreach librarian' is sometimes used in clinical contexts to refer to a clinical librarian/informationist role (in that the librarian is working in a setting outside the library). However, it was not always clear in the questionnaire responses whether this was the type of 'outreach' role referred to.

some level of specialist knowledge but which did not require the same level of academic qualification.

A very small number of medical staff also responded, including a nurse and a speech pathologist. A few individuals had a job title including the word 'consultant', but it was not always apparent whether this term was used in the sense of a medical role or an expert advisor. Other job titles included academic abstractor; editor; head of data protection and information risk management; and library secretary.

Totals add up to more than 100% as some respondents had a title which fell into more than one of these categories (e.g. 'Head of Library and Information Services). It should also be borne in mind that many titles were translated into English from their language of origin, either by the respondent or by the Research Associate.

3.4.3. Employment sector

Respondents were also asked to identify which sector they worked in. Respondents could select more than one option, and could also enter free text into an 'Other' section, which was then manually classified, where possible, into the other categories. Table 26 and Figure 15 show that the major employers of health information and library professionals are in state healthcare (n=296), and education (n=190). Small numbers of respondents work in private healthcare, charity or voluntary sectors, or industry. Of those that selected the 'Other' option, examples of employers included a law firm, self-employed, associations, or professional organisations and research institutions. Some respondents (64) work across more than one sector (Table 27).

Table 26 Employment sector for the survey respondents

Response	Number
State healthcare	296
Private healthcare	20
Charity/voluntary sector	30
Education sector (e.g. university, college)	190
Industry (e.g. pharmaceutical company)	21
Other	27
Total	584
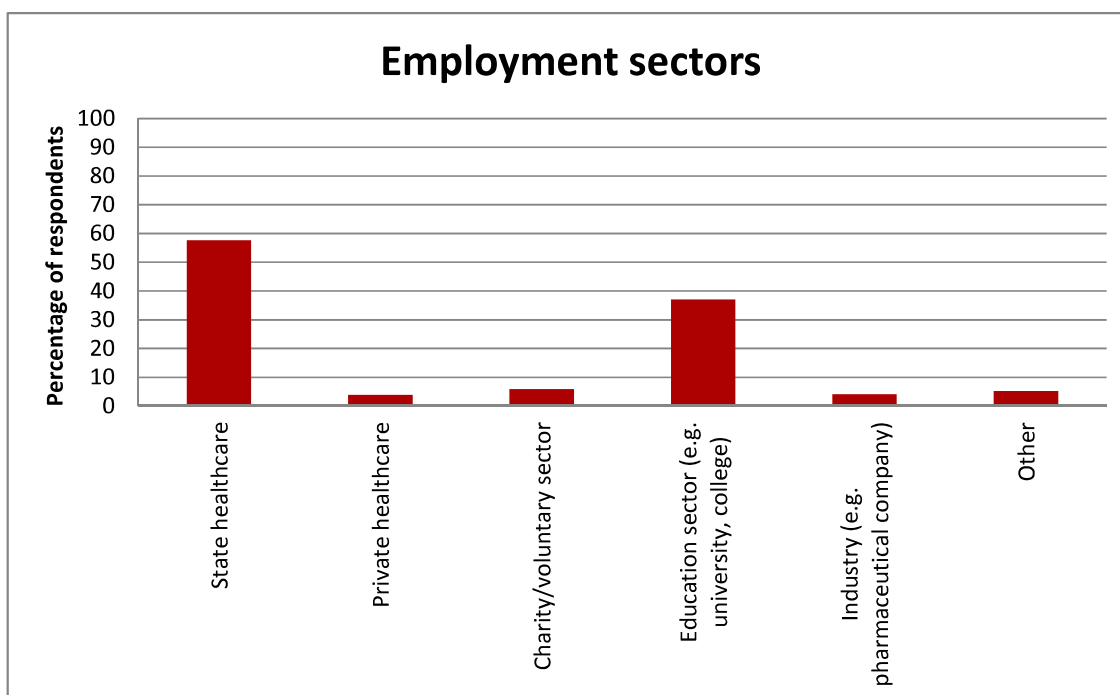
Figure 15: Employment sectors selected by respondents (more than one sector could be selected, all sectors add up to more than 100%)

Of the respondents identified as working in multiple sectors, only seven worked across three different sectors, with the other 57 operating in two different sectors. Table 27 shows the number of respondents operating in pairs of sectors, with the majority of these in state healthcare and education (e.g. a university with a teaching hospital attached).

Table 27: Number of respondents operating across pairs of sectors

	State Healthcare	Private Healthcare	Charity / Voluntary sector	Education sector	Industry
Private Healthcare	5				
Charity / Voluntary sector	4	4			
Education sector	42	4	0		
Industry	2	2	0	2	
Other	6	0	1	4	2

3.4.4. User groups

Respondents were asked to identify their main user groups. The user groups identified by respondents reflected the employment sectors they worked in, with the predominant user groups being health workers or academic users (Table 28). Respondents could select more than one category for this question. Very few of our health information professional respondents serve the

general public or patients directly. This raises an important question about who is providing these groups with health information.

Table 28 Users served by those surveyed

Response	Number
Students	369
Doctors	346
Researchers	316
Nurses	308
Allied health professionals	284
Teaching staff	194
Management	189
Systematic reviewers/guidelines staff	111
Librarians and other library staff	91
Visiting scholars/readers	61
Patients	48
General public	45
Other	54

The answers given in the 'Other' category were reviewed and additional user groups emerged (Table 29). In addition to these groups other user categories had single responses e.g. management, geneticists, patent attorneys, patient information providers, psychologists, mental health workers, and vets.

Table 29 Other user groups that emerged from the survey

Response	Number
Admin, clerical, estates & support staff	12
Public health staff	7
Pharmaceutical staff	5
Promotion or marketing staff	4
Social care workers	4
Anyone	4
Policy makers	3
Clinical researchers	2
Commissioners	2
Archivists	2

3.4.5. Roles and skills

The survey asked respondents what they considered to be the key elements of their role. They were given a list of options and asked to select any that were relevant.

Figure 16 identifies a wide range of roles carried out by health information professionals. The roles encompass traditional 'library' roles such as literature searching, and collection development; a range of management skills and administrative work; and technical skills e.g. website development. Very specialist skills appear less frequently e.g. bibliometrics, guidelines development, and institutional repositories.

Forty seven respondents (9%) selected the 'Other' option and provided additional details in the text box. Six of these respondents mentioned roles relating to information management, knowledge management or database management, while four listed roles relating to social media and a further four mentioned archiving roles. Three respondents stated that they were responsible for administering e-journals access and another three were involved in systematic reviews. Other roles mentioned related to copyright (2 respondents), e-learning (2 respondents), translating and language editing (2 respondents), critical appraisal, abstracting, data protection, project management, taxonomy development and bibliotherapy (1 respondent each).
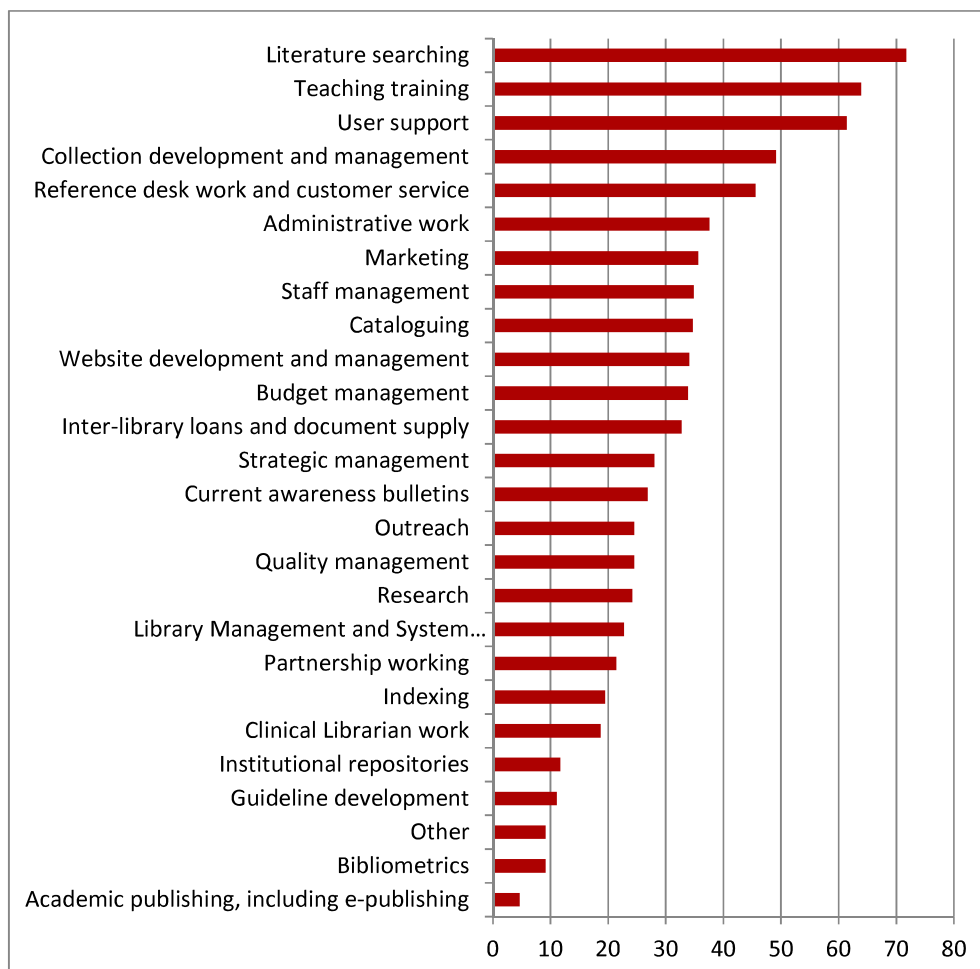
Figure 16 Key elements of a health library and information professional's role

3.4.6. Key skills

The key skills needed by the respondents to do their jobs are listed in Figure 17, with "knowledge of sources" (88% of respondents) and "information literacy and search skills" (85% of respondents) topping the list. Otherwise, there was a mix of professional skills, management skills, technical skills and softer skills and personal qualities identified as being important. A number of 'other' skills were identified and are listed in Table 46 in Appendix H. One comment summed up the diversity of the skills required: *"It does sometimes feel that we are everything and nothing!"* (Respondent #107, State healthcare, UK).
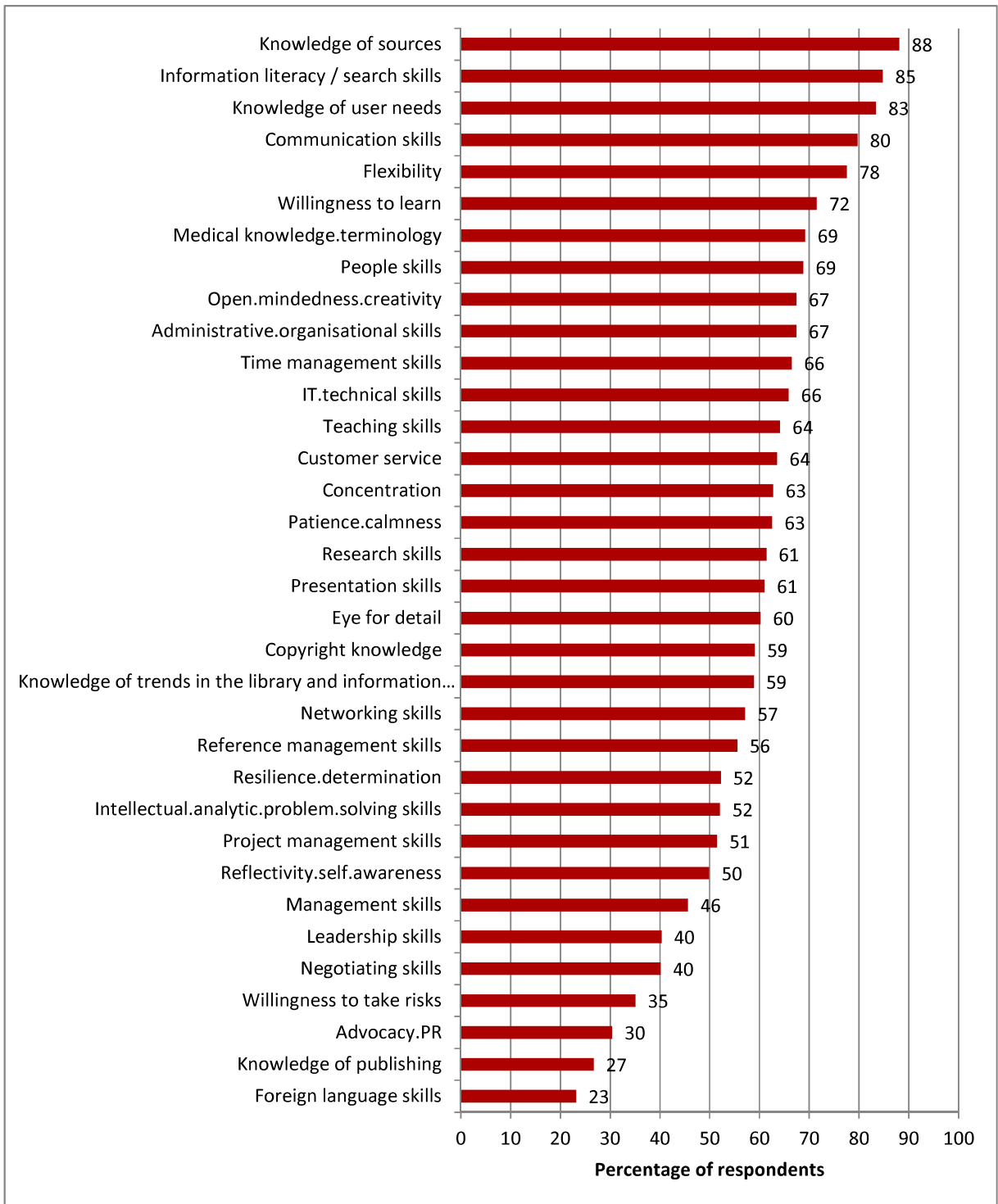
Figure 17 Key skills required by health library and information professionals

As in the pilot survey, these skills and attributes can be grouped into broad categories as follows:

Table 30: Categorisation of key skills (main survey). Skills are ordered by popularity within each category, based on Figure 17. The Mean percentage of respondents for each category, along with the SD, where appropriate.

Category	Skill	% Mean (SD)
LIS skills & knowledge	Knowledge of sources	69% (16)
	Information literacy / search skills	
	Copyright knowledge	
	Knowledge of trends in the library and information profession	
	Reference management skills	
Knowledge of other areas	Knowledge of user needs	60% (30)
	Medical knowledge/terminology	
	Knowledge of publishing	
Research skills and other intellectual skills	Research skills	57% (7)
	Intellectual/analytic/problem-solving skills	
Pedagogical skills	Teaching skills	64%
Administrative/organisational skills	Administrative/organisational skills	67%
IT/technical skills	IT/technical skills	66%
Management skills	Project management skills	46% (6)
	Management skills	
	Leadership skills	
People/communication skills	Communication skills	57% (17)
	People skills	
	Customer service	
	Presentation skills	
	Networking skills	
	Negotiating skills	
	Advocacy/PR	
Foreign language skills	Foreign language skills	23%
Personal qualities	Flexibility	61% (12)
	Willingness to learn	
	Open-mindedness/Creativity	
	Time management skills	
	Concentration	
	Patience/Calmness	
	Eye for detail	
	Resilience/Determination	
	Reflectivity/Self-awareness	
	Willingness to take risks	

In contrast to the pilot survey, where respondents were presented with an open-ended text box, the most frequently-selected categories were LIS-specific skills. This confirms the findings of the focus groups and interviews, in which participants often did not think to mention LIS skills until prompted. The comparison of the pilot survey and final survey results suggests that these skills are in fact extremely important in most health information professionals' roles, yet the information

professionals themselves take these skills for granted and may be underestimating their significance as a 'unique selling point'.

The key skills were also analysed by age, to investigate if there were changes in the key skills required between those at the start and end of their careers. Due to the small number of respondents in the 18 to 24 and 65 and older age categories (8 and 13 respondents), these were removed from the analysis. Pearson's R was used to investigate the correlations between the other age categories. It was found that all age categories were highly correlated, with correlations greater than 0.90 for all combinations (Table 31). This would suggest that there was little difference between the age groups with regard to the key skills used. Table 51 in Appendix H gives the full breakdown for skills at each age category.

Table 31: Pearson's correlation coefficients, comparing skills between different age groups. Degree of freedom for all comparisons is 32, p values for all comparisons is p ≤ 2.2×10^{-16}, t-test statistic provided.

	25 to 34	35 to 44	45 to 54	55 to 64
35 to 44	.96, t = 20.13	-	-	-
45 to 54	.95, t = 17.36	.97, t = 23.09	-	-
55 to 64	.93, t = 14.33	.93, t = 14.77	.96, t = 18.29	-

3.4.7. Skills acquisition

Survey question 12 asked respondents how they acquired their skills, presenting a set of check boxes and 'Other' fields for each option. Table 32 and Figure 18 show the percentage of participants who selected each of the options, ranked by popularity. Learning within the workplace came out as the most popular of the methods, following by a degree in library/information studies, and life experience. Relatively little use of mentoring, shadowing and online learning was found.

Table 32 How the skills were acquired

How did you acquire the skills?	Count	Percentage
Within the workplace	467	91.21
University degree in library information studies	404	78.91
Life experience	372	72.66
Reading	342	66.80
Attending conferences seminars	326	63.67
Short courses	312	60.94
Professional networks	242	47.27
University degree in other subject	175	34.18
Online learning e.g. distance learning, MOOCs.	142	27.73
Mentoring	102	19.92
Shadowing	60	11.72
Other	39	7.62
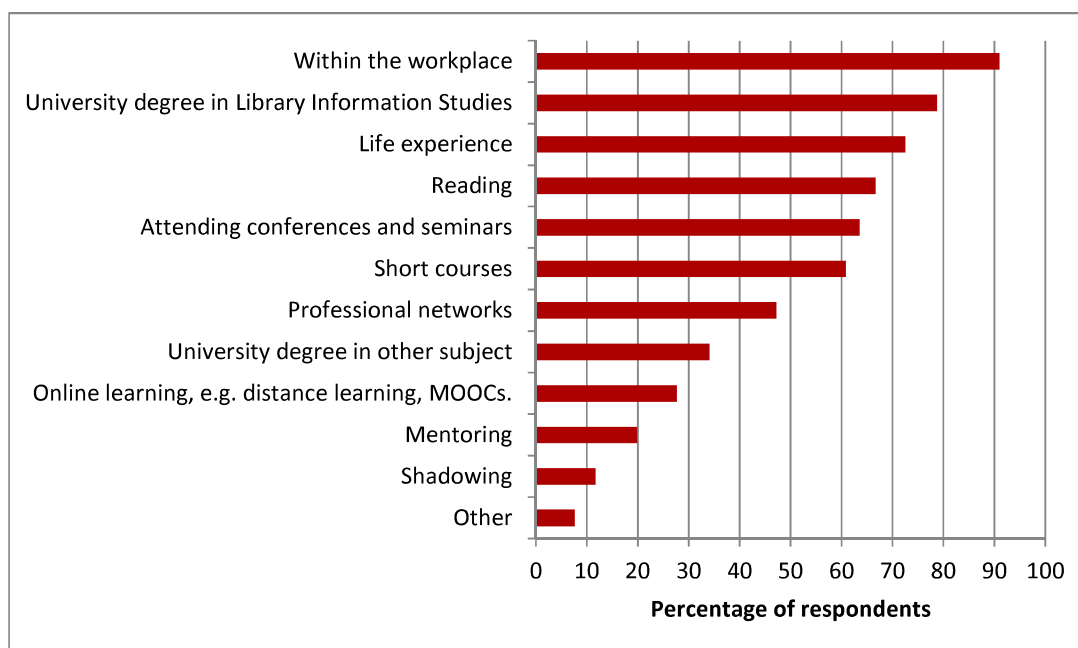
Figure 18 How the skills were acquired

For the option "University degree in Library / Information Studies", participants were asked to report their LIS degree in the 'Other' field. These results are shown in Appendix I, with 50 respondents having entered degrees. The majority of degrees reported were MScs (16, 32%), with 4 MAs (8%), 6 unidentified "Master's" (12%), 5 occurrences of Diplomas or other technical qualification (10%), and 17 'other' (34%), which could not be further classified. Only a single individual said they had obtained a PhD.

For the option "University degree in other subject", participants were asked to add their degree as a comment. A full list of responses is provided in Appendix J. There were 145 responses; however, the counts below total more than this as several respondents had more than one degree or had taken a degree which spanned two disciplinary areas.

Table 33: Respondents with university degrees in other subjects

Subject area		Count	% of resp. to this question	Examples from the data
Health		18	12.4	*"Medicine"* (Respondent #20, State healthcare and Education sectors, Netherlands) *"Public health"* (Respondent #926, Charity/voluntary sector, Canada)
Science, maths		35	24.1	*"PhD Biochemistry"* (Respondent #58, Industry, UK) *"Primary degree in human biology helps with medical terminology"* (Respondent #271, State healthcare, Ireland)
Social science		20	13.8	*"I had a degree in geography, my first study"* (Respondent #590, Education sector, France) *"Sociology and social work"* (Respondent #418, State healthcare and Education sectors, Italy)
	of which Education	13	9.0	*"Adult learning (andragogy)"* (Respondent #222, State healthcare and Education sectors, Norway) *"Master's Degree in Education in University Research"* (Respondent #269, State healthcare, Spain)
Arts & humanities		45	31.0	*"Philosophy"* (Respondent #906, Education sector, France) *"Music"* (Respondent #550, Education sector, Canada)
	of which Languages/ Literature	18	6.2	*"French & Russian Literature"* (Respondent #770, Education sector, France) *"BA English (communication skills, analytic skills, etc.)"* (Respondent #276, State healthcare, UK) *"Translation"* (Respondent #182, State healthcare, Slovenia)
	of which History	15	10.3	*"BA(Hons) History, MA Irish Studies"* (Respondent #353, State healthcare, England) *"History (gave me methods)"* (Respondent #623, State healthcare and Education sectors, France)
Information-related		8	5.5	*"MA Health Informatics"* (Respondent #161, State healthcare, England) *"Information Management"* (Respondent #898, Education sector, Austria)
Management		7	4.8	*"Leadership and management post-grad diploma"* (Respondent #421, State healthcare, England) *"Business administration"* (Respondent #904, State healthcare and Education sectors, Austria)
Unclassifiable		15	10.3	*"BSc and PhD"* (Respondent #212, Education sector, UK) *"Eye for detail/linguistic skills which help with search strategies."* (Respondent #290, Education sector, UK)

For the final 'Other' option, 36 respondents indicated other methods by which they had acquired their skills. Methods included previous jobs, learning from peers, voluntary work, other training, social media and email list services. A full list of the comments is provided in Appendix K.

How skills were acquired was broken down by age, to investigate skill acquisition differences between generations. Again, due to the small number of respondents in the 18 to 24 and 65 and older age categories (8 and 13 respondents), these were removed from the analysis. Pearson's R was used to investigate the correlations between the other age categories, and it was found that all age categories were highly correlated, with correlations greater than 0.89 for all combinations (Table 34). This suggests that there was little difference between age groups as regards how skills were acquired. Appendix H (Table 52) gives the full breakdown for skills at each age category.

Table 34: Pearson's R correlation coefficients, comparing how skills were acquired between different age groups. Degree of freedom for all comparisons is 32, p values for all comparisons is $p ≤ 0.0003$, t-test statistic provided in table.

	25 to 34	35 to 44	45 to 54	55 to 64
35 to 44	0.98, t = 14.77	-	-	-
45 to 54	0.93, t = 7.41	0.96, t = 10.63	-	-
55 to 64	0.89, t = 5.75	0.94, t = 8.13	0.99, t = 21.50	-

3.4.8.   How useful different learning methods are

Survey question 13 asked respondents to rate the learning methods they selected in response to the previous question according to how useful they were for developing the respondent's skills. This question was presented using 5 point Likert scales, from 1 indicating "very useful" to 5 "not useful at all", with results shown in Table 35.

Table 35 How useful the learning methods were judged by the respondents ordered from most useful to least useful (1 very useful, 5 not useful at all). Numeric data in Table 49, Appendix H.

	Mean	S.D.	# Respondents
Within the workplace	1.370	0.737	467
Life experience	1.52	0.733	372
Shadowing	1.65	0.732	61
Professional networks	1.664	0.816	242
Mentoring	1.735	0.878	103
Short courses	1.836	0.780	312
Attending conference seminars	1.877	0.810	327
Reading	1.889	0.806	343
Online learning e.g. distance learning, MOOCs.	2.176	0.917	143
University degree in Library Information Studies	2.181	0.999	405
University degree in other subject	2.211	0.950	176

Everything, by and large, was judged as useful, but to different degrees. When interpreting this table, we also have to be mindful of the number of respondents for each learning method. The final column in Table 35 should match the counts in Table 32, but there is some variation, as might be expected (i.e. respondents selecting an option in Question 12, but not completing the corresponding option in Question 13). When comparing these tables, one interesting result is that "Shadowing" was selected relatively infrequently as a method of acquiring skills, but came out as relatively useful in Table 35, which suggests that while this learning method is infrequently used, when it is used it has value to the participants.

These results were again broken down by age, to investigate the perceptions of skill acquisition differences between generations. Again, due to the small number of respondents in the 18 to 24 and 65 and older age categories, these were removed from the analysis. Pearson's R was used to investigate the correlations between the other age categories, and again it was found that all age categories were highly correlated, with correlations greater than 0.75 for all combinations (Table 36). This suggests that there was little difference between the age groups with regards to how useful they found different learning methods. Full data is provided in Table 53 in Appendix H.

Table 36: Pearson's R correlation coefficients, comparing how methods of acquiring skills were judged between different age groups. Degree of freedom for all comparisons is 9, p values for all comparisons is p ≤ 0.01, t-test statistic provided

	25 to 34	35 to 44	45 to 54	55 to 64
35 to 44	0.90, t = 6.35	-	-	-
45 to 54	0.75, t = 3.37	0.87, t = 5.35	-	-
55 to 64	0.87, t = 5.18	0.91, t = 6.73	0.83, t = 4.51	-

3.4.9. Skills development and training needs

Question 14 asked respondents "Are there any areas in which you need to develop your skills?" This question used a similar layout to Question 12, with a list of options which could be selected (including 'Other'), and an associated list of comment boxes for each option. Figure 19 shows the frequency counts, showing that m-libraries (use of smartphones and tablets in libraries) was the most selected at 45%, followed by research skills (including evaluation, statistics, etc.), social media, e-learning, and EBLIP (evidence-based library and information practice).

The majority of participants selected multiple skills, with only 9% of respondents selecting a single skill from the list. The mean number of skills selected was 5.4 (sd 3.7), with 24 participants selecting over 12, and one participant selecting all 24 options.

Twenty three participants added a comment on the 'Other' option (a full list of comments is provided in Appendix L).
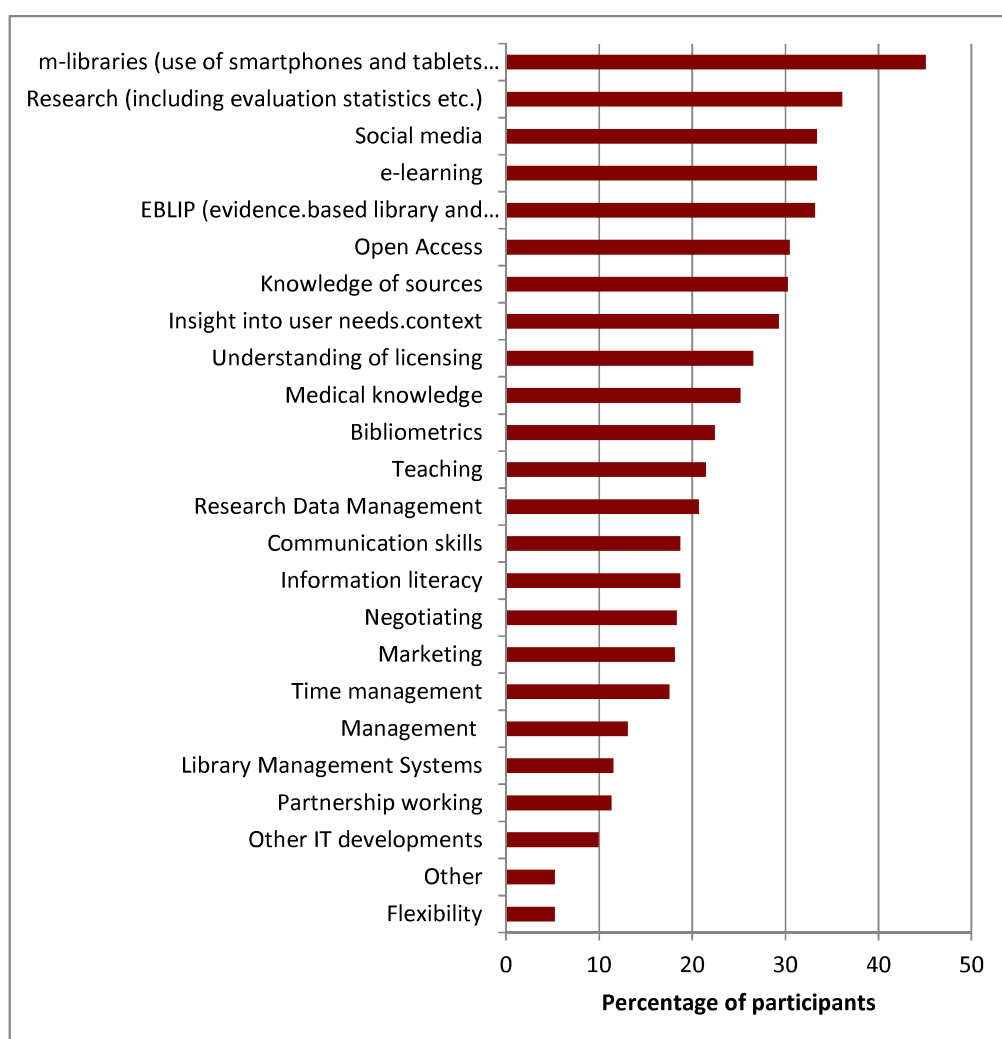
Figure 19: Skills development needs, percentage of participants who selected each skill.

3.4.10. Challenges in job roles

Respondents were also asked to consider the challenges that they face in their jobs. This question was presented as an open-ended text box, as the pilot survey had shown that challenges frequently interact to create a more complex landscape. By collecting qualitative data, the research team was able to analyse these interactions in addition to looking at the frequency of individual challenges. In order to do this, the answers were analysed thematically and the data were then quantitised to produce simple frequencies.
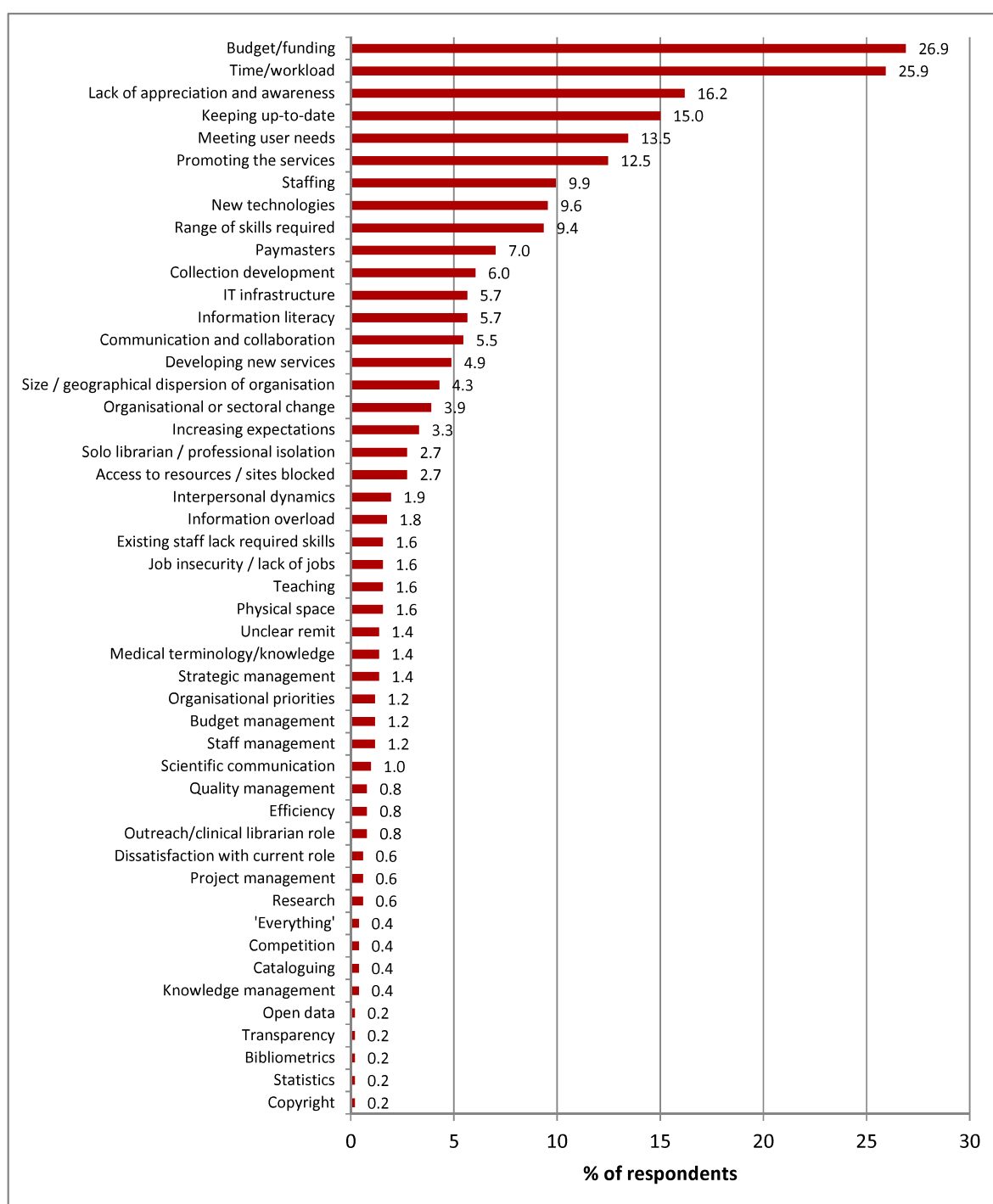
Figure 20: Main challenges faced by health information professionals

Budget was the most frequently-mentioned challenge, cited by 138 respondents (27%).

> *"Funding, lack of funding and every variation thereof!"* (Respondent #394, State healthcare, Northern Ireland)

This figure is all the more striking in view of the fact that the question was open-ended, with no prompts but only a write-in text box for answers. Thirty-six respondents (7%) specified that budgets were being reduced:

> *"Meeting the needs of our customers on an ever dwindling budget and workforce."* (Respondent #255, State healthcare, UK)

Thirteen referred to the increasing cost of journal subscriptions and other resources:

> *"Budget restrictions, Journal costs continually increasing."* (Respondent #110, State healthcare, England)

> *"Limitations on budget. We cannot work as a service with tight constraints when stock updates cost so much – e.g. new DSM-V will be well over £100 per copy."* (Respondent #216, State healthcare, England)

Seventeen respondents referred to increasing and/or unrealistic expectations from users. Twelve of these co-occurred with mentions of budget constraints, leading to a feeling of 'doing more with less':

> *"Doing more with less: 1) Dramatic downsizing over the last decade in library & information personnel; 2) cuts in content/collection budget; 3) increasing size of organization; 4) increasing appetite for information among employees."* (Respondent #58, Industry, UK)

Time and workload issues were also key challenges, mentioned by 133 respondents (26%). Again, it is striking that so many people mentioned this unprompted.

> *"I'm working the job of at least two people, we are under staffed, we don't have enough professional librarians. Also we have no funding for CPD so I have to keep up to date myself, sometimes during my own personal time."* (Respondent #84, State healthcare, Ireland)

Some respondents found it so much of a problem that they mentioned it more than once:

> *"Time, awareness of what my role can offer, and time."* (Respondent #92, State healthcare, UK)

Ten respondents (all of whom were female) mentioned that they were part-time, which led to difficulties in getting all the work done in the time available:

> *"I work 3 days per week and in that sense, it is very challenging to get through the amount of work that needs to be done."* (Respondent #99, Charity/voluntary sector, Ireland)

Fifty-one respondents (10%) cited insufficient **staffing**. This obviously relates both to budget issues (in that budget cuts may lead to reduced staff numbers) and to time and workload (in that reduced staff numbers will lead to higher workloads for the remaining staff members).

> *"Staff shortages in the team due to budget cuts thus putting time pressures on remaining staff."* (Respondent #278, State healthcare, England)

This logical connection between budget, time/workload and staffing was confirmed by quantitative analysis. Table 37, below, shows the number of co-occurrences of the three categories in respondents' comments:

Table 37: Co-occurrences of budget, time/workload and staffing challenges in respondents' comments

		No. of co-occurrences		
		Budget	Time/workload	Staffing
No. of co-occurrences	Budget	138	33	34
	Time/workload	33	133	20
	Staffing	34	20	51

A large number of respondents (83, 17%) also referred to the **lack of appreciation and awareness** of the importance of library and information services.

> *"Explaining the library as service, the simple concept of library as a place to get books which is still a lot of people's mental model is a hindrance to library as a support service to learning, teaching, research, clinical activities."* (Respondent #401, Education sector, Ireland)

> *"To make aware people of the importance of records management and archives."* (Respondent #480, State healthcare, France)

> *"Information assurance seen as low priority in comparison to other roles."* (Respondent #165, State healthcare, UK)

In 24 of these cases, respondents made specific mention of poor information literacy and lack of awareness of evidence-based practice among non-information staff:

> *"Users don't understand and don't want to understand how to get the best info to meet their diverse needs, they just want the answer and may settle for a poor answer."* (Respondent #449, Charity/voluntary sector, Canada)

> *"Getting through to NHS staff that using Google isn't always the quickest way to good evidence can be a problem."* (Respondent #351, State healthcare, England)

There was also awareness of the time pressures on staff members which might make them less likely to see help from a library or information professional:

> *"Staff being so busy and stressed that they don't have the time to think about using the library."* (Respondent #117, State healthcare, England)

Meanwhile, other respondents focused more on the attitudes of other staff members:

> *"Lack of credibility in a workplace where most are licensed."* (Respondent #446, State healthcare, Canada)

> *"Not to be a private secretary of the doctors."* (Respondent #734, State healthcare, Switzerland)

> *"Une hierarchie qui ne nous soutient pas toujours et un public parfois irrespectueux."* *"Management which does not always support us and customers who are sometimes rude."* (Respondent #854, State healthcare, France)

In 19 cases, respondents made specific reference to a lack of appreciation or understanding of their role on the part of management. In some cases this translated into a lack of resources.

> *"Convincing senior management of the value of knowledge management"* (Respondent #375, State healthcare, England)

> *"Limited understanding by management of what a librarian role entails, so little time and little staff cover to achieve any task within a reasonable time frame."* (Respondent #68, State healthcare, UK)

> *"Our trust recently paid [an external business services provider] to do some analysis of information. The skills to do this could have been found in the library but senior management did not consider looking towards library services to find support for 'analysis'. The fee paid to [the external provider] could have funded an additional library member of staff for over 24 months."* (Respondent #251, State healthcare, UK)

Six respondents referred to the need to provide evidence of their contribution:

> *"Demonstrating the value and impact on patient care."* (Respondent #353, State healthcare, England)

Another key concern was **promoting the service** (64 respondents, 12%). Unsurprisingly, this co-occurred with references to the **lack of appreciation and awareness** in 22 cases.

> *"Promoting the use of the library among the users; a lot of doctors and nurses don't know what the library can offer."* (Respondent #857, Education sector, Italy)

> *"Getting people to know what we do, where we are and that we exist at all!"* (Respondent #120, State healthcare, England)

"Promoting the benefits of the library service for supporting EBP. Many clinical staff/students are fully aware of the skills and knowledge we can provide in order to help them deliver best practice. Other staff/students are less aware and still see the library service as something you only use when studying or as merely a traditional place for books/journals. You've got to be able to get out of the library and sell your "wares" to busy clinicians in their place of work and in terms that they understand. Once they've experienced the services you can provide, generally you never look back, but you do have to keep re-selling due to the fast turnaround of junior staff." (Respondent #82, State healthcare, United Kingdom)

Some respondents referred to the difficulty of marketing in the light of other challenges, particularly budget:

"Difficulties reaching target audience due to lack of resources." (Respondent #15, Trade union, Ireland)

"Marketing myself (while too busy.)" (Respondent #604, Private healthcare, Canada)

"The main challenge is making the connections and relationships across the community in the light of staffing/budget constraints. Also the awareness of electronic resources is very low in certain staff groups- which gives us an ideal group to market to, but it also means they are hard to reach and don't realise that they need us! (Respondent #91, State healthcare, Scotland)

A sizeable number of respondents (77, 15%) also mentioned **difficulties in keeping up-to-date.** In 29 cases this co-occurred with mentions of **new technologies** (discussed further below). Participants also referred to the need to keep up with the volume of literature and information sources; developments in the medical/healthcare field; structural changes in the health and HE sectors; and developments in LIS.

"Keeping on top of new developments and feeling part of the wider profession. There's so much going on in academic libraries and the day-to-day gets so hectic sometimes that it's hard to keep abreast of everything." (Respondent #290, Education sector, UK)

"Keeping up with the fast pace of change in Higher Education and NHS simultaneously." (Respondent #335, State healthcare and Education sectors, UK)

"Keeping up with technology, new resources, stretching into new subject areas." (Respondent #614, Legal sector, United States)

"Keeping up-to-date with new developments e.g. text mining, search filters, online resources." (Respondent #856, State healthcare, UK)

Sixty-nine respondents (13%) made explicit mention of the challenge of **meeting user needs**, which are complex, varied, and changing:

"Avoir une très bonne connaissance du domaine et de son actualité pour pouvoir guider l'usager (quel qu'il soit) vers l'information pertinente pour lui au moment où il me la demande."

"Having excellent, current subject knowledge so that I can guide the user (whoever it may be) towards the relevant information at the time s/he needs it." (Respondent #493, State healthcare, France)

"Seeking to meet information needs in the healthcare environment; an environment which, by its very nature, is always changing." (Respondent #194, State healthcare, England)

"My main challenge is to interface with different types of customers: researchers' or clinicians' needs are different from marketing staff ones." (Respondent #700, Industry, France)

"Trying to help as many researchers as possible, but with high quality. With 2 information specialists we manage to help 10000 employees, that write (at least with our help) 200 S[ystematic] R[eview]s a year. We can only do that when we are very efficient in our searches." (Respondent #146, State healthcare and Education sectors, Netherlands)

This frequently intersected with other concerns, such as budget (17 co-occurrences), time (15 co-occurrences), increasing user expectations and information overload:

"Understanding the needs of clients / users and meeting these needs with limited budget / resources." (Respondent #326, Charity/voluntary sector, France)

"Changing information needs of our audience and proliferation of competing information sources/products." (Respondent #2, State healthcare, Scotland)

Two respondents raised the interesting question of whether it is better to perform a service for a patron, or to teach the patron how to do it themselves:

"To keep a good balance between teaching literature searching and performing LS for our customers." (Respondent #369, State healthcare and Education sectors, Netherlands)

"To help people vs. to educate them." (Respondent #682, Education sector, Switzerland)

Another frequently-occurring problem was the **range of skills** required, mentioned by 48 respondents (9%). This supports the findings of questions 9 and 11, which show the very wide range of skills possessed and roles carried out by survey respondents.

"Too many plates to keep spinning. My role is very varied and this can be very challenging." (Respondent #262, Education sector, UK)

"Balancing several different roles from day to day and in continuing professional education." (Respondent #405, Education sector, Sweden)

This co-occurred with mentions of time constraints in 29 cases; this is unsurprising as it would seem to follow logically.

"Time management, juggling many responsibilities in a limited time..." (Respondent #141, Education sector, Sweden)

"Ich arbeite als OPL. Die Aufgaben sind vielfältig und ich arbeite nur 20%. Ich habe viele unterschiedliche Aufgaben in wenigen Stunden zu erledigen."
"I work as a one-person librarian. There is a great variety of tasks to do and I only work 20% of the time. I have a lot of different tasks to carry out in a limited number of hours."
(Respondent #471, Private healthcare and Education sectors, Switzerland)

New technologies were another challenging area, mentioned by 49 respondents (10%).

"Technology is changing and there is not enough time to be proficient in all manner of them." (Respondent #664, State healthcare, Canada)

Specific areas mentioned included e-resources (7 respondents), m-libraries (4 respondents) and social media (4 respondents).

"Getting my knowledge and skills up-to-date for using mobile technology – i.e. developing an on-line training program from scratch." (Respondent #147, State healthcare, United Kingdom)

"In my role I am at present caught up in the transition from a main base library to an electronic library. We are ceasing the purchase of books and hard copy journals, therefore no cataloguing, and I am faced with learning how to acquire and understands a new wave of electronic products. The library I have today will not be the same library 5 years from now." (Respondent #586, State healthcare, Canada)

Relatedly, some respondents mentioned problems with the **IT infrastructure** (29, 6%) and/or issues with **access to resources** and blocking of certain sites (14, 3%). Respondents working in the UK state healthcare system (NHS) accounted for 19/29 respondents who mentioned problems with the IT infrastructure (66% of this group) and 11/14 who mentioned problems with site blocking (79% of this group).

"Poor IT infrastructure, lack of access to resources, limitations on new technology." (Respondent #70, State healthcare, England)

Some respondents mentioned that the IT department were unhelpful regarding such issues, and relations were strained:

"The constant battle against a paranoid and ignorant IT department. And despite that [to] deliver our electronic content to our users in as appealing and easy [a] way as possible." (Respondent #307, State healthcare, Sweden)

Thirty-six respondents referred to issues with **paymasters** as key challenges. In most cases respondents referred to the upper management of their organisation, although a small number referred to external pressures, with one respondent citing *"clueless national 'leadership'"* (Respondent #264, State healthcare, Scotland). As discussed above, in 19 cases respondents complained of a lack of understanding of their role on the part of management.

Collection development was cited as a challenge by 31 respondents (6%). This co-occurred with references to **budget** in 23 cases, with the majority of respondents referring to the difficulty of maintaining high-quality collections on a limited budget.

> *"Cuts in content/collection budget."* (Respondent #58, Industry, UK)

> *"Select resources with a limited budget… negotiation with suppliers."* (Respondent #242, Public research centre, Spain)

Several respondents referred to journal price increases, as discussed in the section on **budget**, above. Other concerns related to issues around e-journals and the complexity of publishers' offers.

> *"Complex purchasing environment. Complex vendor landscape."* (Respondent #626, State healthcare, Canada)

> "Offers of publishers are not fitting our needs (Respondent #733, State healthcare, Switzerland)

One respondent commented on the difficulty of making evidence-based collection management decisions, intersecting with wider concerns about understanding and meeting user needs, discussed above.

> *"Difficult to gather good data to make collection management decisions."* (Respondent #929, Education sector, UK)

Twenty-nine respondents (6%) cited challenges relating to **information literacy** or search skills. In 11 cases this co-occurred with concerns about **meeting user needs**, i.e. finding the right information for the patron. Although it might initially seem concerning that information literacy was seen as a challenge by some information professionals, the qualitative comments showed that in many cases respondents were thinking in depth about how to provide the best possible service in a complex, changing environment, in the face of other challenges such as time and workload.

> *"Identifying all relevant evidence, balance between comprehensiveness of searches to do this and presenting manageable number of results to analysts and reviewers."* (Respondent #197, State healthcare, UK)

> *"Providing rigorous high-quality best practice information retrieval (literature searching) in a time-responsive manner."* (Respondent #288, Industry/Research consultancy, UK)

> *"I work in social care, so the main challenges are searching for literature within a disparate field. There is a lack of standardised indexing and the professional terminology changes on rapid basis."* (Respondent #330, Charity/voluntary sector, UK)

Communication and collaboration within the organisation was a challenge for 28 respondents (5%).

> *"Organisational dysfunction - teams not working across departments and lack of communication."* (Respondent #121, State healthcare, UK)

"Communication - methods, timeliness etc. Intranet not much used; variety of email addresses as key library users are the registrars and house officers on rotation." (Respondent #261, Charity/voluntary sector, Ireland)

Respondents mentioned the difficulty of communicating with IT departments, management, library users and potential users (all discussed previously above) as well as with university faculty members, and with other team members when several work part-time.

"The chance to support an efficient cooperation between library, university teaching and research as well as administration." (Respondent #898, Education sector, Austria)

"I'm a part-time worker working with other part-time staff, communication is very complex." (Respondent #221, State healthcare, England)

For some respondents this was exacerbated by the **size or geographic dispersion of the organisation** (8 co-occurrences):

"Also within a large organisation it can at times be hard to be heard, or get things done." (Respondent #12, State healthcare, Scotland)

"Managing a geographically dispersed team collaborating on an international research project." (Respondent #409, Industry/self-employed consultant, Germany)

In total, 22 respondents mentioned this issue of the **size or geographic dispersion of the organisation.** Only one respondent said that the small size of the organisation posed a challenge:

"Small organisation means lack of support and 'jack of all trades' approach means that my role is varied and not specialist." (Respondent #64, State healthcare, UK)

One other respondent mentioned size without stating whether the organisation was small or large; the remaining 20 respondents in this category all felt that the large and/or geographically dispersed nature of the organisation was a challenge:

"I work in a virtual library, that is without a physical library. I work from home and travel to meet users where they work. It is an Ambulance Service with 110 potential locations. My main challenge is to make the Virtual Library Service visible to users." (Respondent #154, State healthcare, UK)

"International team over several sites in 3 continents." (Respondent #853, Industry, Switzerland)

In a few cases the challenges of a large organisation were compounded by the fact that the organisation had been formed by merging several smaller organisations with different geographical locations and working practices:

"Managing a newly merged service (previously 3 Trusts) providing services for 15000 staff across 6 clinical sites with only 2 NHS libraries and an SLA [Service Level Agreement] with a university." (Respondent #239, State healthcare, UK)

"Standardizing practices between 4 different service locations that used to be under separate health authorities, now we're all one." (Respondent #673, State healthcare, Canada)

The challenge of **organisational or sectoral change** also occurred elsewhere in the data, with 20 mentions in total (4%). Respondents identified knock-on effects on the ability to deliver services and keep in touch with users, as well as for morale:

"Over the years, constant change and re-organisation, change of employing trust, relocation and disruption which puts the service back almost to square one each time. Current challenge is to maintain and develop contact with are user groups who are widely dispersed geographically, on different IT networks, and subject to change and restructuring themselves." (Respondent #136, State healthcare, England)

"Keeping motivated whilst the NHS is dismantled and services reduced." (Respondent #147, State healthcare, UK)

Twenty-five respondents (5%) said that developing new services was a challenge. Unsurprisingly, this often intersected with comments relating to workload (9 co-occurrences):

"Financial pressures have reduced our staffing to a minimum, we don't have the time now to develop anything!" (Respondent #195, State healthcare, England)

"As a one person library it is finding the time to get things done. It is hard to get time to work on the development stuff as the day-to-day duties take over." (Respondent #903, Government agency, Ireland)

Comments on the difficulty of working as a **one-person librarian**, or general professional isolation, were made by 14 respondents (3%). Again, these often intersected with workload issues:

"Solo info pro for a large research institute supporting all researchers and postgrads. Can become overwhelmed with requests for assistance." (Respondent #246, Education sector, UK)

"The main challenge is that I work alone in my library and I have to do everything work out well by myself." (Respondent #359, State healthcare/Research foundation, Greece)

There was also a long tail of additional challenges that did not fit into any of the categories detailed above; again, this reflects the wide range of roles carried out by health information professionals. These additional challenges included the following:
- issues relating to existing staff, such as interpersonal dynamics (10 respondents) and a lack of required skills (4 respondents);
- information overload (9 respondents);
- job insecurity or lack of jobs (8 respondents);
- constraints on physical space (8 respondents);
- specific knowledge or skill areas, such as teaching (8 respondents), medical terminology (7 respondents), outreach or clinical librarian roles (4 respondents), research (3 respondents), cataloguing (2 respondents), knowledge management (2 respondents), open data (1

respondent), bibliometrics (1 respondent), statistics (1 respondent) and copyright (1 respondent);

- management skills, including strategic management (7 respondents), budget management (6 respondents), staff management (6 respondents); quality management (4 respondents) and project management (3 respondents);
- organisational issues, such as an unclear remit (7 respondents) and organisational priorities (6 respondents);
- issues around the current landscape of scientific communication (5 respondents);
- efficiency (4 respondents);
- dissatisfaction with current role (3 respondents);
- competition from other organisations (2 respondents);
- transparency (1 respondent).

Finally, two respondents said they did "everything".

The word cloud in Figure 21 provides an alternative visual illustration of the key themes, generated from the qualitative responses. It can be seen that issues of time, staff, resources and budget loom large in the library and information management context.

Figure 21 Word cloud illustrating challenges in the workplace

3.4.11. Critical contributions to healthcare

When asked to give an example of a time when they had made a critical contribution to healthcare, 379 respondents gave qualitative responses. The contributions identified in the data could be categorised into the following five skills areas, with skills 1, 2 and 3 being library and information specific skills, and 4 and 5 being generic skills. Contributions 1,2,3, and 5 could all be categorised as Evidence based skills, and contribution 4 as management skills. This categorisation aligns with findings from the focus groups.

1. Contributions made through search skills, or carrying out literature searches or reviews.
2. Contributions made by providing access to resources, collection and evidence.
3. Contributions made by their information literacy skills development, training, or teaching.
4. Contributions made through management.
5. Contributions made by their own research.

Table 38: Skills which enabled critical contributions to healthcare

Contribution made by specific skills	Percentage*	Count
Research	1.9	10
Management	3.1	16
Information Literacy skills development, training or teaching	7.4	38
Providing access to resources, collections and evidence	15.6	80
Literature searching or reviews	45.8	235
No response	26.1	134
* Percentages are relative to all 513 respondents of survey,		
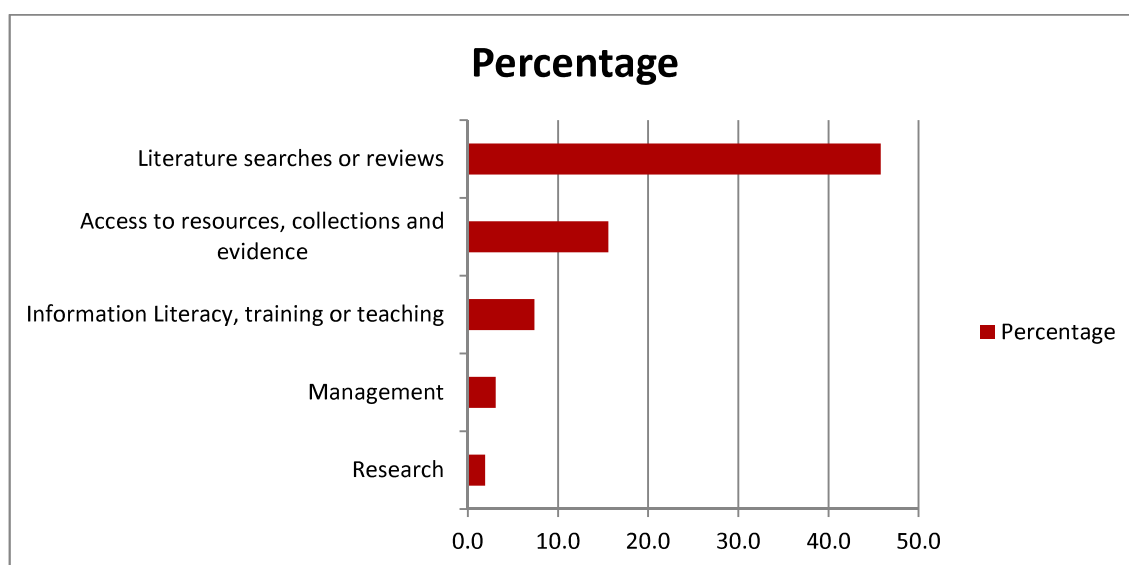
Figure 22: Skills which enabled critical contributions to healthcare

Professional skills were identified as being critically important when making a contribution to healthcare (Table 38 and Figure 22). The majority of respondents felt that their critical contribution to healthcare came from their ability to carry out literature searches and reviews of the literature

(235 respondents, or 45.8%). This was followed by providing access to resources, collections or evidence through managed collections or services (80, 15.6%), and then through information literacy skills development, or other training or teaching support given to users (38, 7.4%).

To a lesser degree, there were contributions made through the application of the generic skills of management (16 respondents, 3.1%) and research (10, 1.9%).

3.4.11.1. Literature searches or reviews

By far the most frequently cited means of making a critical contribution to healthcare through library and information work was by carrying out literature searches, with 235 of the examples given being categorised as such.

A number of the literature searches had an immediate impact on healthcare professionals being able to carry out their work effectively.

> *"Prevented a hysterectomy by supplying evidence that cast doubt on diagnosis of cervical cancer. Cancer was found not to be present on further investigation."* (Respondent #151, State healthcare, UK)

> *"An online search for a doctor relating to a patient (in a critical condition) that they were treating at the time"* (Respondent #351, State healthcare, UK)

> *"A surgeon asked for images / video of a procedure he was about to carry out on a patient who was being prepped for surgery while he spoke to me. I managed to find something for him. Phew!"* (Respondent #376, State healthcare, Wales)

There were several reported examples of providing information to surgeons whilst patients were being operated on, or to clinicians providing emergency care in accident and emergency settings.

> *"Providing the evidence required to save a child's life who was in A&E"* (Respondent #74, State healthcare, UK)

> *"Twice in 15 years I have done a literature search for surgeons where the patient has already been anaesthetised for an operation."* (Respondent #416, State healthcare, UK)

Many of the examples illustrated how evidence had been provided to support treatment decisions:

> *"Able to provide the evidence to support application to fund a specific course of treatment to a patient. Treatment could not have been available or approved without supporting evidence."* (Respondent #444, State healthcare, Canada)

> *"Finding reviews/overviews of rare neurological condition – told papers I supplied were included in patient notes."* (Respondent #92, State healthcare, UK)

> *"Recently a physician stopped in because he had a patient experiencing side effects of a drug that he didn't know how to treat. The side effects included blindness and hearing loss which he did not want to be permanent. I did a literature search which informed the management of this distraught young patient who was able to make a full recovery."* (Respondent #448, State healthcare, Canada)

These contributions were reported to happen frequently:

"As a hospital librarian I frequently supported medical decision making. I know I made a contribution as a consumer health librarian – both to practitioners and to patients." (Respondent #175, State healthcare, United States)

Some respondents reported that this happened *"every time"* they did a literature search (Respondents #487, State healthcare and Education sectors, Germany; #494, State healthcare, Switzerland; #831, State healthcare, France); or *"every day"* of their working lives (Respondents #86, State healthcare, UK; #220, State healthcare, England; #442, Education sector, Canada; #550, Education sector, Canada; #823, State healthcare, Canada; #898, Education sector, Austria). One respondent could actually give the number of times they had made an impact:

"I have made 38 confirmed changes to actual patient care. Example: I helped immediately stop a drug that was causing an adverse event through information I provided at the point-of-care." (Respondent #662, Education sector, United States)

Some respondents reported having embedded or clinical library roles, carrying out literature searches within specific teams, on ward rounds at the bedside:

"I attend ward rounds and provide evidence directly to the team at the bedside; this allows me to provide evidence in the right place at the right time." (Respondent #201, State healthcare, UK)

Others work to support patients directly rather than healthcare professionals, but these were a minority, with only a few responses relating to working directly with patients and the public.

"I got information for a family member to help them cope with their child's diagnosis. The feedback was that it had really helped them." (Respondent #99, Charity/voluntary sector, Ireland)

"Providing information to a patient regarding her treatment options" (Respondent #776, State healthcare and charity/voluntary sectors, England)

"When the patient went home happy with their self-help book. When the students meet you and say 'I really enjoyed your talk, it made me go and find info about one of the patients I'm looking after'" (Respondent #396, Education sector, UK)

Two respondents gave examples of contributing at times of national crisis:

"During a food crisis I was able to locate a critical piece of literature for a staff member." (Respondent #903, Government agency, Ireland)

"[During the] Croatian Homeland War (especially 1991/3) supplying frontline and hospital staff with relevant literature on war injuries." (Respondent #8, Education sector, Croatia)

Other contributions made related to the development of systematic reviews, guidelines, policy or protocols:

> *"Helped to author a systematic review on preventing the oral side effects of cancer treatments, which can be debilitating for patients and can even lead to death. Have made numerous contributions to guideline development."* (Respondent #210, Education sector, UK)

> *"Providing evidence for NICE reviews/guidance."* (Respondent #262, Education sector, UK)

> *"Carrying out literature searches that directly influence practice guidelines or care pathways or patient care…"* (Respondent #80, State healthcare, England)

> *"Undertaking searches for a DoH review exploring Infertility Treatment that fed directly into policy making"* (Respondent #258, Education sector, UK)

Another way in which literature searches had provided evidence was in terms of service development and provision, sometimes with cost saving, and impacting on the effectiveness of service offered:

> *"When a program I helped provide evidence for is turned into policy at a municipal government level."* (Respondent #822, State healthcare, Canada)

> *"Providing literature to support the justification not to pay for 'fat camps'"* (Respondent #226, State healthcare, England)

> *"When a member was trying to convince the managers at the care home where she worked (with dementia patients) to develop a dining room, and asked us to provide evidence of the effectiveness of such a room for patients with dementia."* (Respondent #232, Royal College, Wales)

> *"Searches to support process of redesign of the accident and emergency services for the Trust."* (Respondent #291, State healthcare, England)

3.4.11.2. Information literacy skills development, training, or teaching

A number of respondents had academic teaching roles or training roles as library and information professionals and commented that they played a role in preparing the health information professionals of the future:

> *"By teaching students EBM and embedding it into their day-to-day practice as tomorrow's doctors."* (Respondent #59, State healthcare and Education sectors, UK)

One respondent knew that the instruction they had given had had a direct impact on healthcare decision-making:

> *"Helped someone acquire literature searching skills who then went on to do literature searches for the Strategic Health Authority to inform their decisions on dementia care."* (Respondent #343, State healthcare, UK)

On occasions the impact was more specifically on research:

"I contribute to training/education of users who become or are already clinicians or on health-related research projects." (Respondent #287, State healthcare, UK)

"Sending an unsolicited article link resulted in $4.3 million dollar grant for institution…" (Respondent #688, Government, United States)

Respondent #384 (Education sector, UK) made a comment on how the training changed practice:

"Training postgraduate students who are health professionals in evidence-based practice techniques which they directly implement and then use to change practice."

Another respondent gave an example of having direct feedback on the value of the information literacy skills training:

"In the training sessions I do people often comment that they wish they 'had learned this years ago'. Training leads people to the right resources and they often find something crucial to their work which they would have missed otherwise." (Respondent #200, State healthcare, England)

Respondent #215 (State healthcare, England) saw the immediacy of this impact:

"Presenting course on Athens resources and doctor asked to leave to telephone colleague with some new information he had found relating to surgery taking place that afternoon."

3.4.11.3.   Providing access to resources, collections and evidence
There were 80 examples of the contributions that providing access to resources, collections and evidence can have.

"Any time a user of our materials writes to tell us of what a difference having the access to information has made in their professional activities." (Respondent #4, International organisation, Switzerland)

One person made their contribution by editing a health journal and making research available in the literature published there (Respondent #709, Education sector, United States). Others published material on websites:

"Developed a clinical Q&A service which provides GPs with a quick evidence based answer to their clinical queries and this has a direct impact on patient care." (Respondent #257, State healthcare, UK)

Some respondents had authored published work:

"Helped to author a systematic review on preventing the oral side effects of cancer treatments, which can be debilitating for patients and can even lead to death. Have made numerous contributions to guideline development." (Respondent #210, Education sector, UK)

A number of respondents worked specifically on current awareness, with one person, *"Helping to set up a repository of current awareness bulletins for other health librarians and health professionals to benefit from."* (Respondent #290, Education sector, UK)

Other provided information that was directly accessible to patients or the public:

> *"Hopefully the work I do on behalf of the service I work in contributes to healthcare e.g. a Dementia Strategy and development of services to support people with living with dementia, the Reading Well Books on Prescription Service."* (Respondent #254, Public authority, England)

> *"I set up an Information centre for patients in a hospital"* (Respondent #162, State healthcare, England)

> *"Providing information for patients in their native language."* (Respondent #244, Charity/voluntary sector, Croatia)

Some of the access given had a primarily local impact:

> *"When I opened the library's second location I could see the relief on the faces of staff who now had a nearby resource to give immediate aid."* (Respondent #131, State healthcare, UK)

In contrast, the work some people had done to enable access to health information had had an impact regionally or even nationwide:

> *"Introduction of Books on Prescription to county in 2006."* (Respondent #837, Public library, UK)

> *"Introducing MEDLINE in 1974 in an East European country."* (Respondent #719, Private healthcare and Education sectors, United States)

> *"I established the first e-bulletin, listserv and collaborative intranet on health promotion in [name of country] (all still active 15+ years later) and these are still making critical contributions to community health field.* (Respondent #926, Charity/voluntary sector, Canada)

A number of the respondents had used their technical skills in providing information and access:

> *"Migrating current awareness service from print to electronic."* (Respondent #248, State healthcare, UK)

> *"Just making our website easy to use for our clinicians"* (Respondent #598, Private healthcare, United States)

3.4.11.4. Management

Apart from managing access to collections, other more general management skills were identified as having a contribution to healthcare. One respondent mentioned being a 'Chair' of a national health information group (Respondent #228, Royal College, UK). Others had used their management skills to develop services:

> *"Developing a network of team knowledge officers to work with library services."* (Respondent #275, State healthcare, England)

> *"Developing a rapid search and synthesis service for use within the clinical area – specifically tested in an ICU."* (Respondent #12, State healthcare, Scotland)

> *"Development of new mental health outreach service."* (Respondent #61, State healthcare, UK)

> *"I developed a health information service from scratch which resulted in being a well respected national leader in health information."* (Respondent #124, State healthcare, UK)

Other skills commented on included:

- Facilitation: *"Facilitating service user involvement in health resource development."* (Respondent #208, State healthcare, England)
- Negotiation: *"Negotiating agreement to co-ordinate and publish evidenced care pathways."* (Respondent #375, State healthcare, England)
- Preparing a business case: *"Preparing a successful business case that persuaded the Board to subscribe to UpToDate."* (Respondent #203, State healthcare, UK)
- Taking strategic responsibility, and planning: *"Future proofing the [name of organisation] Library for the 21st century."* (Respondent #252, Professional body, UK)
- Teamwork: *"When I put together a healthcare team to work towards a common goal."* (Respondent #693, State/private healthcare, Italy)

3.4.11.5. Research

The respondents used their research skills to carry out literature searches for other people in their professional capacity as illustrated in the quotes in section 3.4.11.1 above. However, a number of respondents also commented on extending their research skills, and carrying out research themselves, and providing a contribution to health through that research.

There were examples of respondents having carried out and published their own research:

> *"Published research on Books on Prescription..."* (Respondent #147, State healthcare, UK)

> *"Research which identified a better way of implementing an IT system for collecting data."* (Respondent #320, State healthcare, UK)

> *"Study of bibliometric methods"* (Respondent #809, State healthcare and Education sectors, Italy)

One respondent commented on the sense of making a contribution *"...when you see yours [research] published an article in Scientific Databases."* (Respondent #269, State healthcare, Spain)

Some respondents had research roles providing *"medical research support for faculty"* (Respondent #263, Education sector, Turkey), or being *"involved in research projects and systematic reviews"* (Respondent #434, State healthcare and Education sectors, Canada), or *"helping… PhD students with writing their article"* (Respondent #774, Education sector, Czech Republic). Another respondent was, *"Working as a member of a research team and contributing to the many research studies we conduct."* (Respondent #566, State healthcare, Canada).

A comment from Respondent #84 (State healthcare, Ireland) illustrated the research knowledge the respondent had and the research support given:

> *"Demystifying research for a social worker, he went on to publish a piece of work that has been highly cited. I don't think he would have done it if I hadn't encouraged him (so he says!)"*

3.4.11.6.   The impact of the contributions identified by the respondents
The contributions identified were categorised by their impact on healthcare (Table 39 and Figure 23). The examples given by respondents fell into six categories.

Table 39: How respondents' contributions impacted on healthcare

Contribution	Percentage	Count
Impact on professional practice	7.6	39
Impact on clinical or therapeutic decisions	9.2	47
Impact on service effectiveness or management decisions	11.3	58
Impact on health outcomes	12.7	65
Impact on patient care	17.2	88
Impact on learning, education, evidence base	25.3	130
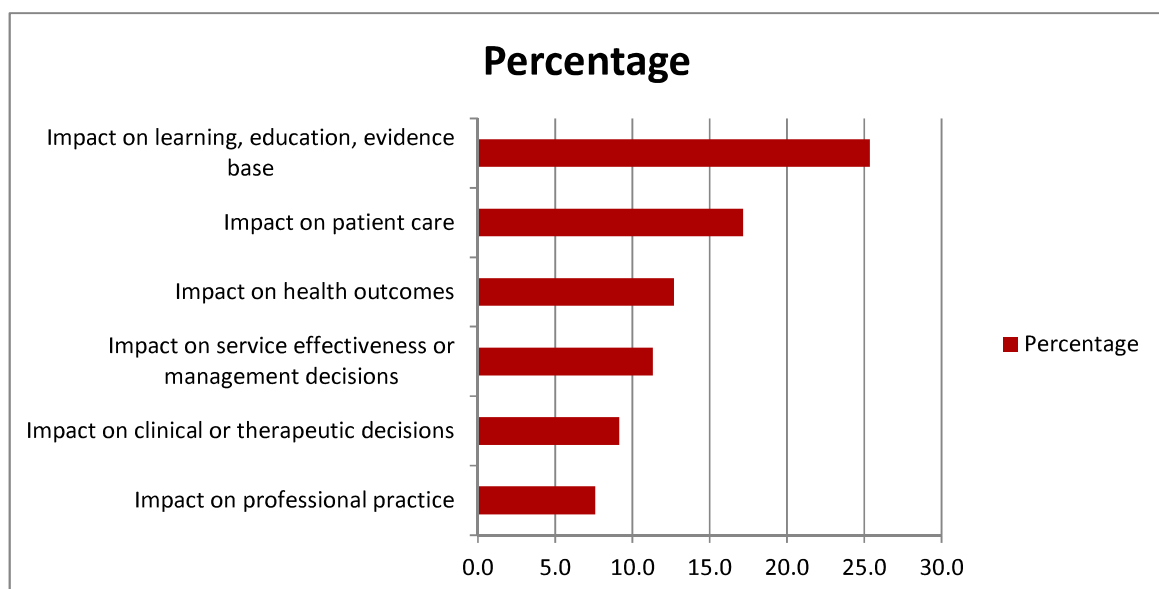
Figure 23: How respondents' contributions impacted on healthcare

Examples within each category are given in Table 40:

Table 40: Examples of contributions to healthcare

Contribution	Example from the evidence
Impact on professional practice	*"Providing a literature search that informed the decision to change practice"* (Respondent #206, State healthcare and Education sectors, UK)
Impact on clinical or therapeutic decisions	*"When a doctor has ordered a particular test/cancelled a drug on the basis of evidence supplied."* (Respondent #238, State healthcare, UK)
Impact on service effectiveness or management decisions	*"Providing evidence from the literature to support changes in how new nurses are oriented to their units and the hospital."* (Respondent #429, Private healthcare, United States)
Impact on health outcomes	*"Literature searching for a number of HTA [Health Technology Assessment] topics that will/have influenced national policy."* (Respondent #246, Education sector, UK)
Impact on patient care	*"Locating case studies for a doctor dealing with sarcoidosis in an unusual patient"* (Respondent #240, State healthcare, England)
Impact on learning, education, evidence base	*"My role involves ensuring that the national cancer quality indicators are evidence-based."* (Respondent #2, State healthcare, Scotland)

The ways in which health library and information professionals contribute are spread quite broadly across healthcare. The largest number of contributions were made by supporting learning, education and the evidence base, although there was also substantial evidence of impact on patient care, broader healthcare outcomes, and healthcare service provision. Users of the services had often provided positive feedback on how the work of the information professionals had impacted on their professional practice.

3.4.11.7. Not making a contribution

Despite all the positive examples of contributions made to healthcare, three respondents could not recall a specific time when they had made a contribution. One person felt that using the word 'critical' was rather *"daunting"* (Respondent #93, Foundation, Netherlands) and two others agreed:

> *"Critical? I think that's a bit exaggerated. Certainly we help and facilitate, but we are not the make or break of health care, however we may like to think so."* (Respondent #167, State healthcare and Education sectors, UK)

> *"I don't remember any such example!! ('Critical' seems to me exaggerated...)"* (Respondent #920, State healthcare and Education sectors, France)

One respondent commented that they, *"Felt I had more of a direct impact on healthcare when working in a hospital library"* (Respondent #373, Education sector, UK). This opinion was confirmed in other responses in which respondents felt the criticality of their contributions perhaps depended on their roles at the time.

Fourteen respondents felt they had not made a critical contribution at all:

> *"I do not think I have ever made a 'critical' contribution to healthcare."* (Respondent #894, Education sector, Spain)

Respondent #773 (Education sector, New Zealand) thought, *"Perhaps lots of little contributions…"* and Respondent #140 (State healthcare, UK) agreed with this: *"I feel that I make a small contribution to many people."* One person thought that perhaps the opportunity to contribute was changing:

> *"Now that we live in an information-rich culture, and 'anyone' can find information, I don't feel I make critical contributions any more, but rather that I support health care professionals in many diverse ways."* (Respondent #449, Charity/voluntary sector, Canada)

3.4.11.8.   Summary

There appears to be a polarisation of opinion, possibly dependent on job roles and personal experience, with regard to the critical contributions that health library and information professionals make to healthcare, and the impact they have on healthcare. Responses ranged from *"none"*, and the feeling that *"critical"* is an exaggeration, to others that claim they have a critical impact *"every day"* of their working lives.

The library and information professional skills of literature searching, information literacy training, and providing access to collections are key ways in which they make a critical contribution, while generic management and research skills play a smaller role.

The contributions they make have an impact on a range of healthcare issues, mostly by supporting education, learning, and evidence, but also contributing directly to patient care, professional practice, and improving service provision. The word cloud in Figure 24 is an alternative representation of the occurrence of different terms in participants' responses.

Figure 24 Critical contributions to healthcare

3.4.12. What respondents wanted on the website

Part of the project plan was to develop a website to support information and knowledge sharing between health information professionals, and survey respondents were therefore asked what they would like to see on such a website. However, 32 respondents (6%) **questioned the value of creating a website at all**. In the majority of cases this was because the respondents in question felt there were plenty of similar websites already in existence:

> *"You would have to convince me of the need for yet another website first."* (Respondent #2, State healthcare, Scotland)

> *"There are already so many, what difference do you make?"* (Respondent #207, Charity/voluntary sector, Netherlands)

> *"I do not know. I think I have more information than I can handle or assimilate."* (Respondent #866, State healthcare, Spain)

A few respondents questioned the utility of such a website on grounds of the vast range of different roles carried out by health information professionals, or because they felt it would not be useful to them personally in their current role:

> *"We all do very different things. Not sure about this."* (Respondent #4, International organisation, Switzerland)

> *"Our work is probably not relevant to most health professionals in Europe."* (Respondent #108, Charity/voluntary sector, UK with countries in Africa)

Eighty-six respondents (17%) did not provide a response to this question, or said they didn't know what they would like to see on a website. Again, this may suggest that many respondents do not see the need for an additional resource of this type. Some respondents suggested that to circumvent the problem of re-inventing the wheel, the website could collate **links to existing resources**. In total, 88 respondents (17%) suggested that the website should provide lists of useful links:

> *"There are a number of discussion lists which support information sharing. Perhaps the web site could list them?"* (Respondent #375, State healthcare, England)

> *"Selected international websites of high quality."* (Respondent #858, Education sector, France)

> *"Link to articles important for the health information professionals."* (Respondent #369, State healthcare and Education sectors, Netherlands)

Five respondents mentioned the concept of a '**one-stop shop**':

> *"A one-stop shop containing periodicals, current awareness on specific subjects, blog, etc. in our specific fields."* (Respondent #453, State healthcare, Canada)

However, the respondent cited above also mentioned that another organisation of which they were a member was in the process of developing such a site.

3.4.12.1. Suggested features

Feature	Percentage
Research literature / information sources	23.4
Links	17.3
Discussion forum	10.1
e-learning	8.4
Case studies	8.2
Educational materials	7.6
Best practice	7.0
Knowledge sharing	7.0
Current awareness	6.2
Tips and tricks	5.7
Events	5.7
How-to guides	4.5
Sample documents	4.3
Ask an expert	3.3
Networking	2.9
Search protocols	2.7
Directory	2.7
Blog	2.1
Jobs and careers information	1.9
Professional organisations	1.9
Wiki	1.4
RSS feeds	1.2
Social media	1.2
One-stop shop	1.0
Reading lists	0.8
Research findings	0.8
FAQs	0.8
Combined catalogues	0.6
Discounts	0.4
Teleconferencing	0.4
Online mentoring	0.4
Chasing the sun	0.2
Subject of the day	0.2
Quizzes	0.2

Percentage of respondents

Figure 25: Suggested website features

Figure 25 shows the frequency with which different website features were mentioned. The most popular suggestion, mentioned by 120 respondents (23%) was that the website should provide access to, and information on, **research literature and other information sources**. This could be achieved either by linking to existing sources as discussed above, and/or by providing sources that would otherwise be difficult to access (such as conference presentations and other grey literature) on the website itself. A few respondents even suggested that the website should provide access to paid journals.

> *"Sources of systematic reviews and clinical guidelines."* (Respondent #143, State healthcare, Wales)

> *"It would be useful to see, among others, the resources like PhD theses, conference papers i.e. resources that belong to grey zone."* (Respondent #8, Education sector, Croatia)

> *"Grey literature/project reports from colleagues from around Europe?"* (Respondent #141, Education sector, Sweden)

> *"Global access to health journals."* (Respondent #777, State healthcare and Education sectors, France)

Specifically, 19 respondents (4%) wanted signposting to open access/free resources. This may reflect the pressure on budgets discussed in the section on 'Main challenges' above.

> *"List of portals with online medical books which are available for free."* (Respondent #774, Education sector, Czech Republic)

> *"Reliable OA journals."* (Respondent #682, Education sector, Switzerland)

> *"Any freely available databases that are good for supporting allied health."* (Respondent #315, State healthcare, England)

Twenty respondents (4%) wanted not just lists of resources, but evaluations and reviews of different information sources.

> *"Evidence-based ratings of library tools and resources- sort of a TRIP Database[5] for librarians."* (Respondent #680, Non-profit healthcare, United States)

> *"New information sources with informed evaluations, not just press releases."* (Respondent #664, State healthcare, Canada)

> *"Comments from people who have tried new resources/websites - don't always have time to investigate everything."* (Respondent #396, Education sector, UK)

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[5] http://www.tripdatabase.com/

On a related note, 14 respondents (3%) wanted to be able to share literature search strategies, protocols or filters:

> *"Shared pool of search strategies: we used to share strategies for methodology filters but would it also be worthwhile sharing (for example) a search strategy I have found to be effective for retrieving 'mental health occupational therapy' or 'CBT'."* (Respondent #393, State healthcare, UK)

> *"Actual tools that librarians use to do their day to day work, e.g. a PICO sheet used to develop a search, etc., etc."* (Respondent #566, State healthcare, Canada)

The next most popular suggestion was for a **discussion forum** (or similar resource, such as a chat room or listserv) for problem-solving and networking. This was mentioned by 52 respondents (10%):

> *"Easy to use, engaging forum/chatroom/alternative to Twitter (which many people cannot access within NHS)."* (Respondent #134, State healthcare, Scotland)

> *"A section for posting difficult reference questions (NOT interlibrary loan requests!)."* (Respondent #436, Non-profit healthcare, United States)

> *"Our listserv has been great. Perhaps an online forum area which archives discussions (questions & answers) would be even better."* (Respondent #444, State healthcare, Canada)

On a similar theme, some respondents said they wanted the website to be used for 'knowledge sharing' (36 respondents, 7%) or 'networking' (13 respondents, 3%), but without necessarily specifying the format that this should take.

> *"Le partage des connaissances professionnelles."*
> *"Sharing professional knowledge."* (Respondent #771, Education sector, Réunion (French overseas territory))

> *"Anything that would help me to connect more with others and feel more actively involved in the wider profession would be great!"* (Respondent #290, Education sector, UK)

Another popular suggestion (43 respondents, 8%) was for the website to host or link to **e-learning resources** for continuing professional development:

> *"Des tutoriels pour apprendre de nouveaux outils utiles ou des méthodes de travail (comment faire une bonne veille documentaire en chirurgie digestive...)"*
> *"Tutorials for learning about useful new tools or working practices (such as how to effectively monitor the literature on digestive system surgery)."* (Respondent #836, State healthcare, France)

> *"Online tools covering generic skills such as writing business plans, project management, developing a research project, measuring service impact."* (Respondent #360, Professional body, United Kingdom)

"Videos with case studies & webinars would be good (at the moment, they are all over the Internet literally - there is no 'one stop shop')." (Respondent #84, State healthcare, Ireland)

Still on the theme of continuing professional development, 29 respondents (6%) said it would be useful for the website to list **events and training opportunities**.

"Where to find training in some of the areas listed previously, for example a good resource for learning more about statistics, or courses offered about it in the region at various prices and levels of commitment (e.g. Continuing education course or a university course)." (Respondent #569, Education sector, Canada)

"Continuing professional development resources with a feed to alerting systems. Particularly organised by cost (paid or free) and location (London, Midlands, etc.)" (Respondent #328, Education sector, England)

Forty-two respondents (8%) said that they would like to see **case studies** and ideas that have worked (or not worked) on the website:

"Case studies where new things have been tried and how they worked, those which didn't work well as well as those that did." (Respondent #124, State healthcare, UK)

"Case studies of successful examples of library and information professionals making a direct contribution to patient care or healthcare management." (Respondent #194, State healthcare, England

Thirty-nine respondents (8%) felt it would be useful for the website to collate a shared body of **open educational resources**, such as presentations or handouts:

"Reusable Creative Commons-licensed learning objects." (Respondent #773, Education sector, New Zealand)

"Teaching outlines/templates for common subjects like searching PubMed, EBM, copyright, etc." (Respondent #441, Education sector, Canada)

"Example 'good' and 'bad' papers for appraisal teaching; example literature search strategies; PowerPoint resources – illustrations, statistics, examples." (Respondent #92, State healthcare, UK)

Similarly, 22 respondents (4%) said that they would like the website to be used to share **other documentation**:

"Templates for costing services and service level agreements." (Respondent #100, State healthcare, UK)

"Business cases for clinical librarian services which have been successfully adopted!" (Respondent #184, State healthcare, UK)

"Toolkit and pathway for promoting OA within organisation." (Respondent #261, Charity/voluntary sector, Ireland)

"Do once and share - i.e. library strategies, annual reports, survey questions, etc." (Respondent #408, State healthcare, England)

Best practice, guidelines or **standards** were mentioned by 36 respondents (7%):

"Best practice in specific areas e.g. iPad loans, e-book selection, LMS, searching for systematic review support, the list is endless…" (Respondent #84, State healthcare, Ireland)

"Links or central repository of annotated descriptions of best practices in health information." (Respondent #926, Charity/voluntary sector, Canada)

Thirty-two respondents wanted **current awareness, news** or **alerts** to new resources and other relevant new information, with six specifically mentioning **RSS feeds** or email alerts:

"Daily roundup of items of interest to healthcare librarians (reports or reviews; technologies; resources or toolkits etc.) (Respondent #261, Charity/voluntary sector, Ireland)

"The site should have an RSS feed set up so information goes directly to the user." (Respondent #407, Charity/voluntary sector, UK)

Twenty-nine respondents wanted **tips and tricks**, or problems with solutions:

"Tips and tricks for searching – make the feature searchable." (Respondent #212, Education sector, UK)

"Practical solutions for any real-life library situations; how-do/did-you... solutions." (Respondent #277, State healthcare and Education sectors, Slovenia)

Twenty-three respondents suggested **how-to guides** or **introductory briefings** on particular subjects:

"Practical guides – particularly on specific skill sets or technologies which can provide a starter for ten on an area which you're rusty on or unfamiliar with." (Respondent #280, Charity/voluntary sector, England)

"Concise handholds for database searching." (Respondent #369, State healthcare and Education sectors, Netherlands)

Seventeen respondents (3%) said they would like the website to include an '**Ask an expert**' feature[6]:

"Contact information for people who are willing to have their brains picked." (Respondent #138, State healthcare, UK)

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[6] An existing German-language website of this type can be found at:
http://www.agmb.de/papoopro/index.php?menuid=1&reporeid=147

> *"Contacts for professionals willing to be resources for others in many fields – library management, advanced reference skills, newer topics (genomics, translational medicine, science teams, etc.), and more."* (Respondent #436, Non-profit healthcare, United States)

This suggestion was also popular with Focus Group 1.

Fourteen individuals (3%) suggested that a directory of health information professionals and/or health libraries would be useful, and ten (2%) wanted a list of professional organisations or special interest groups:

> *"Contacts/directory (e.g. other public health librarians)"* (Respondent #339, State healthcare, UK)

> *"The different associations in Europe for health information professionals."* (Respondent #307, State healthcare, Sweden)

Other suggestions included a blog (11 respondents, 2%), job listings and careers information (10 respondents, 2%), a wiki (7 respondents, 1%), a social media presence, such as a Twitter feed or LinkedIn group (6 respondents, 1%), FAQs (4 respondents), reading lists (4 respondents), findings from Project WHIPPET or other research on health information professionals (4 respondents), combined catalogues (3 respondents), teleconferencing (2 respondents), online mentoring (2 respondents), discounts or the formation of a consortium for negotiating license agreements in bulk (2 respondents), quizzes (1 respondent), a 'subject of the day' feature (1 respondent) and a 'chasing the sun' feature for 24-hour responses to reference queries[7] (1 respondent).

In addition to the numerous comments about not re-inventing the wheel, discussed in section 3.4.12 above, two respondents specified particular things that they did not wish to see on the website:

> *"…without information overload and tedious JISCmail discussion lists"* (Respondent #298, Consultancy, UK)

> *"NOT interlibrary loan requests!"* (Respondent #436, Non-profit healthcare, United States)

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[7] An existing example of this in the UK public library sector is Enquire:
http://www.peoplesnetwork.gov.uk/enquire/about.html

3.4.12.2. Subject areas

Many respondents also specified the subject areas on which they would like information and guidance. The most frequently-mentioned area was literature searching, mentioned by 88 respondents (17%):

> *"A flow-chart of databases based on EBM. To make sure that a clinical question is answered correctly in the limited time given."* (Respondent #222, State healthcare and Education sectors, Norway)

> *"I think it would be amazing to provide a breakdown of the different core resources needed for different health care specialties. I've recently been given dental and I have no idea how to support dentistry, so if I could have access to the core resources and maybe information about what I can expect in information requests from dental faculty."* (Respondent #698, Education sector, United States)

> *"Des explications sur les bases de données tel MEDLINE… en français."*
> *"Guides to databases such as MEDLINE… in French."* (Respondent #854, State healthcare, France)

Some of the suggestions above relate to this area (research literature and other information sources; search strategies and protocols) and have been discussed in more detail in section 3.4.12.1.

The next most frequently-mentioned subject area was new technologies (39 respondents, 8%). This included more specific topics such as social media or web 2.0 (15 respondents, 3%); m-libraries (12 respondents, 2%), e-learning (4 respondents, 1%) and reference management software (3 respondents):

> *"'How to' sheets on mobile technologies and social networking tools; documents outlining the advantages & disadvantages of mobile technologies & networking tools."* (Respondent #161, State healthcare, England)

> *"Resources about IT, mobile, apps, social media etc. organised as FAQ."* (Respondent #418, State healthcare and Education sectors, Italy)

> *"Links towards tutorials related to bibliographic software and utilities."* (Respondent #920, State healthcare and Education sectors, France)

There was then a long 'tail' of subject areas mentioned by fewer respondents, shown in Table 41 below.

Table 41: Subject areas on which respondents wanted information on the website

Subject area	No. (%) of resp.	Examples from the evidence
Evidence-based practice (EBM, EBP & EBP in general)	17 (3%)	*"Useful articles / further sources to follow up on EBLIP."* (Respondent #89, State healthcare, England) *"Information on evidence-based practice and systematic reviews."* (Respondent #695, Private healthcare and Education sectors, Canada)
Innovation and service development	17 (3%)	*"The nitty-gritty of how new services are rolled out."* (Respondent #103, State healthcare, UK) *"Innovations using emerging technologies."* (Respondent #228, Professional body, Wales)
Management, including strategic, staff, project & quality management	14 (3%)	*"Online tools covering generic skills such as writing business plans, project management…"* (Respondent #360, Professional body, UK) *"Support for library leaders. Ideas for engaging staff, especially in a large multi-site organization."* (Respondent #626, State healthcare, Canada)
Carrying out research	14 (3%)	*"I would like to see classes that teach research methods and examples from librarians who are doing substantive research in our field."* (Respondent #691, Education sector, United States) *"Resources to support research skills development."* (Respondent #929, Education sector, UK)
Medical terminology and general background medical knowledge	13 (3%)	*"Thesaurus of NLM."* (Respondent #803, Special library, Germany) *"Anatomy plans."* (Respondent #751, Education sector, France) *"Trends & tendencies in medical research."* (Respondent #858, Education sector, France)
Marketing	12 (2%)	*"Marketing ideas – for instance, if a library has discovered a particularly useful way of reaching a certain group (GPs for example in health libraries!)"* (Respondent #91, State healthcare, Scotland)
Demonstrating and measuring impact	12 (2%)	*"Evidence of libraries contributing to the organisation's objectives and to the clinical care of patients. This could be reports/surveys etc."* (Respondent #239, State healthcare, UK) *"How to justify the need of a library, and well trained librarians. All tips are welcome!"* (Respondent #350, Education sector, Belgium)
Teaching	9 (2%)	*"Teaching help (how to create an attractive lesson for the students)."* (Respondent #908, Education sector, Switzerland)
Open Access	9 (2%)	*"Toolkit and pathway for promoting OA within organisation."* (Respondent #261, Charity/voluntary sector, Ireland) *"Information about the progress of Open Access in biomedical scientific publications."* (Respondent #352, Education sector, France)
Copyright	6 (1%)	*"Clear copyright rules."* (Respondent #271, State healthcare, Ireland)
Government policy and different national healthcare systems	6 (1%)	*"General information on the health care systems in the EU and the different agencies / information sources in each country."* (Respondent #326, Charity/voluntary sector, France)
Licensing	5 (1%)	*"Licensing tips and tricks."* (Respondent #563, State healthcare, Canada)
Systematic reviews	5 (1%)	*"A section dedicated to information specialists who support systematic reviews with comprehensive information on all sorts of related issues - databases, information sources, search filters, exporting, de-duplication and reference management issues, updating SRs etc."* (Respondent #348, Education sector and Industry, UK)
Critical appraisal	3 (1%)	*"Critical appraisal resources."* (Respondent #86, State healthcare, UK)
Statistics	3 (1%)	*"Guide to medical statistics in layperson's terms."* (Respondent #276, State healthcare, UK)
Well-being	1 resp.	*"Information about staying sane with an insane workload!"* (Respondent #247, Education sector, Northern Ireland)

3.4.12.3. Structure of website

Several respondents made recommendations relating to the structure of the website. The majority of these (19 respondents, 4%) were remarks to the effect that links or resources should be classified by subject. This supported comments made in the focus groups. However, there was no real consensus as to the best way of classifying the resources: a number of respondents suggested that resources should be grouped by specialism, but other suggestions included classification by sector/role, by type of information task, or by user group.

> *"Resources available by subject – anaesthetics, urology, etc."* (Respondent #382, State healthcare, UK)

> *"Sections for the less specialised health information professionals i.e. public librarians."* (Respondent #837, Public library, UK)

> *"Documents relating successful experiences. Those documents must be catalogued depending of the type of task they speak of: understanding user needs, finding a useful resource…"* (Respondent #870, Education sector, Spain)

> *"Resources listed according to the type of users (ex. doctors, dentists, students, patients etc.)"* (Respondent #927, Education sector, Slovenia)

There were also two comments suggesting that the website should include a search feature, and three respondents noted that it would be important for the website to be kept up to date.

A number of respondents mentioned good websites that were already in existence. In some cases these were mentioned in support of respondents' feeling that there were plenty of resources already, while in others they were cited as examples of websites that could be linked to or used as a model. A full list of these websites is provided in Appendix M.

3.4.12.4. Summary

A substantial minority of respondents (86, 17%) did not provide an answer to this question, and 32 (6%) explicitly stated that they did not see a need for an additional resource of this type, as there are already plenty of similar websites in existence. However, there was support for the idea that the website could fulfil a useful function as a 'one-stop shop', providing links to existing resources (88 respondents, 17%). Some respondents pointed out that any such links would need to be categorised by subject in order for the website to be usable.

The most popular suggestion (120 respondents, 23%) was for the website to provide access to, and information on, research literature and other information sources. Respondents suggested linking to existing sources (particularly open access materials) as well as hosting materials that would otherwise be difficult to access, such as conference presentations or grey literature, on the website itself.

Other popular suggestions included a discussion forum (52 respondents, 10%); hosting or linking to e-resources for continuing professional development (43 respondents, 8%); case studies (42 respondents, 8%); and a shared body of open educational resources (39 respondents, 8%). A large number of other suggestions were also made.

Respondents also mentioned particular subject areas on which they would value information and guidance on the website, and the most popular of these were literature searching (88 respondents, 17%) and new technologies (39 respondents, 8%). A large number of other areas were mentioned by a small number of respondents each.

4. Discussion

4.1. Demographics

To set the context for the discussion it should be noted that certain demographic biases occurred in the responses. The majority of respondents were non-EAHIL members, from the UK or North European countries, were female, and were in professional (rather than para-professional) roles, with a substantial minority in management roles (See Section 5: Limitations). These biases present opportunities for EAHIL from a practical perspective in terms of increasing membership, and developing organisational reach and impact; and from a research perspective in considering how to gather the opinions of para-professional staff, and people working more widely across Europe. The sector also has a challenge to improve the gender balance. This gender imbalance is not so pronounced in other sectors (Greenwood & Maynard, 2006).

The highest number of responses to the main survey came from the UK (224), France (66) and Canada (47). The largest number of EAHIL members came from the UK (56), Ireland (9), Sweden (9) and Spain (9).

The respondents in the focus groups, interviews and surveys showed an active and avid interest in continuing professional development and "keeping up to date". To support this they identified being members of over 160 professional organisations, including EAHIL (Table 44, Appendix H).

4.2. Job titles

Anyangwe (2011) notes the need to look beyond and 'behind' the job title when trying to understand the complexity of the roles carried out by a library professional. Anyangwe (2011) was discussing the academic library role; however, the same can be said in the health sector. The job titles within the sector reflect the broad areas of work, but cannot adequately reflect the wide range of competencies and skills held by library professionals which need to be articulated through advocacy and marketing, and demonstrated in practice.

A common theme across the focus groups, interviews and surveys was that the majority of the participants were in professional (rather than para-professional) roles, and a substantial minority were senior personnel in management roles. The large majority of participants were very well qualified, i.e. with qualifications at postgraduate level.

A larger proportion of respondents to the pilot survey had titles which suggested management roles (45% of respondents, compared with 29% of respondents to the final survey). As the pilot survey was carried out at the EAHIL workshop in Stockholm, this may imply that individuals in management roles are more likely to attend this type of conference. The main survey was successful in reaching a wider range of individuals at different levels.

An analysis of the job titles from the final survey responses demonstrates the continued relevance of the terms 'library' and 'librarian' in the health information sector, with 330 respondents (64%) having a title including these. This finding is consistent with a survey of trends carried out in the United States across all library sectors, where 72% of jobs surveyed had a title that reflected traditional librarian roles (School of Library & Information Science, 2013). Meanwhile, 131

respondents in our survey (26%) had titles including terms related to information, while 35 respondents (7%) had titles including the term 'knowledge' or equivalents in other languages. Seven respondents (1%) were archivists or had a term relating to archives in their title, while only one respondent had a title including the word 'data'. The rise of 'data management' roles seen in the academic sector does not yet appear to have penetrated the health information sector (Cox & Pinfield, 2013; Cox & Corrall, 2013). However, a substantial minority of respondents identified this as a training need, suggesting they see this as a potential growth area for the future. In terms of the conscious-competence learning model (University of Central Lancashire, n.d.), respondents thus appear to be at the conscious incompetence stage, in that they have identified the area as important but are aware that they know little about it.

Other key roles were also reflected in job titles including the terms *education*, *research, collection and resource management*, and *systematic reviews*. Seventeen respondents had clinical library roles (17 respondents, 3%); and a further 15 respondents (3%) were involved in outreach or community engagement. The job titles reflect trends and changes in the sector; however, traditional 'library' roles continue to be highly relevant. This aligns with other sectors (School of Library & Information Science, 2013). In a recent commentary on the changing roles, Blumenthal suggests that those roles are dependent on the actions and initiative taken by health librarians themselves, and raises the question, *"what future are health sciences librarians going to build for themselves?"* (2014, p. 4)

4.3.   Sector distribution and user groups

The majority of the survey respondents work in state healthcare (273), and/or in education (186), with 30 working in the charity and voluntary sector, 21 in industry, 17 in private healthcare, and 55 in other organisations. The focus group and interview participants primarily came from the education sector, with a substantial minority in state healthcare and other participants coming from government or independent government-funded organisations, the charity/voluntary sector, and industry.

This distribution reflects the user groups supported by the health library and information professionals, which are extremely diverse, but dominated by healthcare workers (e.g. doctors, nurses, allied health professionals, healthcare managers) and educational users (e.g. researchers, medical students, student nurses). Proportionally, very few respondents provided services directly to patients and the public. This raises a question as to who is providing health information to these substantial user groups, particularly at a time when increasing attention is being paid to patient choice and empowerment through information (Department of Health, 2013; Househ et al., 2014; Huber et al., 2014). Jenkins, Lee, & Smith make the point that health libraries are largely *"invisible"* to members of the public (2011, p. 2), and even the public library health and wellbeing offer has been described as a *"well kept secret"* (Hicks et al., 2010, p. 5)

4.4.   Key elements of role

The range of roles carried out by respondents is diverse. Comments were made about the workload, and trying to do *"everything"* or being a *"jack-of-all-trades"*, whilst others had very specific roles, such as being embedded within a specific clinical team, or supporting guideline development. Urquhart (2011) discusses the skills, competencies, and knowledge needed to carry out the varied

roles in the sector, highlighting the US Medical Library Association (2007) list of competencies as being on the most comprehensive, though there are a number of different competency frameworks including the NHS (Department of Health, 2004).

The most frequently-identified roles in the focus groups, interviews and surveys were literature searching and teaching/training, both of which can be categorised as evidence-based roles. Evidence-based work requires knowledge of specialist information sources, the ability to search those sources using advanced search skills (i.e. having advanced information literacy), the ability to critically appraise the evidence, and the ability to teach and train others to search the evidence and retrieve quality information sources to support their healthcare work. This category also included more specialist evidence-based roles such as supporting the development of guidance, policy frameworks and systematic reviews. Marshall (2014, p. 14) comments on the *"rise of evidence-based health science librarianship"*, and the evolving importance of this role:

> *"Health Science librarians have played a key role in initiating, nurturing, and spreading EBP in other branches of our profession. Our close association with EBM set the stage for developing our own EBP. While we relied on EBM as a model for our early efforts, we can observe the continuing evolution of our own unique approach to using, creating, and applying evidence from a variety of sources to improve the quality of health information services."*

Eldredge (2014, p. 62) supports this view, extolling the opportunity that EBP gives for the profession to demonstrate its value and impact:

> *"The EBLIP process enables library and information practitioners to enhance their professional status by displaying a value in serving users and larger society, expertise in the subjects related to decisions made, and critical appraisal of the best evidence available for making these transparent decisions. EBLIP thereby offers our profession an unprecedented opportunity to demonstrate our expertise and value to society."*

Marshall (2014) sees evidence-based practice as increasingly contributing to our own professional decision-making, as well as linking research to practice when supporting others.

In addition to evidence-based roles, management roles were also prevalent in both the interviews and focus groups, and were mentioned by a substantial number of respondents in the pilot survey and final survey. The management roles can be divided into library-specific management roles, more generic management roles, communications roles, and management roles involving technology such as website management or systems management. Technology has influenced changes in the roles of health information professionals, as noted by Hardiker, Dundon, & McGowan (2011) and Cox & Corrall (2013) who recognize *"the long history and high profile of medical libraries in pioneering the application of technology in information work"*. There has been a rise in informationist roles, often combining knowledge of informatics with biomedical sciences to work alongside researchers and clinicians (Cox & Corrall, 2013; Rankin, Grefsheim, & Canto, 2008; Robinson, Ryan, & Cooper, 2009).

Roberts and Rowley (2004: 27) highlight the need for strategic and operational level skills across all sectors with shared common core processes, and an *"additional layer of complexity in working*

relationships" that arises from *"working partnerships with other teams in the partner organization and in external organizations, at project, operational and strategic levels"*. The themes of strategic awareness and having a 'finger on the pulse', managing services and thinking about the 'user perspective' and 'working with new groups' appear in management cases presented by Cheeseborough (2011). This complexity gives emphasis to the wide range of management skills required that is concomitant with our findings across all phases of the study.

The broad variety of roles performed by participants is striking – both across the sector and within the context of individuals' jobs. Comments on this theme recurred throughout the data. This reflects the diversity of professional roles captured by Brettle and Urquhart (2011) in their overview of the sector.

4.5. Key skills

Participants across all the data collection methods identified a very wide variety of skills, once again reflecting the general feeling of being a 'jack-of-all-trades'. The focus group respondents commented on how their roles were changing – partly because of technology – and the implications that had for the collections and services that they managed, and the skills they needed.

Among the final survey respondents, the skills used most frequently were LIS-specific skills such as 'knowledge of sources' (88% of respondents) and 'information literacy/search skills' (85%) of respondents. In addition to the LIS-specific skills, participants also had skills in other specialist areas, such as technical skills and pedagogical skills; management skills; and 'soft skills' or personal qualities. This broadly corresponds to Corrall's (2005, p. 35). three-tier competency framework for LIS professionals, which places LIS skills and technical skills at the core, supplemented by management skills and more generic personal and interpersonal skills.

The skills mentioned in the focus groups, interviews and surveys could be categorised into the following more specific areas:
- LIS skills and knowledge
- Knowledge of other areas
- Research skills
- Pedagogical skills
- IT & technical skills
- Administrative/organisational skills
- Management skills
- People/communication skills
- Personal qualities
- 'Everything'

Table 42 shows how these can be mapped onto the broad role categories identified in section 3.2.2.3:

Categorisation of job roles from Table 12	Skills mapped onto role categories
Evidence-based practice	LIS skills and knowledge Knowledge of other areas Research skills Pedagogical skills IT & technical skills People/communication skills Personal qualities
Management Generic management skills	Knowledge of other areas Administrative/organisational skills IT & technical skills Management skills People/communication skills Personal qualities
Communications management	People/communication skills Knowledge of other areas Personal qualities Management skills IT & technical skills
Library service management	LIS skills and knowledge Administrative/organisational skills IT & technical skills Management skills People/communication skills Personal qualities

Soft skills and personal qualities were mentioned frequently in the data, particularly in the focus groups, interviews and pilot survey. A wide variety of soft skills and personal qualities were mentioned, including communication and people management skills, flexibility, willingness to learn, patience, diplomacy, confidence, creativity, an eye for detail, sympathy, resilience and reflectivity. Feather (2006) comments that these softer skills are more difficult to teach than the 'technical skills' identified earlier.

A particularly striking feature of the qualitative data from the focus groups, interviews and the open question on the pilot survey was that the majority of participants focused more on soft skills and personal qualities than on LIS-specific skills. It was notable that focus group and interview participants found this question difficult, often leaving a lengthy pause before answering and usually only mentioning LIS-specific skills as an afterthought or in response to a prompt. This findings aligns with Feather (2006, p. 4) who notes "*a denial of the value of specialized knowledge".* In contrast, in the main survey respondents were explicitly asked about named skills in a closed-ended question, and LIS-specific skills were then selected most frequently, as discussed above. Thus, health information professionals possess and employ these LIS-specific skills, but do not necessarily think to mention them unprompted. This implies that they take such skills for granted, and therefore might not be good at marketing those skills.

4.6. Skills acquisition and learning methods

There was general agreement across the focus groups, interviews and surveys that the main methods for acquiring skills were through a mix of education and experience. The LIS degree forms a foundation, with health-specific knowledge and skills developed in the workplace and through experience. These findings support Petrinic & Urquhart's (2007) observation that continuing professional development in more specialist areas is necessary for health librarians as a supplement to the LIS degree, particularly in a rapidly changing context. Feather (2006, p. 8) agrees:

> "The LIS schools can produce people who are ready to become competent and committed professionals; but it is only in the work place that competence can be fully developed and commitment fully demonstrated."

Clarke & Thomas (2010, p. 327) discuss the *"growing body of research that suggests that learning on the job is by far the best way of accruing skills needed in the 'real world'"*. They propose that professional competencies in health librarianship are better acquired in communities of practice where participation is at first *"legitimately peripheral, but increases gradually in engagement and complexity."*

The research participants were keen to keep up-to-date and engage in continuing professional development and valued the support of colleagues, peers, and regional and professional networks. They identified being members of over 160 different library and other professional bodies, many of whom provided support, training and events (such as EAHIL). Participants engaged in a wide range of development opportunities, both formal and informal, as they were conscious that they needed to continue learning and develop their skills in order to meet the challenges within the profession. This tallies with the findings of a recent study in Australia, which also identified a *"strong commitment to CPD"* (Ritchie et al., 2013, p. 296).

4.7. Skills development needs

Participants across the focus groups, interviews and surveys identified training needs and showed a commitment to continuing professional development. The majority of survey respondents selected several training needs from the list. Skills relating to new technologies and research skills were mentioned in all phases of the study. The most frequently-selected areas for skills development in the final survey were m-libraries (45% of respondents), followed by research skills (including evaluation, statistics, etc.), social media, e-learning, and EBLIP (evidence-based library and information practice).   Boruff and Storie (2014, p. 29) present a study of mobile uptake in health libraries, commenting:

> "Mobile devices will have an ever-growing presence in medical education and the practice of medicine, and libraries must be aware of the impact that these devices have on library services and the ways in which users search for information."

Other areas mentioned by participants in the various phases of the study included evidence-based library and information practice (EBLIP), Open Access, research data management, academic writing, critical appraisal and systematic reviewing. Eldridge (2014, p. 68) sees evidence-based skills as the

opportunity for health librarians to *"revitalize"* the profession, with EBP giving *"new conceptualizations of professionalism"*.

These findings reflect Cleveland's assertion that *"education for health information professionals must be based on a solid foundation of the changing paradigms and trends in health care and health information as well as technological advances"* (2011, p.68). In addition, participants expressed a desire to hone existing skills such as literature searching.

4.8. Main challenges

There were a broad range of challenges identified throughout the phases of the study. Budget and funding issues were the most frequently cited challenge in the final survey (138 respondents, 27%), followed by time and workload issues (133 respondents, 26%). Budget issues identified included the increasing cost of journal subscriptions and other resources , unrealistic expectations from users, and budget constraints, leading to a feeling of 'doing more with less'. Fifty-one respondents (10%) commented on insufficient staffing, which relates both to budget issues and to time and workload. The issues around time and workload were exacerbated for a number of female library workers by part-time working (10 respondents). Financial pressures was one of the key trends identified in Murphy's (2013) summary of international trends in health science librarian ship that reviewed contributions from over 21 countries. Similar to this study, Murphy (2013) identified key issues as budgets, constraints, cuts, fewer libraries and librarians, and the loss of journals.

Another challenge noted by respondents (83, 17%) was the lack of appreciation and awareness of the importance of library and information services on the part of management or colleagues, and the related challenge of promoting the service, exacerbated in some cases by tight budgets. Marketing has been identified as an important aspect of service delivery in the health information sector (Allen & Allen, 2007; Bridges, 2005; Sen, 2006), and Ashcroft (2004) further suggests that self-promotion is increasingly important as services are called upon to justify their existence. In the light of this, it is interesting to consider participants' struggle to identify their core LIS skills when asked in the focus groups and interviews about the key skills required to do their jobs. This suggests that they may also be failing to adequately express the value added by their specialist skills in other contexts within the workplace.

A sizeable number of respondents (77, 15%) also mentioned difficulties in keeping up-to-date, particularly in light of new technologies, but also with the volume of literature and information sources; developments in the medical/healthcare field, which by its nature is always changing; structural changes in the health and HE sectors; and developments in LIS. The theme of the changing environment also came through strongly in the focus groups and interviews, with respondents discussing challenges relating to new technologies, changes in modes of information provision, and job insecurity. These issues were compounded by lack of time and heavy workload. Murphy (2013, p. 251) noted that one way health librarians respond to the changing environment is *"to develop new skills and competencies to enable them to take on new roles."*

Respondents across all phases of the study mentioned a very wide range of challenges, once again reflecting the diversity of roles and skills among health information professionals. However, some challenges were particularly notable for being mentioned by a large number of respondents. This

was the case for budget, time/workload and (to a slightly lesser extent) staffing issues. These challenges frequently intersected, and also had an exacerbating effect on other challenges, such as collection development and meeting user needs. Murphy's (2013, p. 252) review of the trends across the globe relating to health librarians and summarising the content of six papers, noted that: *"Countries where the funding of health libraries is relatively more secure are better placed to think about how to innovate, improve the status of the profession and extend their skills and competencies."* The problems of developing skills, competencies and services in a recession recurred throughout the study.

4.9. Critical contributions to healthcare

The overwhelming theme from the study with regard to the contributions health library and information professionals make to healthcare was the importance of their LIS professional skills and specifically what we have termed their evidence-based skills. This incorporates searching skills, information literacy skills, teaching and training others to access and search the evidence base, current awareness, and more specialist evidence-based skills, such as critical appraisal and working on systematic reviews. This finding is in contrast to Murphy's (2013, p. 252) review of health libraries where she stated that *"evidence-based librarianship failed to score high on most librarians' agenda"*.

The focus groups participants found it quite difficult to immediately recognise how they might contribute to healthcare, suggesting that they take these skills for granted. However, once they did begin to engage in discussion on their contribution, it focused on the evidence-based skills, including the teaching and training of others.

The interview responses were much more diverse; they included contributions made through evidence-based skills, such as teaching, and one person who contributed to the evidence base by co-authoring academic papers. However, the interviewees also identified contributions made through their management skills. These included the planning and delivering of services, and the responsibility of supporting both staff and students who were dealing with issues critical to them as individuals. It was in the interviews it emerged that health information professionals made contributions at different levels within the health environment. There is commentary in the literature on health libraries being shaped by their external environment (Brodman, 1971; Crawford, 1972; Murphy, 2011), but this study provides evidence of health libraries and librarians shaping their environment with the impact of their work. This was further reinforced by the final survey, in which it became clear that health library and information professionals were making contributions to individuals, the service, the organisation, organisational partnerships, regionally, nationally, and internationally.

The contributions identified in the survey could be categorised into five key areas of contribution, three of which are LIS skills categories: (1) literature searching and reviewing; (2) providing access to resources, collections and evidence; and (3) information literacy skills development, teaching and training. The other categories were generic: (4) management; and (5) research. The LIS skills accounted for 68.8 % of the categorised statements on impact (literature searching 45.8%, access to collection and resources 15.6%, IL teaching and training 7.4%), whilst the generic skills accounted for just 5% of the statements (management 3.1%, research 1.9%). The remaining respondents did not give examples that could be categorised.

The substantial number of contributions which drew on evidence-based skills such as literature searching and information literacy training is in line with the findings of previous research by Brettle, Hulme & Ormandy (2006, 2007). Their study found that both mediated searches and information skills training were rated as useful by health library users.

The impact made by the library and information professionals was sometimes seen to be *direct* e.g. having an immediate impact on the care of a patient, or a clinical decision, and in other cases *indirect* e.g. providing evidence that informs service or management changes, or training health professionals who then change the way they practise. These areas of impact could also be categorised as follows: (1) professional practice; (2) clinical or therapeutic decisions; (3) service effectiveness or management decisions; (4) health outcomes; (5) patient care; (6) learning, education and the evidence base. The patient, health, and clinical impact areas accounted for 39.1% of the categorised statements, the impact on learning, education and the evidence base was 25.3%, and impact on professional practice or service effectiveness accounted for 18.9%. The remaining respondents did not provide statements for categorisation.

These findings contribute to an existing evidence base of literature on the value and impact of health library and information services. Literature reviews (Bryant & Gray, 2006; O'Connor, 2002), systematic reviews (Brettle et al., 2011; Weightman & Williamson, 2005) and a randomised controlled trial of a clinical informatics service (Mulvaney et al., 2008) have all found that library and information services in healthcare contexts have positive impacts on patient care and clinical decision-making, among other measures.

It was notable in the present study that many respondents found it difficult to demonstrate impact and to gather the necessary evidence. Although they often recounted narratives which demonstrated contributions to healthcare, they seemed reluctant to lay claim to these as 'evidence'. This is perhaps unsurprising given that they work in an environment which places great emphasis on the role of high-quality statistical data in evidence-based medicine. However, qualitative accounts of contributions to healthcare could nevertheless play a useful role in reflecting the impact of health information professionals, particularly when used in conjunction with quantitative data from studies such as those cited above.

There are three key points that can be drawn from this data:
1) Specialist LIS skills are extremely important in supporting and making a contribution to healthcare particularly the evidence based skills;
2) Health information professionals have a direct impact on patient care, health outcomes and clinical decision-making, as well as making a more indirect contribution by supporting the education and learning of health students and professionals, improving and supporting professional practice, and making management and service decisions;
3) Demonstrating the value and impact of the profession is difficult, and there is room for a more strategic approach to gathering quantitative and qualitative evidence for the contributions made by health information professionals, and using that evidence to advocate their skills, the value of the services provided, and the contributions that they make.

4.10.Website recommendations

There was a mixed response to the possible value of a website, and what content should be on a website if one were developed. There was concern that any such site should not repeat what was being done elsewhere. Some respondents questioned the usefulness of a website due to the diversity of the profession and consequently the differing needs of individuals.

The most popular suggestion, mentioned by 120 respondents (23%) was that the website should provide access to, and information on, research literature and other information sources. There was support for the idea that the website could fulfil a useful function as a 'one-stop shop', providing links to existing resources (88 respondents, 17%). Some respondents pointed out that any such links would need to be categorised by subject in order for the website to be usable.

Other popular suggestions included a discussion forum; hosting or linking to e-resources for continuing professional development; case studies; and a shared body of open educational resources. A large number of other suggestions were also made.

Respondents also mentioned particular subject areas on which they would value information and guidance on the website, and the most popular of these were literature searching and new technologies.

It should be borne in mind that this was an open-ended question and respondents might have been more likely to mention website functions with which they were already familiar (e.g. discussion forums). Therefore consideration should also be given to options such as the 'Ask an expert' function which were mentioned by fewer respondents (17, 3%) but which were popular with focus group and interview participants, and/or which would fill a gap in current provision. Some website features, such as a wiki, were specifically mentioned by only a very small number of respondents (7, 1%) but might nonetheless be a good method of delivering other things which respondents mentioned, such as 'knowledge sharing' (36 respondents, 7%).

Many of the suggestions involve linking to other resources, or providing areas such as a discussion forum or wiki where the content is generated by site users themselves. Both of these options would be less labour-intensive than creating new resources for the website, but would still require ongoing maintenance of some form, such as keeping the information up-to-date or moderating discussions. It would therefore be necessary for EAHIL to have a plan in place for maintenance of any future website.

5. Limitations

There were limitations in the sample at all stages of the project as the data collection was constrained by the limited time and budget available. The focus groups took place in the UK and Sweden and so had a Northern European bias. The pilot survey was distributed at the EAHIL conference in Sweden which probably attracted a Scandinavian bias in terms of attendance. The interviews also took place at the EAHIL conference in Sweden. There was not just a country bias, but also a bias in job roles. People who agreed to take part in the interviews were predominantly senior staff. The main survey, which was distributed mainly via email lists, attracted a broader range of respondents but still suffered from a bias towards professional (rather than para-professional) staff members. Consideration needs to be given to attract all levels of staff in any future work.

Invitations to complete the survey were also distributed in Italian, French, German and English to try encourage a greater response from countries other than the UK. This again was limited to the languages spoken by the Research Associate. Funds were not available to enable the translation of the survey itself into all European languages.

The job title analysis shows a large number of respondents with 'library' roles. It may be that the survey attracted people from the library domain rather than the wider information profession.

Although we did intend to record 'day in the life' videos, professionals were not keen to be videoed, and this was not highly valued by respondents. Due to time limitations, this part of the project was de-emphasised. If further funding was granted, this could be considered in future work, along with the development of a website if this was deemed useful

The budget limited the amount of hours that could be dedicated to the project. We have tried to make maximum use of the Research Associate's time to enable a broad analysis of the dat. Any more detailed analysis would have to be continued in the team's own time, or if assitional funding could be secured.

6. Conclusions

- Opportunities for EAHIL to increase its membership as 72.65% of the survey respondents were not EAHIL members.
- There is an opportunity for EAHIL as an organisation to reach out to para-professional staff within the sector and encourage their engagement at conferences and events.
- There is a need for further research to capture more data from a wider range of countries, and levels of staff.
- The sector also has a challenge to improve the gender balance.
- Job titles in the sector reflect the key roles. Library roles continue to have relevance within the sector being predominant in the data, followed by 'information' roles. Other job titles reflect changes and trends in the sector for example 'clinical librarian', 'outreach', 'systematic reviews'.
- Some job roles have not penetrated the sector widely such as 'data management', and to some extent 'knowledge management'.
- The sector is diverse. However, most library and information professionals work within state healthcare and education, with fewer numbers working in the charity and voluntary sector, and in industry.
- This distribution across the sector is reflected in the user groups, which are dominated by healthcare workers (e.g. doctors, nurses, allied health professionals, healthcare managers) and educational users (e.g. researchers, medical students, student nurses). Proportionally, very few health library and information professionals provide services directly to patients and the public.
- Roles can be categorised into two broad areas: (1) Evidence-based roles and (2) management roles.
- The evidence-based roles focus on having knowledge of specialist information sources, being able to search those sources using advanced search skills (i.e. having advanced information literacy), being able to critically appraise the evidence, being able to teach and train others to search the evidence and retrieve quality information sources to support their healthcare work. There are also more specialist evidence-based roles such as supporting the development of guidance, policy frameworks and systematic reviews.
- The management roles could be further categorised into three areas: (1) generic management skills; (2) communication management skills; and (3) library service management skills.
- Skills acquisition is mainly through a mix of education and experience, though a wide range of methods were identified. The LIS degree forms a foundation, with health-specific knowledge and skills developed in the workplace and through experience.
- There is extensive engagement in a wide range of continuing professional development opportunities, both formal and informal, with the support of colleagues, peers, and regional and professional networks being highly valued.

- Respondents identified being members of over 160 different library organisations and other professional bodies, many of whom provided support, training and events (such as EAHIL).
- Specialist LIS skills are extremely important in supporting and making a contribution to healthcare.
- Respondents actively engaged in developing their skills in order to meet the challenges within the profession.
- Skills development needs identified focused on new technologies, though a wide range of other needs were identified. Specific areas included m-libraries (use of smartphones and tablets in libraries), research skills (including evaluation, statistics, etc.), social media, e-learning, and EBLIP (evidence-based library and information practice).
- Health information professionals have a direct impact on patient care, health outcomes and clinical decision-making, as well as contributing more indirectly through supporting the education and learning of health students and professionals, improving and supporting professional practice, and management and service decisions.
- Demonstrating the value and impact of the profession is difficult, and there is room for a more strategic approach to gathering both qualitative and quantitative evidence to support the contribution made by the profession, and using that evidence to advocate the skills, value of the services provided, and contributions that can be made.
- There was no consensus of opinion as to the value of having a website, the content on such a site, or how it should be managed. A wide variety of suggestions were received that sometimes conflicted.

7. Outputs

A number of outputs from the study have been disseminated to date with further outputs planned.

7.1. To date

Sen, B., Villa, R., & Chapman, E. (2014) Working in the health information profession: perspectives, experiences and trends. Project WHIPPET: an EAHIL 25th Anniversary Project. *Journal of EAHIL*, *9*(3), 49-50

Sen, B., Chapman, E. L. & Villa, R. (2014) *Working in the Health Information Profession: perspectives, experiences and trends. Project WHIPPET. Poster.* iConference, 4th-7th March 2014. Berlin, Germany.

Sen, B., Chapman, E. L. & Villa, R. (2014) *Working in the Health Information Profession: perspectives, experiences and trends. Project WHIPPET. Conference Proceedings.* iConference, 4th-7th March 2014. Berlin, Germany.

Chapman, E. (2014) *Working in the Health Information Profession: perspectives, experiences and trends. Project WHIPPET.* Teaching session, INF6370 Health Information module. Sheffield: University of Sheffield.

Sen, B. (2014) *Working in the Health Information Profession: perspectives, experiences and trends. Project WHIPPET.* Teaching session, INF6200 Academic and Research Libraries module. Sheffield: University of Sheffield.

Sen, B. & Villa, R. (2014) SURE Scheme. *Undergraduate Summer internship, to research health information resources to support health information and library professionals, and disseminate them via a website. Grant bid for further work.* Sheffield: University of Sheffield. Unsuccessful.

7.2. Planned outputs

Sen, B., Chapman, E. L., & Villa, R. (2014) Working in the Health Information Profession: Perspectives, Experiences and Trends: the results of an EAHIL funded 25th anniversary project. *14th EAHIL 2014 conference.* 11th-13th June. Rome, Italy.

Sen, B., Chapman, E.L., & Villa, R. (2014) 'A jack-of-all-trades': the key skills of health information professionals. *Health Libraries Group conference.* 24th-25th July. Oxford, UK.

Sen, B., Chapman, E. L., & Villa, R. (2014) Challenges, trends and changing roles. IFLA conference, 15th August, Lyons, France. (in review).

Further academic papers in peer reviewed journals, for example *Health Information and Libraries Journal (HILJ).*

LILAC conference paper, Newcastle, April 2015.

8. Future work

8.1. Further analysis

There is opportunity for further analysis of the data looking at further correlations in the data, comparative analysis, and possibly cluster analysis.

Country profiles could be established for some countries where there is a volume of data e.g. France.

Follow-up projects could include the development of the website if this was deemed valuable and a suitable means of maintaining the site could be agreed. A pilot website has been developed.

A further study looking at the impact of health library and information professionals as this appears to be a critical area.

A larger scale project or projects are recommended:

- Survey translated into all European languages to encourage a broader range of responses.
- A wider world survey including health information professionals outside Europe building on the existing data, and the extant literature.
- To capture the views of para-professionals whose views were not widely represented in this survey.

9. Website

A Project WHIPPET website was created using the 'Wordpress' software, and is currently running on a server at Sheffield University at the URL http://projectwhippet.shef.ac.uk. The front page of the website is shown in Figure 26, introduces the project, and includes an introduction by the project lead Barbara Sen.

Figure 26: Front page of the WHIPPET website

The website consists of the following pages:

- Posts: chronological list of news posts provided by the WHIPPET team
- Featured stories and experiences: the original intention was for the site to include interviews with members of the Health Information profession
- Resources: a list of different resources for Health Information Professionals
- Maps: a map of the (anonymised) location of respondents to the survey
- About WHIPPET: an information page about the project

As the project progressed, and the results from the focus groups, interviews and surveys were analysed, it became clear that the original intentions behind the website may not necessarily match the needs of the health information profession. The website does, however, provide a starting point for further work, which can be developed based on the results presented in this report.

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Appendix A: The pilot survey instrument

Project WHIPPET	**Working in the Health Information Profession: Perspectives, Experiences and Trends**

Questionnaire

Project WHIPPET is a one-year research project funded by EAHIL and carried out at the Information School, University of Sheffield, UK. The project aims to record the stories and experiences of health information professionals currently practising across Europe. The research will enable an understanding of the diversity and range of roles that exist in the health sector, and the critical nature of those roles in supporting effective healthcare.

Completion of the questionnaire implies consent for your answers to be used anonymously in the research. If you wish to withdraw from the research at a later date, please contact the project team: Barbara Sen (b.a.sen@sheffield.ac.uk) or Elizabeth Chapman (e.chapman@sheffield.ac.uk).

1. What is your job title?

2. What type of organisation do you work for?

○ State healthcare
○ Private healthcare
○ Charity / voluntary sector
○ Education sector (e.g. university, college)
○ Industry (e.g. pharmaceutical company)
○ Other (please specify)

3. What country do you work in?

4. Who are your main user groups? (e.g. clinicians, undergraduates, general public, etc.)

5. Please briefly summarise the key elements of your role (e.g. literature searching, information literacy training, outreach, etc.)

6. What are the main challenges you face in your role?

7. What key skills are needed to do your job?

8. How did you acquire these skills? Please tick all that apply

☐ Within the workplace
☐ University degree in library/information studies
☐ University degree in other subject (please specify)

☐ Short courses
☐ Mentoring
☐ Shadowing
☐ Professional networks
☐ Online learning
☐ Other (please specify)

9. Are there any areas in which you need to develop your skills?

10. Please give an example of a time when you felt you made a real impact in your job

11. As part of the project, we are developing a website to support information and knowledge sharing between health information professionals. What sort of resources would you like to see on the website?

12. What is your age?

○ 18 to 24
○ 25 to 34
○ 35 to 44
○ 45 to 54
○ 55 to 64
○ 65 or older
○ Rather not say

13. What is your gender?

○ Female
○ Male
○ Rather not say

14. Would you be interested in participating in later stages of the research? Please tick one or more boxes

☐ I would potentially be willing to take part in a face-to-face interview in the UK
☐ I would potentially be willing to take part in an interview by Skype or instant messenger
☐
    I do not wish to participate further, but would like to be informed of the results

If you have ticked any of the boxes above, please provide your email address:

Very many thanks for participating!

Appendix B: The main survey instrument (printout)

Working in the Health Information Profession: Perspectives, Experiences and Trends

Project WHIPPET (Working in the Health Information Profession: Perspectives, Experiences and Trends) is a one-year research project funded by EAHIL and carried out at the Information School, University of Sheffield, UK. The project aims to record the stories and experiences of health information professionals currently practising across Europe and beyond. The research will enable an understanding of the diversity and range of roles that exist in the health sector, and the critical nature of those roles in supporting effective healthcare.

Completion of the questionnaire implies consent for your answers to be used anonymously in the research. If you have any queries about the questionnaire or the project as a whole, please contact the project team: Barbara Sen (b.a.sen@sheffield.ac.uk) or Elizabeth Chapman (e.chapman@sheffield.ac.uk).

Please work through the questionnaire quickly and instinctively. It should take you around 10-15 minutes.

There are 18 questions in this survey

About you

1 [1]What is your gender?

Please choose only one of the following:

○ Male

○ Female

○ Rather not say

2 [2]What is your age?

Please choose only one of the following:

○ 18 to 24

○ 25 to 34

○ 35 to 44

○ 45 to 54

○ 55 to 64

○ 65 or older

○ Rather not say

3 [3]Are you a member of EAHIL (European Association for Health Information and Libraries)? *

Please choose **only one** of the following:

○ Yes

○ No

4 [4]Are you a member of any other professional organisation(s)? If yes, please write the name(s) of the organisation(s) in the comment box. *

Please choose only one of the following:

○ Yes

○ No

Make a comment on your choice here:

About your job

5 [5]What is your job title? *

Please write your answer here:

[   ]

---

6 [6]What sector(s) is your organisation based in? *

Please choose **all** that apply:

☐ State healthcare

☐ Private healthcare

☐ Charity / voluntary sector

☐ Education sector (e.g. university, college)

☐ Industry (e.g. pharmaceutical company)

☐ Other (please specify): [   ]

You may select more than one option. For example, if you work in a university hospital, you can select both 'State healthcare' and 'Education sector'.

---

7 [7]What country do you work in? *

Please write your answer here:

[   ]

8 [8]Who are your main user groups? *

Please choose **all** that apply:

☐ Doctors

☐ Nurses

☐ Allied health professionals

☐ Students

☐ Researchers

☐ Teaching staff

☐ Visiting scholars/readers

☐ Patients

☐ General public

☐ Librarians and other library staff

☐ Systematic reviewers / guidelines staff

☐ Management

☐ Other (please specify): [   ]

Please select all that apply.

About your roles and skills

9 [9] What are the key elements of your role? *
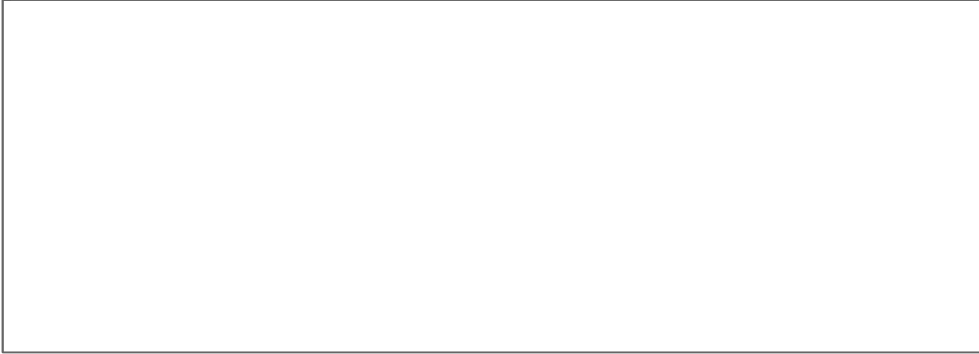
Please choose **all** that apply:

- ☐ Teaching/training
- ☐ Literature searching
- ☐ User support
- ☐ Reference desk work and customer service
- ☐ Collection development and management
- ☐ Inter-library loans and document supply
- ☐ Institutional repositories
- ☐ Academic publishing (including e-publishing)
- ☐ Cataloguing
- ☐ Indexing
- ☐ Strategic management
- ☐ Staff management
- ☐ Budget management
- ☐ Quality management
- ☐ Administrative work
- ☐ Marketing
- ☐ Partnership working
- ☐ Outreach
- ☐ Clinical Librarian work
- ☐ Guideline development
- ☐ Current awareness bulletins
- ☐ Research
- ☐ Library Management System management
- ☐ Website development and management
- ☐ Bibliometrics
- ☐ Other (please specify): [_____]

Please select all that apply.

10 [10]What are the main challenges you face in your role? *

Please write your answer here:

11 [11]What key skills are needed to do your job? *

Please choose **all** that apply:

- [ ] Information literacy / search skills
- [ ] Knowledge of sources
- [ ] Copyright knowledge
- [ ] Reference management skills
- [ ] Knowledge of trends in the library and information profession
- [ ] Knowledge of user needs
- [ ] Medical knowledge/terminology
- [ ] Knowledge of publishing
- [ ] Intellectual/analytic/problem-solving skills
- [ ] Research skills
- [ ] Teaching skills
- [ ] Administrative/organisational skills
- [ ] IT/technical skills
- [ ] Management skills
- [ ] Project management skills
- [ ] Leadership skills
- [ ] People skills
- [ ] Customer service
- [ ] Networking skills
- [ ] Communication skills
- [ ] Negotiating skills
- [ ] Advocacy/PR
- [ ] Presentation skills
- [ ] Foreign language skills
- [ ] Willingness to learn
- [ ] Flexibility
- [ ] Open-mindedness/creativity
- [ ] Eye for detail
- [ ] Time management skills
- [ ] Patience/calmness
- [ ] Concentration
- [ ] Resilience/determination
- [ ] Willingness to take risks
- [ ] Reflectivity/self-awareness
- [ ] Other (please specify):

Please select all that apply.

---

12 [12] How did you acquire these skills? Please give further details in the boxes where appropriate. *

Please choose **all** that apply and provide a comment:

☐ Within the workplace

☐ University degree in library/information studies

☐ University degree in other subject (please specify in the box)

☐ Short courses

☐ Mentoring

☐ Shadowing

☐ Professional networks (please specify which in the box)

☐ Online learning (e.g. distance learning, MOOCs)

☐ Attending conferences/seminars

☐ Reading

☐ Life experience

☐ Other (please specify in the box)

Please select all that apply. You may give further details in the boxes if you wish.

13 [13]Please rate these learning methods according to how useful they were for developing your skills *

Please choose the appropriate response for each item:

Only answer this question for the items you selected in question 12 ('How did you acquire these skills? Please give further details in the boxes where appropriate.')

	1 - Very useful	2	3	4	5 - Not useful at all
Within the workplace	○	○	○	○	○
University degree in library/information studies	○	○	○	○	○
University degree in other subject	○	○	○	○	○
Short courses	○	○	○	○	○
Mentoring	○	○	○	○	○
Shadowing	○	○	○	○	○
Professional networks	○	○	○	○	○
Online learning (e.g. distance learning, MOOCs)	○	○	○	○	○
Attending conferences/seminars	○	○	○	○	○
Reading	○	○	○	○	○
Life experience	○	○	○	○	○
Other	○	○	○	○	○

Please note that a particular learning method will only appear here if you selected it in the previous question.

14 [14] Are there any areas in which you need to develop your skills? You may give details of specific areas in the comment boxes if you wish. *

Please choose **all** that apply and provide a comment:

☐ Information literacy

☐ Knowledge of sources

☐ EBLIP (evidence-based library and information practice)

☐ Insight into user needs/context

☐ Understanding of licensing

☐ Open Access

☐ Library Management Systems

☐ m-libraries (use of smartphones and tablets in libraries)

☐ e-learning

☐ Social media

☐ Other IT developments (please specify)

☐ Teaching

☐ Research (including evaluation, statistics, etc.)

☐ Research Data Management

☐ Bibliometrics

☐ Medical knowledge

☐ Management (please specify any particular areas)

☐ Negotiating

☐ Marketing

☐ Partnership working

☐ Communication skills

☐ Time management

☐ Flexibility

☐ Other (please specify)

Please select all that apply. You may give further details of specific areas in the comment boxes if you wish.

15 [15] Please give an example of a time when you felt you made a critical contribution to healthcare: *

Please write your answer here:

About our research project

16 [16]As part of the project, we are developing a website to support information and knowledge sharing between health information professionals. What sort of resources would you like to see on the website? *

Please write your answer here:

17 [17]As part of the project, we are seeking health information professionals to make a short (no more than 5 minutes) 'Day in the Life' video for the project website. Is this something that you would potentially be interested in doing? If yes, please enter your email address in the comment box. *

Please choose only one of the following:

○ Yes

○ No

Make a comment on your choice here:

If you have selected 'yes', please write your email address in the comment box and a member of the project team will contact you. Your answers in this questionnaire will remain anonymous and will not be associated with your email address. If you decide you do not wish to make the video, you are free to change your mind at any time.

18 [18]Do you have any further comments?

Please write your answer here:

Appendix C: Distribution methods for main survey

Organisation	Distribution method	Country	Language in which survey invitation was sent
EAHIL	Mailing list	Europe-wide	English
HLG-members Jiscmail list	Mailing list	United Kingdom	English
LIS-medical Jiscmail list	Mailing list	United Kingdom	English
Bibliotherapy Jiscmail list	Mailing list	United Kingdom	English
IFLA Health and Biosciences Libraries	Mailing list	Europe-wide	English
University Health and Medical Librarians Group	Link sent via Twitter	United Kingdom	English
SHINE (Scottish Health Information Network)	LinkedIn group	United Kingdom (Scotland)	English
Patient Information Forum	Facebook page	United Kingdom	English
Health Science Libraries Group	Facebook page	Ireland	English
GIDIF-RBM [Italian biomedical librarians' association]	Facebook page	Italy	Italian
Arbeitsgemeinschaft für Medizinisches Bibliothekswesen [German medical librarians' group]	Facebook message	Germany	German
Ligue des Bibliothèques Européennes de Recherche (LIBER) [European research libraries association]	Mailing list	Europe-wide	English
Danmarks Forskningsbiblioteksforening (DF) / Denmark Research Library Association	Facebook page	Denmark	English
EBLIDA (European Bureau of Library, Information and Documentation Associations)	Mailing list	Europe-wide	English
Vereinigung Österreichischer Bibliothekarinnen und Bibliothekare (VOB) [Austrian library association]	Mailing list	Austria	German
Association of International Librarians and Information Specialists	Facebook page	International	English
Association des bibliothécaires français [French library association]	Facebook page	France	French
Agorabib [French library forum]	Forum	France	French
Berufsverband Information Bibliothek (BIB) [German library & information association]	Facebook page	Germany	German
Danmarks Biblioteksforening / The Danish Library Association	Facebook page	Denmark	English
Bibliotekarforbundet / Danish Union of Librarians	Facebook page	Denmark	English
Bibliotekarforbundet [Norwegian library group]	Facebook page	Norway	English

Norsk Bibliotekforening / Norwegian Library Association	Facebook page	Norway	English
Svensk Biblioteksförening / Swedish Library Association	Facebook page	Sweden	English
Svensk förening för informationsspecialister / Swedish Association for Information Specialists	Facebook page	Sweden	English
Library Association of Ireland	LinkedIn group	Ireland	English
Association des Professionnels de L'Information et de la Documentation (ADBS) [French information professionals' association]	Mailing list and LinkedIn group	France	French
InetBib [German library mailing list]	Mailing list	Germany	German
Archivistes Hospitaliers mailing list [French hospital archivists' mailing list]	Mailing list	France	French
Docpsy mailing list [French mental health information professionals' list]	Mailing list	France	French
Bibliodoc [French library & information mailing list]	Mailing list	France	French
Bibliosante [French health librarians' mailing list]	Mailing list	France	French
Réseau de documentalistes en Sciences de la Vie [French life sciences information professionals' network]	Mailing list	France	French
Réseau National des Documentalistes Hospitaliers [French hospital information professionals' network]	Facebook page, sent to mailing list by a French librarian	France	French
Swiss-lib mailing list	Mailing list	Switzerland	French, German and Italian
AIB-CUR (Associazione Italiana Biblioteche) [Italian library association]	Mailing list	Italy	Italian
Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA/ABSC)	Facebook page	Canada	English and French
CANMEDLIB mailing list	Mailing list	Canada	English and French
Medical Library Association	Mailing list	United States	English
American Health Information Management Association	Facebook page	United States	English
Bib-med [Spanish health libraries list]	Mailing list	Spain	English
Iwetel [Spanish library & information list]	Mailing list	Spain	English
Research team's personal contacts in	Email	Switzerland,	English and French

| health libraries | | Canada, Norway, Sweden, Finland | as appropriate |
| Research associate's personal Twitter account | Twitter | Primarily UK & US audience | English |

Appendix D: Focus group participants

Table 43: Details of focus group participants

Focus group code	Focus group date and location	Participant code	Role	Sector	Country
F1	Stockholm, 30th June 2013	FG21	Senior Information Manager	Government health organisation	UK (England)
		FG22	Academic Librarian	Education sector	Finland
		FG23	Librarian	Education sector	UK (England)
F2	Stockholm, 30th June 2013	FG24	Information Specialist	Industry	UK (England)
		FG25	Librarian	International health organisation	Switzerland
		FG26	Information Professional	Industry	The Netherlands
		FG27	Medical Librarian	State healthcare and Education sectors	Germany
		FG28	Librarian	Education sector	Switzerland
		FG29	Librarian	State healthcare	UK (England)
		FG30	Librarian	Education sector	Finland
F3	York, 16th May 2013	FG14	Reader Services Librarian	Professional body	UK (England)
		FG15	Information Specialist	Government health organisation	UK (England)
		FG16	Knowledge Manager	Government health organisation	UK (England)
		FG17	Library Assistant	State healthcare and Education sectors	UK (England)
F4	York, 16th May 2013	FG18	Senior Associate	Government health organisation	UK (England)
		FG19	Research Fellow	Education sector	UK (England)
		FG20	Quality Manager	State healthcare	UK (England)
F5	Sheffield, 6th March 2013	FG1	Faculty Team Librarian	Education sector	UK (England)
		FG2	Academic Liaison Assistant	Education sector	UK (England)
		FG3	Information Specialist	Education sector	UK (England)
		FG4	Senior Lecturer	Education sector	UK (England)

		FG5	Postgraduate Research Student and part-time Library Assistant	Education sector	UK (England)
		FG6	Faculty Team Librarian	Education sector	UK (England)
		FG7	Postgraduate Research Student in Health Information, formerly Library and Information Services Manager	Education sector, formerly State healthcare	UK (England)
		FG8	Medical Records Coordinator	Government health organisation	Kuwait
F6	London, 23rd April 2013	FG9	Information Scientist	Professional body	UK (England)
		FG10	Clinical Support Librarian	State healthcare and Education sectors	UK (England)
		FG11	Head of Evidence Review	Self-employed consultant, working for a non-UK healthcare provider	
		FG12	Information Manager	Charity / voluntary sector	UK (England)
		FG13	Director of Research and Information Services	Charity / voluntary sector	UK (England)

Appendix E: Interview summaries

1.1. Interview summary profile - Interview 1

1.1.1. Job title

Associate Professor

1.1.2. Qualifications

Masters in Library and Information Science (or equivalent).
Masters in another subject.
PhD (in a subject other than LIS)

1.1.3. Past experience

Jobs other than librarianship; Travelled and worked abroad; Experience in other libraries sectors - academic libraries; Past experience as a Library Director.

1.1.4. Roles

Teaching (primary role) library and information competencies to medical students, evidence-based practice, public health, research methods, research design, biostatistics, biomedical informatics.
Research and collaborating on research projects, and disseminating that research in the library and health literature. This role includes developing grant proposals, and being a Principal Investigator.

1.1.5. Challenges

Leadership – 'it's important for the whole ecology, the environment, the larger ecology of…where we work.'

1.1.6. Skills

Being organised and having an organised mind – an 'under-utilised and under-appreciated' skill.
Question formulation – the reference interview.
Research support, research methods, research consultations.
The ability to teach is an important skill.
People skills and the ability to work with others.

1.1.7. Skills acquisition

Library school – team work, group projects, inductive skills; Mentors – teaching skills; Second masters and PhD studies – research methods and research skills.

1.1.8. Training needs

Different research methods especially qualitative, Delphi techniques, focus groups, interviews.
Languages – Spanish. I'd like to be fluent in Spanish because of collaborations with countries where Spanish is the first language.
Develop the skills of writing a book.

1.1.9. Critical contributions

Working on interesting health or medical research projects you can make a contribution.
Creating new curriculum e.g. Evidence-based Practice.
Co-authored an article in prestigious pee reviewed medical journal, and presented at conferences.
Received professional awards and rewards for teaching – these awards are valued.
Getting published is an accomplishment, and tangible.

1.1.10.   Key quotes

'…I've never had a traditional job, and so I think it would be important for librarians to..young librarians, early in their career to try doing something completely different, and because for me, it's really paid off in my career.'
'…you have an astonishing amount of credibility if you do research yourself, as a librarian…and I think one of the future

trends probably for librarians…is librarians as researchers in their own right, doing research on library subjects…I would say so as much research as you can.'

'I think everything I've learned as a librarian helps me as a researcher and everything I've learned as a researcher helps me as a librarian.'

'..for whatever reason librarians I think ..either they undervalue themselves and they project that onto others, or maybe they're such modest people they don't maybe grab a little more acknowledgement for, for themselves…'

1.2.   Interview summary profile – Interview 2
1.2.1. Job title
Library Director
Faculty member of Library and Information Science Department.

1.2.2. Qualifications
Masters Library and Information Science.
PhD – LIS.

1.2.3. Past experience
In medical libraries.

1.2.4. Roles
Management.
Leadership.
Budget allocation.
Planning.
Decision making.
Co-ordinating servives.
Teaching = statistics, technical services, library science.

1.2.5. Challenges
Implementing new technologies.
Knowing user expectations and planning services for users.

1.2.6. Skills
English language skills.
Curiosity.
Professional competencies.
Literature search skils.
The ability to teach information literacy.
Knowledge of databases.

1.2.7. Skills acquisition
Education (Masters and PhD) – information management system, big data, management, metadata, semantic web, new technologies, research.
Reading.
Conferences.
Workshops.

1.2.8. Training needs

Data management and data management software.

1.2.9. Critical contributions

Planning and developing new services.

1.2.10. Key quotes

'..health science is changing a lot.. information dissemination and information production is different from other disciplines…changing very fast, very fast…today only one word, but in two years this is a thousand words.'

1.3. Interview summary profile – Interview 3

1.3.1. Job title

Health Promotion Librarian.

1.3.2. Qualifications

Masters (in a subject other than LIS)
Postgraduate qualification in LIS.

1.3.3. Past experience

All in health sector in various roles.

1.3.4. Roles

Strategic management.
Influencing and policy development.
Budgets.
Staff meeting.
Quality standards.
Developing papers and work plans.
Producing bulletins.

1.3.5. Challenges

Change – re-inventing completely different ways of working.
Move from physical to electronic.

1.3.6. Skills

Core library skills, information and...values.
Dealing with people, and negotiating.
Business approach.

1.3.7. Skills acquisition

Library school – library skills.
Experience – negotiation skills.

1.3.8. Training needs

Technology.

1.3.9. Critical contributions

Supporting a valued member of staff through a personal crisis.

Ensuring the survival of the service '…was enormously difficult. Really, really stressful, and we had to pull out every stop we could…and it took almost a year of meetings because we were just not gonna be going quietly.'

1.3.10. Key quotes
'I think partnerships are really valuable.'
'I think there's a massive future for libraries, you just have to be flexible, to re-invent yourself.'
'We've got an …equality gap in access to quality health information, however you define that, and we've got an opportunity as health information professionals to make sure that we maintain equitable access free at point of use. You can't argue with that as part of the inequality agenda. And increasingly people are recognising that there is an evidence base for making sure that we've got people that understand things. …So we've got a massive role here, massive…'

1.4. Interview summary profile – Interview 4

1.4.1. Job title
Library Director.
Adjunct Professor.

1.4.2. Qualifications
Masters LIS

1.4.3. Past experience
Schools sector. Academic sector. Government Libraries. A variety of roles in the health sector. Worked abroad.

1.4.4. Roles
Everything – library work, ordering books, circulation desk.
Teach research skills for evidence based medicine.
Course Director.

1.4.5. Challenges
Technological – keeping up with technology.
 Financial management.

1.4.6. Skills
Management.
Knowledge management
Social skills.
Human resources skills.
Library services management.
Teaching skills.

1.4.7. Skills acquisition
Work experience.
Education – library school.

1.4.8. Training needs

'...I have the skills...'

1.4.9. Critical contributions

Teaching literature searching.

1.4.10.   Key quotes

'I like the term librarian ...as opposed to information specialist...I think the profession of being a librarian is a whole lot different than just being an information specialist.'

1.5.   Interview summary profile – Interview 5

1.5.1. Job title

Library Director.

1.5.2. Qualifications

Masters LIS.

1.5.3. Past experience

In the health sector.

1.5.4. Roles

Teaching – Endnote, Mendeley, Word, Office.
IT projects.
Webmaster.
Inter Library Loans.

1.5.5. Challenges

Spreading the word that 'a library is more than books, and that the personnel within the walls have a lot of competence...showing our importance'

1.5.6. Skills

Information literacy, search skills.
Teaching search skills to others.
Curiosity – wanting to now new things.
Professional networking.
Understanding science.
Ability to evaluate articles.
Knowledge of literature.
Social media and the Internet.

1.5.7. Skills acquisition

From senior colleagues.
The Internet.
Library degree – 'not much', group work, problem based learning, structuring information, the web, coding, programming.

1.5.8. Training needs

'I'm not sure I can pinpoint one...there are always areas where you have training needs...'

1.5.9. Critical contributions

Involved in an interesting project for the rehabilitation of adults with physical disabilities. It's an evidence based project to find the best help to support people's lifestyles.
Have developed evidence based practice strategies over ten years and have seen the effect.

1.5.10.   Key quotes

'...exploring options is key'.
'I think we need to find ways to actually show them [users] in a documented way, what a difference we can make.'
'I've learned a lot along the way...'.

1.6.   Interview summary profile – Interview 6

1.6.1. Job title

Head of Planning.

1.6.2. Qualifications

Undergraduate in humanities. Masters in Library and Information Science.

1.6.3. Past experience

Range of previous experience, academic library, art gallery, special library.

1.6.4. Roles

Competence planning, and workforce planning. Knowledge management. Management.

1.6.5. Challenges

There are leadership challenges, and outreach challenges.

1.6.6. Skills

Leadership skills, and the ability to enthuse people. Need to be strategic, analytical, and have strong communication skills. Need to be organised. Need to be interested in people, and aware of the context both the library context and the medical context.

1.6.7. Skills acquisition

Some skills are part of my personality. Some learned in the workplace. Some acquired from being involved in professional networks. Other professionals can be inspirational. Also reading books and journal articles, from going to presentations, and courses. Learnt management theory at Library School e.g. budgeting, and strategy, and also some practical things such as cataloguing, and classification. Library School was good for problem based learning, and teamwork, and group work.

1.6.8. Training needs

To learn more about quality evaluation methods. Also about how the scientific communication is developing and also the research context.

1.6.9. Critical contributions

Developed a recruitment process and model that has been rolled out organisation wide.

1.6.10.   Key quotes

'..cooperation is absolutely crucial.'

'...you have to be self-confident and brave to go out and sometimes take a leader role...'

'...put the student or the patient or the researcher in the centre, and don't tell them what we could do for them, more listen to them, and say, well how can we help you.'

1.7.   Interview summary profile – Interview 7

1.7.1. Job title

Sub-Librarian.

1.7.2. Qualifications

Undergraduate in science; Masters in Library and Information Science.

1.7.3. Past experience

Traineeship in a special library; Law library; School library; Health libraries (medical and dentistry); Maternity leave; Academic library.

1.7.4. Roles

Managing the reading rooms. Managing team. Service delivery and development. Work with digital services. Member of the senior management team. Strategy. Leadership. Preservation and conservation. Copyright and legal issues. Being responsible for the culture of the organisation. Achieve organisational objectives. Have a clear vision.

1.7.5. Challenges

Change management is a challenge. The strategy is about innovation and change – that is challenging. Helping staff realise that the things are done has to change – review of working practices.

Economic recession. Staff losses are getting to a critical pitch and losing anymore would impact negatively on the service. Industrial relations can sometimes be challenging.

Challenge of different people coming into the profession, and communicating with then when they have different jargon and a different professional language, and reassuring librarians that they have a role going forward into the future.

1.7.6. Skills

Need to be a people person. Understand what motivates your team. How to communicate effectively. Need basic management skills, organisational skills, time management, project management, encourage creativity, engendering trust. Strategic management.

1.7.7. Skills acquisition

From other managers particularly experienced senior managers, and colleagues. Also learnt by mistakes. Learnt from peers. Learnt by doing. Learnt from other people including mentors. Learnt from professional organisations. In the workplace, and from experience. Learnt from other sectors.

1.7.8. Training needs

'I'll always have training needs.'

1.7.9. Critical contributions

Created and led on Endnote training that has been continued so is a sustainable model.
Ensuring funding continues. Also when supporting systematic reviews and being acknowledged when they are published.

1.7.10.   Key quotes

'I think we are trying to be a Jack of all Trades at the moment...I think we will get to a point, an it's slowly getting there, where we begin to realise that librarians have a particular role and function within the organisational library...but...we probably need to be bringing in technologists, we need to be bringing in computer programmers, and rather than thinking that we have to have all these kills, recognising that they are professions in their own right..'

'It's also very important that practitioners are reflective and are evidence based practitioners.'
'Librarians are ..very very generous with their time, with sharing practices, with sharing knowledge...don't do enough of it in the published literature....'
'...I like understanding information and how it's disseminated and how you search for it, and I love sharing that with others...this is what I do as a librarian, this is what I know as a librarian..'

1.8.   Interview summary profile – Interview 8

1.8.1. Job title

Information Specialist

1.8.2. Job title

Information Specialist

1.8.3. Qualifications

Undergraduate qualification in geology.
Masters in Information Science.

1.8.4. Past experience

Academic library; Library assistant work; Maternity leave; National Library; Part time work; Project work. Temporary work; Working in a Institute Library; Veterinary medicine library. Special library. Translation work;

1.8.5. Roles

Co-ordinating teaching. Statistics, administration, marketing, customer service.

1.8.6. Challenges

Budgeting and resource management; Marketing; Keeping up-to-date.

1.8.7. Skills

Pedagogical skills. Curiosity. Confidence. Positive thinking. Marketing attitude. ICT skills.

1.8.8. Skills acquisition

Through work. Continuing education. Short courses. Seminars. EAHIL conference.

1.8.9. Training needs

Research Data; Strategy and benchmarking; International co-operation.

1.8.10.   Critical contributions
User education; Embedded Information Specialist work, supporting clinical teams in a specialist area of medicine.

1.8.11.   Key quotes
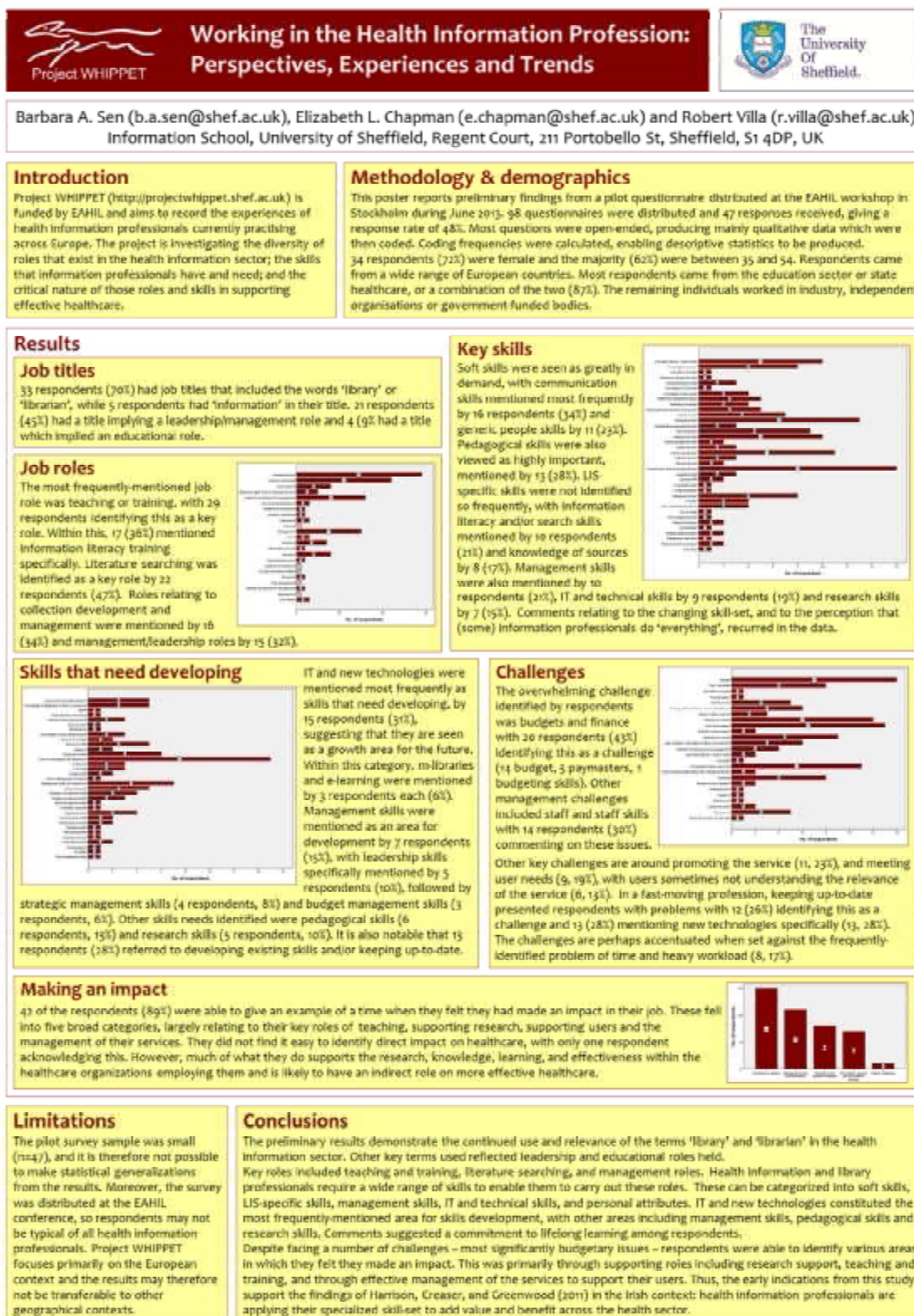*'I really like my work'.*
'I feel very privileged that I have such nice work.. I'm really lucky, I'm really lucky to be here, and I was lucky to participate on a co-operative project, and I think it's given me very much, even for the ...like...emotional level.'
'We need to have a future, and for future librarians and informations specialist, the young ones, and try to encourage.'

Appendix F: iConference 2014 poster based on the pilot survey

Working in the Health Information Profession: Perspectives, Experiences and Trends

Project WHIPPET

The University Of Sheffield.

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Introduction

Project WHIPPET (http://projectwhippet.shef.ac.uk) is funded by EAHIL and aims to record the experiences of health information professionals currently practising across Europe. The project is investigating the diversity of roles that exist in the health information sector; the skills that information professionals have and need; and the critical nature of those roles and skills in supporting effective healthcare.

Methodology & demographics

This poster reports preliminary findings from a pilot questionnaire distributed at the EAHIL workshop in Stockholm during June 2013. 98 questionnaires were distributed and 47 responses received, giving a response rate of 48%. Most questions were open-ended, producing mainly qualitative data which were then coded. Coding frequencies were calculated, enabling descriptive statistics to be produced. 34 respondents (72%) were female and the majority (62%) were between 35 and 54. Respondents came from a wide range of European countries. Most respondents came from the education sector or state healthcare, or a combination of the two (87%). The remaining individuals worked in industry, independent organisations or government funded bodies.

Results

Job titles

33 respondents (70%) had job titles that included the words 'library' or 'librarian', while 5 respondents had 'information' in their title. 21 respondents (45%) had a title implying a leadership/management role and 4 (9%) had a title which implied an educational role.

Job roles

The most frequently-mentioned job role was teaching or training, with 29 respondents identifying this as a key role. Within this, 17 (36%) mentioned information literacy training specifically. Literature searching was identified as a key role by 22 respondents (47%). Roles relating to collection development and management were mentioned by 16 (34%) and management/leadership roles by 15 (32%).

Key skills

Soft skills were seen as greatly in demand, with communication skills mentioned most frequently by 16 respondents (34%) and generic people skills by 11 (23%). Pedagogical skills were also viewed as highly important, mentioned by 13 (28%). LIS-specific skills were not identified so frequently, with information literacy and/or search skills mentioned by 10 respondents (21%) and knowledge of sources by 8 (17%). Management skills were also mentioned by 10 respondents (21%), IT and technical skills by 9 respondents (19%) and research skills by 7 (15%). Comments relating to the changing skill-set, and to the perception that (some) information professionals do 'everything', recurred in the data.

Skills that need developing

IT and new technologies were mentioned most frequently as skills that need developing, by 15 respondents (31%), suggesting that they are seen as a growth area for the future. Within this category, m-libraries and e-learning were mentioned by 3 respondents each (6%). Management skills were mentioned as an area for development by 7 respondents (15%), with leadership skills specifically mentioned by 5 respondents (10%), followed by strategic management skills (4 respondents, 8%) and budget management skills (3 respondents, 6%). Other skills needs identified were pedagogical skills (6 respondents, 13%) and research skills (5 respondents, 10%). It is also notable that 13 respondents (28%) referred to developing existing skills and/or keeping up-to-date.

Challenges

The overwhelming challenge identified by respondents was budgets and finance with 20 respondents (43%) identifying this as a challenge (14 budget, 5 paymasters, 1 budgeting skills). Other management challenges included staff and staff skills with 14 respondents (30%) commenting on these issues.

Other key challenges are around promoting the service (11, 23%), and meeting user needs (9, 19%), with users sometimes not understanding the relevance of the service (6, 13%). In a fast-moving profession, keeping up-to-date presented respondents with problems with 12 (26%) identifying this as a challenge and 13 (28%) mentioning new technologies specifically (13, 28%). The challenges are perhaps accentuated when set against the frequently-identified problem of time and heavy workload (8, 17%).

Making an impact

42 of the respondents (89%) were able to give an example of a time when they felt they had made an impact in their job. These fell into five broad categories, largely relating to their key roles of teaching, supporting research, supporting users and the management of their services. They did not find it easy to identify direct impact on healthcare, with only one respondent acknowledging this. However, much of what they do supports the research, knowledge, learning, and effectiveness within the healthcare organizations employing them and is likely to have an indirect role on more effective healthcare.

Limitations

The pilot survey sample was small (n=47), and it is therefore not possible to make statistical generalizations from the results. Moreover, the survey was distributed at the EAHIL conference, so respondents may not be typical of all health information professionals. Project WHIPPET focuses primarily on the European context and the results may therefore not be transferable to other geographical contexts.

Conclusions

The preliminary results demonstrate the continued use and relevance of the terms 'library' and 'librarian' in the health information sector. Other key terms used reflected leadership and educational roles held. Key roles included teaching and training, literature searching, and management roles. Health information and library professionals require a wide range of skills to enable them to carry out these roles. These can be categorized into soft skills, LIS-specific skills, management skills, IT and technical skills, and personal attributes. IT and new technologies constituted the most frequently-mentioned area for skills development, with other areas including management skills, pedagogical skills and research skills. Comments suggested a commitment to lifelong learning among respondents.

Despite facing a number of challenges – most significantly budgetary issues – respondents were able to identify various areas in which they felt they made an impact. This was primarily through supporting roles including research support, teaching and training, and through effective management of the services to support their users. Thus, the early indications from this study support the findings of Harrison, Creaser, and Greenwood (2011) in the Irish context: health information professionals are applying their specialized skill-set to add value and benefit across the health sector.

Appendix G: iConference 2014 Paper

Working in the Health Information Profession: Perspectives, experiences and trends. Project WHIPPET.

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Abstract
Project WHIPPET funded by the European Association for Health Information and Libraries (EAHIL) aims to understand the diversity of information roles in the health sector. A pilot survey was distributed at the EAHIL workshop, Stockholm (2013). Ninety-eight questionnaires were distributed and 47 completed responses were received (48% response rate). The results demonstrate the continued use of the terms 'library' and 'librarian'. Key roles are teaching and training, literature searching, and management. A wide range of skills and attributes are needed to carry out these roles. Soft skills were mentioned most frequently, followed by LIS skills, management, and IT skills. Skills development needs were identified, with IT and new technologies cited most frequently, followed by management and pedagogical skills. Issues relating to budgets and finance were identified as a major challenge. Other challenges included staff issues, new technologies, keeping up-to-date and promoting services. Impact is primarily through teaching, research support and effective service management. The issues will be explored through a wider survey and analysis of focus groups and interviews. The findings will support future planning, training and development within the profession.

Introduction

Project WHIPPET[8] aims to record the experiences of health information professionals currently practising across Europe. The project is investigating the diversity of roles that exist in the health information sector; the skills that health information professionals have and need; and the critical nature of those roles and skills in supporting effective healthcare in a rapidly changing environment (Brettle & Urquhart, 2012).

Pilot questionnaire

A pilot survey was distributed at the EAHIL workshop in Stockholm, Sweden during June 2013, prior to a full survey being distributed via EAHIL and other mailing lists. Ninety-eight questionnaires were distributed and 47 completed responses were received, giving a response rate of 48%. The survey questions are provided in Appendix 1. The majority of questions were open-ended producing mainly qualitative data. The data were then coded; coding frequencies were calculated, enabling descriptive statistics to be produced.

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[8] http://projectwhippet.shef.ac.uk

Thirty-four respondents (72%) were female and the majority, (62%) were between 35 and 54. Respondents came from a wide range of European countries, with three respondents coming from further afield (the Caribbean, United States and United Arab Emirates). Most respondents came from the education sector or state healthcare, or a combination of the two (87%). The remaining individuals worked in industry, independent organisations or government-funded bodies.
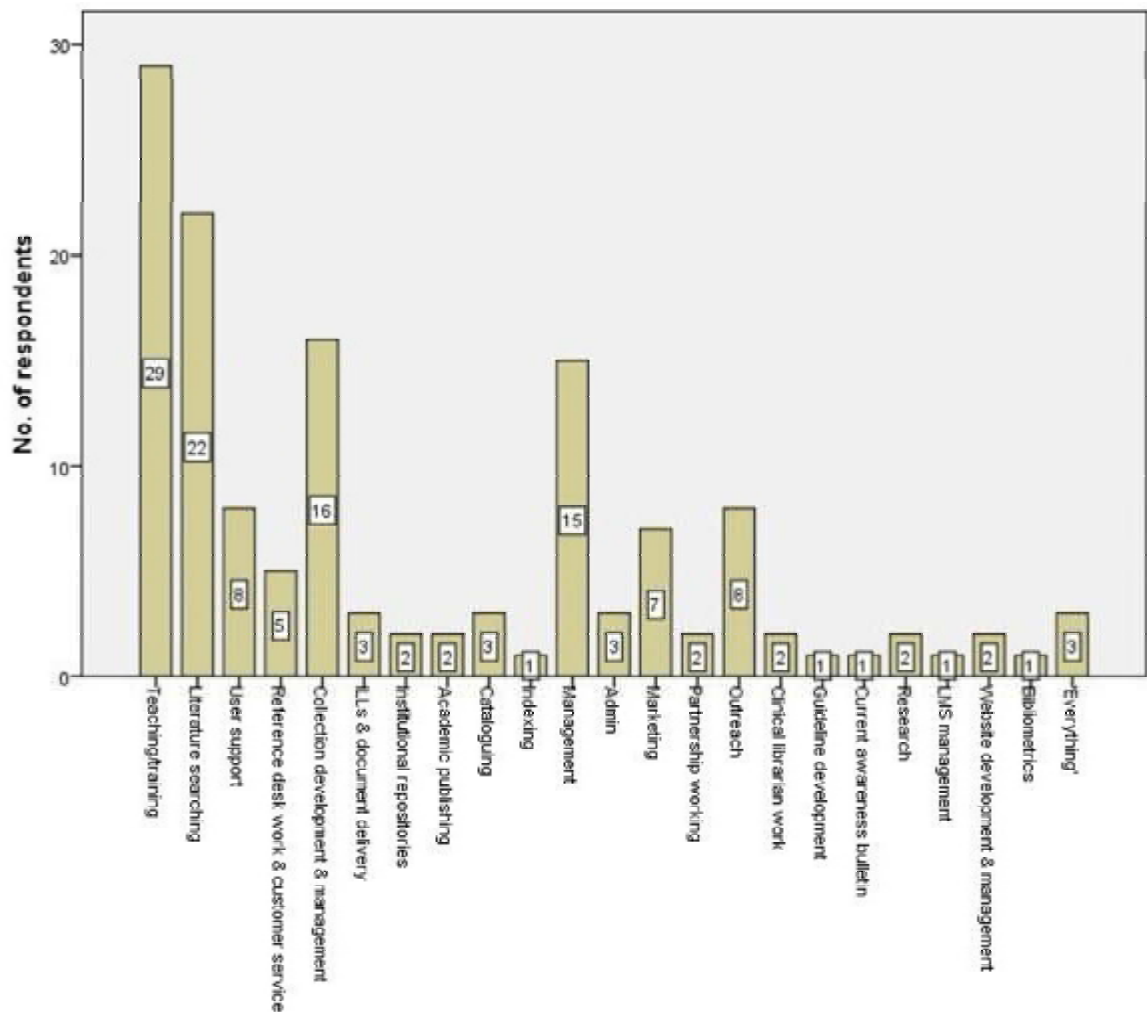

Figure 27: Job roles

Results

Job titles

Thirty-three respondents (70%) had job titles that included the words 'Librarian', or 'librarian', while five respondents (11%) had 'information' in their title. Twenty-one respondents (45%) had a title implying a leadership/management role and 4 (9%) had a title which implied an educational role.

Job roles (Figure 1)

The most frequently-mentioned role was teaching or training, with 29 respondents (62%) identifying this as a key role. Within this, 17 (36%) mentioned information literacy training specifically. Other types of training mentioned included data management training (1), critical appraisal training (1) and evidence-based medicine / research training (1).

Literature searching was identified as a key role by 22 respondents (47%). Roles related to collection development and management were identified by 16 (34%). This covered a range of roles including purchasing resources, negotiating licenses, and providing access to the resources.

Management roles such as strategic management, budget management, staff/competence management and quality management were mentioned by 15 respondents (32%).

Key skills (Figure 2)

Soft skills were seen as greatly in demand, with communication skills mentioned most frequently by 16 respondents (34%) and generic people skills mentioned by 11 (23%). Pedagogical skills were also viewed as highly important, mentioned by 13 (28%). LIS-specific skills were not identified so frequently, with information literacy and/or search skills mentioned by 10 respondents (21%) and knowledge of sources mentioned by eight (17%).

Management skills were mentioned by 10 respondents (21%). Some specific areas of management were identified such as people management (3, 6%); change management (2, 4%); financial management (2, 4%); and strategic management (1).

IT and technical skills were mentioned by 9 respondents (19%) and research skills by 7 (15%). Research skills were employed in a variety of different contexts. One respondent carried out his own research, while others specified that they used research skills to carry out surveys or performance management. Others found knowledge of research methodology useful in assessing evidence.

The most frequently-mentioned personal attribute was willingness to learn or intellectual curiosity, mentioned by 8 respondents (17%). Comments relating to the changing skill-set, and to the perception that (some) information professionals do 'everything', recurred in the data.

Other than willingness to learn, there seemed to be relatively little consensus about the personal qualities required for the job. This may reflect the wide range of roles carried out by respondents.

Skills that need developing (Figure 3)

IT and new technologies were mentioned most frequently as skills that need developing, by 15 respondents (31%) suggesting that they are perceived as a growth area for the future. Within this category, some specific areas were mentioned, such as m-libraries (3 respondents, 6%) and e-learning (3 respondents, 6%). Management skills were mentioned as an area for development by 7 respondents, (15%). Within this category, the most frequently mentioned area was leadership skills (5 respondents, 10%), followed by strategic management skills (4 respondents, 8%) and budget management skills (3 respondents, 6%). Other skills needs identified were pedagogical skills (6 respondents, 13%), and research skills, 5 respondents (10%).

Aside from the areas discussed above, there seemed to be relatively little consensus on the skills that need developing: a large number of areas were each identified by a minority of respondents. This may reflect the range of roles carried out by health information professionals.

It is also notable that 13 respondents (28%) made reference to developing existing skills and/or keeping up-to-date. Comments included, *"Always looking to hone existing skills"* and *"In different trends like research data - there is always something to develop!"* This suggests that in many cases, respondents are building on knowledge rather than acquiring skills from scratch.
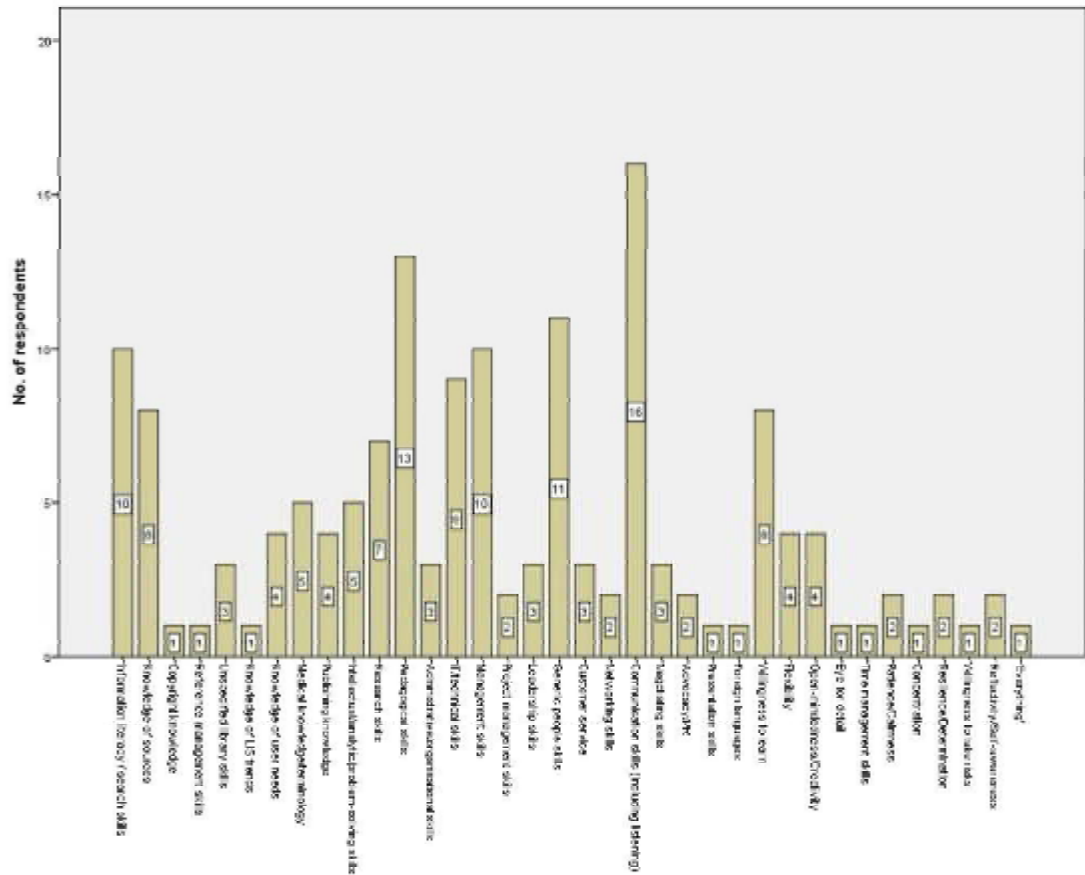
Figure 28: Key skills
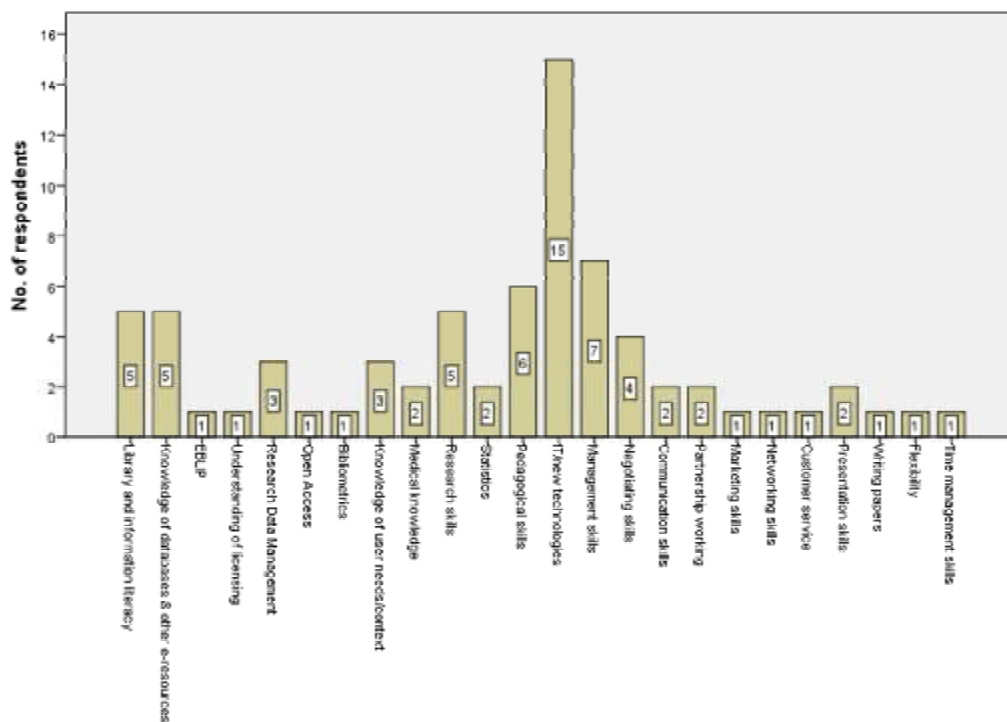
Figure 29: Skills that need developing

Challenges (Figure 4)

The overwhelming challenge identified by respondents was budgets and finance with 20 respondents (43%) identifying this as a challenge (14 budget, 5 paymasters, 1 budgeting skills). Other management challenges identified included staff and staff skills with 14 respondents (30%) commenting on these issues. Another key challenge is around promoting the service (11, 23%), and meeting user needs (9, 19%), with users sometimes not understanding the relevance of the service (6, 13%). In a fast-moving profession, keeping up-to-date presented respondents with problems with 12 (26%) identifying this as a challenge and 13 (28%) mentioning new technologies specifically (13, 28%). This tallies with the findings presented in section 3.4, which showed that IT and new technologies constituted the most frequently mentioned area where skills development was needed. The challenges are perhaps accentuated when set against the frequently-identified problem of time and heavy workload (8, 17%).
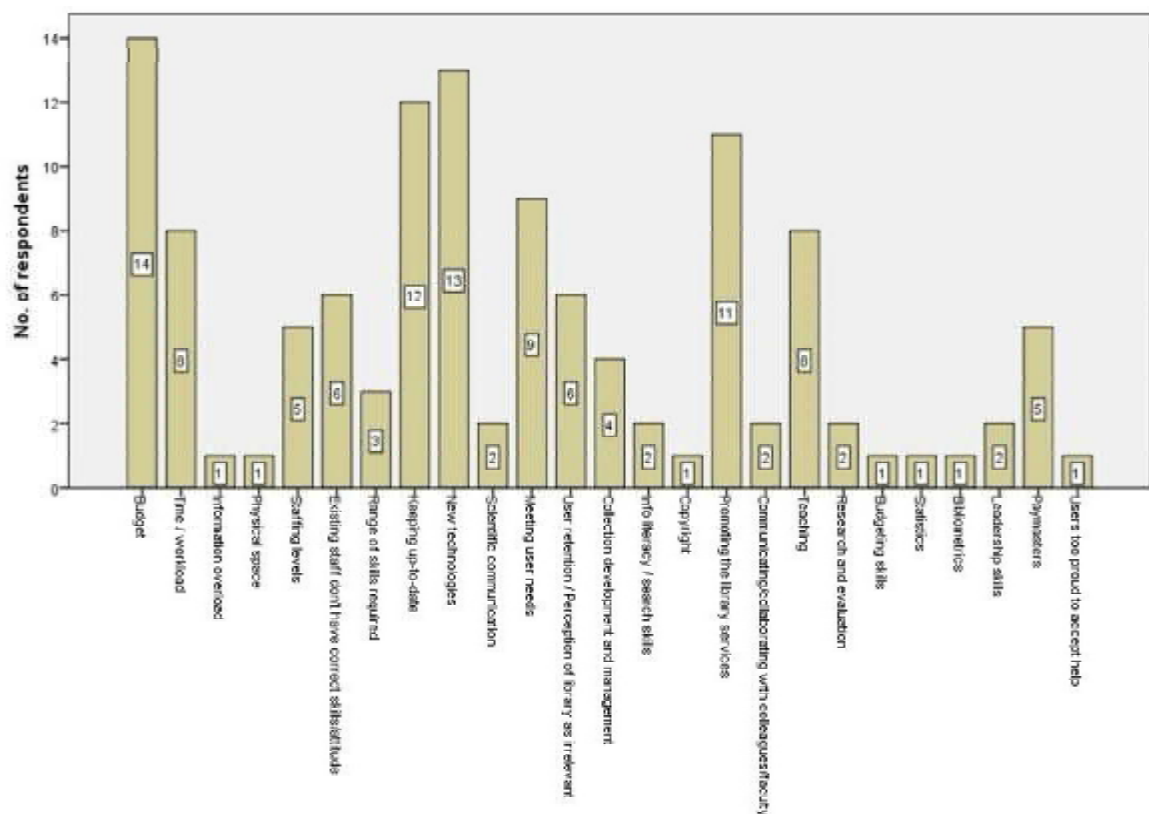
Figure 30: Challenges faced

Making an impact

Despite the challenges, 42 of the respondents were able to give an example of a time when they felt they had made an impact in their job. These fell into six categories (Figure 5) largely related to their key roles of teaching, supporting research, supporting users and the management of their services. They did not find it easy to identify direct impact on healthcare, with only one respondent acknowledging this. However, much of what they do supports the research, knowledge, learning, and effectiveness within the healthcare organizations employing them and is likely to have an indirect role on more effective healthcare.
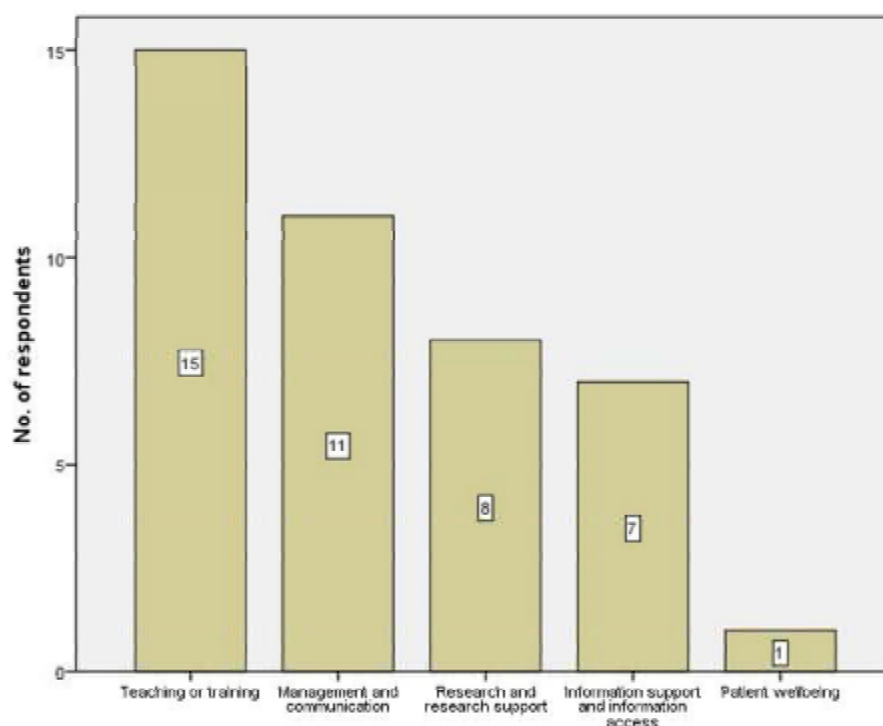
Figure 31: Ways in which health information professionals make an impact

Limitations

The pilot survey sample was small, and it is therefore not possible to make statistical generalizations from the results. Moreover, the survey was distributed at the EAHIL conference, so respondents may not be typical of all health information professionals. Project WHIPPET focuses primarily on the European context and the results may therefore not be transferable to other geographical contexts.

The main survey endeavours to address some of these limitations. A link to the online survey was distributed via the EAHIL mailing list and national mailing lists aimed at (health) library and information professionals. 512 usable responses have been received. In addition, analysis of focus group and interview transcripts will provide more in-depth data on health information professionals' roles, skills and career paths, and on the contributions they make to effective healthcare.

Conclusion

The preliminary results demonstrate the continued use and relevance of the terms 'library' and 'librarian' in the health information sector. Other key terms used reflected leadership and educational roles held by those surveyed.

Key roles included teaching and training, literature searching, and management roles. Health information and library professionals require a wide range of skills and attributes to enable them to carry out these roles. These can be categorized into soft skills, LIS-specific skills, management skills, IT and technical skills, and personal qualities.

Throughout Europe, countries have identified the need for increased skills and professional standards to meet changing demands on health information professionals (Robu & Bakker, 2010; Tsalapatani & Kalogeraki, 2010). The findings of the present study contribute to this growing body of knowledge by identifying areas in which health information professionals felt their skills needed developing. IT and new technologies constituted the most frequently-mentioned area, other areas identified being management skills, pedagogical skills and research skills. Comments suggested a commitment to lifelong learning among respondents.

Despite facing a number of challenges – most significantly budgetary issues – respondents were able to identify various areas in which they felt they made an impact. This was primarily through supporting roles including research support, teaching and training, and through effective management of the services to support their users. Thus, the early indications from this study support the findings of Harrison, Creaser, and Greenwood (2011) in the Irish context: health information professionals are applying their specialized skill-set to add value and benefit across the health sector.

Appendix 1: Survey questions

1. What is your job title?

2. What type of organisation do you work for?

   o   State healthcare

   o   Private healthcare

   o   Charity / voluntary sector

   o   Education sector (e.g. university, college)

   o   Industry (e.g. pharmaceutical company)

   o   Other (please specify)

3. What country do you work in?

4. Who are your main user groups? (e.g. clinicians, undergraduates, general public, etc.)

5. Please briefly summarise the key elements of your role (e.g. literature searching, information literacy training, outreach, etc.)

6. What are the main challenges you face in your role?

7. What key skills are needed to do your job?

8. How did you acquire these skills? Please tick all that apply

   ☐   Within the workplace

   ☐   University degree in library/information studies

   ☐   University degree in other subject (please specify)

   ☐   Short courses

   ☐   Mentoring

   ☐   Shadowing

- ☐   Professional networks
- ☐   Online learning
- ☐   Other (please specify)

9. Are there any areas in which you need to develop your skills?

10. Please give an example of a time when you felt you made a real impact in your job

11. As part of the project, we are developing a website to support information and knowledge sharing between health information professionals. What sort of resources would you like to see on the website?

12. What is your age?

- o   18 to 24
- o   25 to 34
- o   35 to 44
- o   45 to 54
- o   55 to 64
- o   65 or older
- o   Rather not say

13. What is your gender?

- o   Female
- o   Male
- o   Rather not say

14. Do you have any comments about the design of this questionnaire?

15. Would you be interested in participating in later stages of the research? Please tick one or more boxes

- ☐   I would potentially be willing to take part in a face-to-face interview in the UK
- ☐   I would potentially be willing to take part in an interview by Skype or instant messenger
- ☐   I do not wish to participate further, but would like to be informed of the results

If you have ticked any of the boxes above, please provide your email address

References

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Robu, I. & Bakker, S. (2010). The EAHIL register of professional competences. Journal of EAHIL, 6(4), 15-16.

Tsalapatani, E. & Kalogeraki, E. (2010). Training needs of health science librarians in Greece. Journal of EAHIL, 6(4), 10-14.

Appendix H: Responses to the Main Survey

Table 44: Number of respondents who were members of other professional organisations.

Organisation	Freq	Organisation	Freq
AAAS	1	HTAi	2
AALL	1	IFLA	2
AAO	1	IG WBS Interessengemeinschaft	1
ABD	1	IRG	1
ABU Asociacion de Bibliotecalogos del Uruguay	1	Institute for Healthcare Management	1
ACA	1	InterTASC	1
AcademyHealth (health services research organization)	1	Irish Healthcare Libraries Group	1
ADBS (Association des professionnels de l'information et de la documentation - Association of Information and Documentation professionals	18	ISSG	2
ADBU	1	ISSI	1
AGMB (Arbeitsgemeinschaft Medizinischer Bibliotheken)	10	Italian Federation of Speech Pathologist	1
AHIMA	1	Italian Group of Biomedical and Pharmaceutical Libraries	1
AIB Associazione Italiana Biblioteche	10	Koninklijke Nederlandse Vereniging van Informatieprofessionals KNVI	5
AIFBD	1	LAI	2
AILIS	1	LIBER	1
American Association of Colleges of Pharmacy	2	Lebansese Library Association	1
American Library Association (ALA)	7	LIANZA (Library and Information Association of Australia and New Zealand)	1
American Medical Library Association	1	Library Association of Ireland	5
American Records Management Association	1	Libraries for Nursing (LFN)	5
American Society for Training and Development	1	LIRG	1
ANABAD	1	MAC-MLA	1
ANCHASL	1	MAHSLIN	1
APDIS (Portugal)	4	Maritime Health Libraries Association (Canada)	3
APLA	1	Medical and Health Librarians Association of the Philippines	1
APSID-CI (Cote d'Ivoire)	1	Medical Libraries Association	25
ARA	1	Medical Library Group of Southern California and Arizona (MLGSCA)	1
ARIHSL	1	MET	1
Ascodocpsy	5	MHLA	2
Asociacion Espanola de Documentacion e Informacion (SEDIC)	1	MMIT	2
Association des professionnels de l'information	1	NAHSL	2
Association for Health Information and Libraries in Africa	1	NEDS	1
Association for Information Science and Technology	1	Netzwerk Fachbibliotheken Gesundheit - CH	4
Association of Independent Information Professionals (AIIP)	1	NIBI: Dutch Institute of Biologists	1
ASTED (Quebec)	3	NICE	1
Atlantic Provinces Library Association (APLA)	2	North Atlantic Health Sciences Libraries	1

AWHILES	1	Northern Alberta Health Libraries Association	1
BAD (Associano Portuguesa de Biblioteca¡rios, Arquivistas e Documentalistas)	3	Norwegian Library Association	3
BBS Switzerland	1	Nursing and Allied Health Resources Section (NAHRS - MLA)	1
Berufsverband Information Bibliothek	1	NVB	1
BIB Bibliothek Information Schweiz	2	OALT/ABO	1
BIB Info (Bibliothek Information Ostschweiz)	1	OHLA	1
Bibliothecarii Medicinae Fenniae	1	ONLUS	1
BIS (Bibliothek Information Schweiz)	7	Ontario Government Libraries Association	1
BMF	1	Ontario Health Library Association	2
BMI	1	Ontario Library Association	1
BSF	1	Ontario Public Health Library Association	1
Canadian Health Libraries Association	34	Ottawa Valley Health Libraries Association (Canada)	1
Canadian Libraries Association	3	OVHLA	1
Canadian Medical Libraries Association	1	Patient Information Forum	1
Canadian Public Health Association	1	PiF	1
Chartered Institute of Library and Information Professionals (CILIP)	161	Pro Senectute Schweiz	1
CHILL	2	Raleigh Law Librarians Association	1
CHIPIG	1	RBDH	1
CIFAV	1	RBM	1
CIFBD	1	REBISALUD	1
CIOL	1	Red de Bibliotecas Virtuales de Salud (eHealth Libraries Network)	1
COBDC	1	Reseau Banque de donnes en sante publique (BDSP)	1
Cobire (Coordinamento delle biblioteche e centri di documentazione della Toscana)	1	Reseau des Ecoles de service public (RESP)	1
Cochrane IRMG	1	Reseau National des Documentalistes Hospitaliers (RNDH)	13
Colegio Oficial de Bibliotecarios y Documentalistas de la Comunidad Valenciana (Espania).	1	RUIS de l'UdeM	1
Croatian Library Association	1	REDOVIE	1
Deutsche Physikalische Gesellschaft - DPG	1	RENATIS	2
Dokumentation-Information-Kultur DIK [trade union, Sweden]	1	SEDIC (Spain)	6
EASE	1	SFIS (Sweden)	2
East of England Health Libraries Network	1	SHINE (Scottish Health Information Network)	3
EMA	1	SMH (Norway)	1
European Association of Development Research Institutes EADI	1	Society for General Microbiology	1
European Coordinating Committee for Artificial Intelligence ECCAI	1	Society of Indexers	1
European Patient Academies for Therapeutic Innovation EUPATI	1	Special Libraries Association	7
GIDIF-RBM (Italy)	4	Suomen arvostelijoiden liitto	1
GIM	1	Suomen kirjastoseura	1
Greater Edmonton Library Association	1	Suomen tieteellinen kirjastoseura	1
Greek Librarians Association	1	Svensk Biblioteksforening	2
Groupe Doc Ile de France (FRANCE)	1	THLA	1
Groupe Romand des Bibliothecaires de Sante et du Social (GRBS)	1	Toronto Health Libraries Association	3

Halifax Library Association (HLA)	1	UHMLG	1
Health Libraries Association of B.C.	3	UKCHIP	4
Health Libraries Group (HLG)	19	UKEIG	5
Health Libraries Group Wales	1	UKSG	1
Health Libraries North	1	UML	1
Health Science Information Consortium of Toronto	1	UMLUG	1
Health Sciences Library Consortium	1	Verein Deutscher Bibliothekare - VDB	2
Health Sciences Librarians of Illinois	2	Vereinigung Osterreichischer Bibliothekarinnen und Bibliothekare	1
Higher Education Academy (HEA)	2	VVBAD	1
HIMSS	1	WAME Italy	1
HSICT	1	Wissenschaftliche Bibliothekare	1
HSLG	2		

Table 45: Key elements of the job role as identified by the respondents under 'Other'.
All single counts unless otherwise state in brackets (n)

Abstracting	Library assistant tasks
Archives (4)	Library planning and development
Athens administrator	Local health portal for professionals
Bibliotherapy	Maintaining e-access
Conducting systematic review	Managing social media presence and blog
Conference Center Management	Medical terminology
Contract negotiations	Patient Education & Empowerment Team Coordinator
Copyright information point (2)	Privacy: Information Assurance
Critical appraisal	Project management (2)
Data Protection	Promotion management
Database management (2)	Records Management (2)
Database management	Researching in specialized databases
E-journals administration	Searching internal database
e-learning (2)	Social media (2)
Going to meetings.	Standards development
Information & signposting for the public	Student management
Information Management	Systematic Review work (2)
Information Risk Management	Taxonomy development
Intranet Management,	Tools 2.0 development
Journals - book binder	Translating & language editing (2)
Knowledge Management (3)	

Training skills. Knowledge about patents and trademarks.
Information design (for newsletters)
Tea-maker! It does sometimes feel that we are everything and nothing!
Pragmatic, sense of humour
Web development & design skills & social media
Data protection knowledge and skills
Thinking differently, mentoring
Persistence
Vision and drive
Financial, horizon scanning,
Empathy; Honesty
Pro-activity : taking part to every activities of the school (meetings, shows, working groups, courses,...) to observe and then adapt services.
Team working skills - taking responsibility for myself and being self-directed whilst contributing to quite a large team of colleagues.
Picture research skills
Critical appraisal skills
Multitasking
Diplomacy / tact
Versatility
Diplomacy
Health Literacy, Community development
Curiosity
Quickness
Juggling
Time

Element of the role	Number	Percentage
Literature searching	369	72
Teaching training	329	64
User support	316	61
Collection development and management	253	49
Reference desk work and customer service	235	46
Administrative work	193	38
Marketing	183	36
Staff management	179	35
Cataloguing	178	35
Website development and management	175	34
Budget management	174	34
Inter library loans and document supply	168	33
Strategic management	144	28
Current awareness bulletins	138	27
Outreach	127	26
Quality management	126	25
Research	125	24
Library Management System management	117	23
Partnership working	110	21
Indexing	100	19
Clinical Librarian work	96	19
Institutional repositories	60	12
Guideline development	57	11
Bibliometrics	47	9
Other	47	9
Academic publishing including e-publishing.	24	5

Check box clicked	Number	Percentage
Information literacy / search skills	435	84.96
Knowledge of sources	452	88.28
Knowledge of user needs	428	83.59
Communication skills	409	79.88
Flexibility	398	77.73
Willingness to learn	367	71.68
Medical knowledge terminology	355	69.34
People skills	353	68.95
Administrative organisational skills	346	67.58
Open mindedness creativity	346	67.58
IT technical skills	338	66.02
Time management skills	341	66.60
Teaching skills	329	64.26
Customer service	326	63.67
Concentration	322	62.89
Patience calmness	321	62.70
Research skills	315	61.52
Presentation skills	313	61.13
Eye for detail	309	60.35
Copyright knowledge	303	59.18
Knowledge of trends in the LIS profession	302	58.98
Networking skills	293	57.23
Reference management skills	285	55.66
Intellectual analytic problem solving skills	267	52.15
Project management skills	264	51.56
Reflectivity self-awareness	256	50.00
Management skills	234	45.70
Leadership skills	207	40.43
Negotiating skills	206	40.23
Advocacy.PR	156	30.47
Knowledge of publishing	137	26.76
Foreign language skills	119	23.24
Resilience, determination	268	52.34
Willingness to take risks	180	35.16

	Counts (1 very useful, 5 Not useful at all)					
	1	2	3	4	5	NA's
Within the workplace	349	78	27	11	2	46
University degree in library/information studies	121	134	109	35	5	108
University degree in other subject	43	69	50	9	4	337
Short courses	111	153	37	10	1	201
Mentoring	50	35	11	6	0	410
Shadowing	29	24	6	1	0	452
Professional networks	126	80	29	6	1	271
Online learning (e.g. distance learning. MOOCs)	37	54	41	9	1	370
Attending conferences/seminars	118	140	59	8	1	186
Reading	122	144	70	4	2	170
Life experience	222	116	26	7	1	141

	# Checkboxes clicked	% clicked	# Comments entered
Information literacy	96	18.75	13
Knowledge of sources	155	30.27	30
EBLIP (evidence-based library and information practice)	170	33.20	18
Insight into user needs/context	150	29.30	15
Understanding of licensing	136	26.56	12
Open Access	156	30.47	9
Library Management Systems	59	11.52	6
m-libraries (use of smartphones and tablets in libraries)	231	45.12	21
e-learning	171	33.40	12
Social media	171	33.40	16
Other IT developments	51	9.96	32
Teaching	110	21.48	13
Research (including evaluation statistics etc.)	185	36.13	23
Research Data Management	106	20.70	7
Bibliometrics	115	22.46	7
Medical knowledge	129	25.20	14
Management	67	13.09	42
Negotiating	94	18.36	8
Marketing	93	18.16	9
Partnership working	58	11.33	3
Communication skills	96	18.75	13
Time management	90	17.58	9
Flexibility	27	5.27	5
Other	27	5.27	25

Table 51: Responses to Main Survey Question 11, split by Age. The percentage of respondents in each age range who have selected the key skill are shown, along with the number of respondents in each age group.

Age group	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	NA	Rather not say
Number of respondents in each age group	8	101	132	142	109	13	6	2
Information Literacy	62.5	91.1	87.9	82.4	82.6	61.5	83.3	100
KnowledgeOfSources	50	86.1	92.4	88.7	86.2	84.6	100	100
CopyrightKnowledge	0	54.5	54.5	66.2	64.2	38.5	83.3	100
ReferenceManagementSkills	25	49.5	59.8	60.6	55	23.1	50	100
KnowledgeOfTrends	25	52.5	59.1	56.3	64.2	84.6	100	100
KnowledgeOfUserNeeds	50	84.2	84.1	83.1	84.4	76.9	100	100
MedicalKnowledgeTerminology	25	69.3	68.2	71.8	73.4	61.5	33.3	50
KnowledgeOfPublishing	12.5	17.8	26.5	31	27.5	53.8	16.7	50
IntellectualAnalyticProblemSolving	12.5	56.4	47	53.5	53.2	46.2	83.3	100
ResearchSkills	37.5	61.4	65.2	64.8	53.2	61.5	66.7	100
TeachingSkills	62.5	64.4	68.2	65.5	57.8	61.5	50	100
AdministrativeOrganisational	0	65.3	62.9	71.1	72.5	69.2	100	100
ITTechnical	12.5	62.4	67.4	72.5	66.1	30.8	66.7	100
Management	12.5	36.6	41.7	50.7	49.5	61.5	83.3	100
ProjectManagement	12.5	53.5	51.5	52.8	51.4	38.5	50	100
LeadershipSkills	0	34.7	34.1	44.4	47.7	46.2	83.3	50
PeopleSkills	37.5	62.4	68.2	69.7	73.4	76.9	100	100
CustomerService	12.5	63.4	65.2	66.2	61.5	61.5	66.7	100
NetworkingSkills	0	54.5	57.6	56.3	60.6	69.2	83.3	100
CommunicationSkills	25	81.2	79.5	83.1	78	84.6	66.7	100
NegotiatingSkills	0	25.7	39.4	47.2	46.8	46.2	33.3	100
AdvocacyPR	25	29.7	23.5	32.4	35.8	38.5	16.7	100
PresentationSkills	25	52.5	62.1	65.5	63.3	61.5	66.7	100
ForeignLanguage	12.5	18.8	22.7	25.4	25.7	30.8	0	50
WillingnessToLearn	37.5	69.3	70.5	73.9	73.4	69.2	83.3	100
Flexibility	0	77.2	75	81	81.7	69.2	100	100
OpenMindednessCreativity	12.5	63.4	65.2	70.4	72.5	69.2	83.3	100
EyeForDetail	12.5	57.4	59.8	64.1	61.5	46.2	83.3	100
TimeManagement	12.5	65.3	61.4	71.8	69.7	61.5	83.3	100
PatienceCalmness	0	62.4	63.6	70.4	55	61.5	66.7	100
Concentration	25	56.4	62.9	68.3	65.1	46.2	66.7	100
ResilienceDetermination	0	41.6	52.3	60.6	56	30.8	66.7	100
WillingnessToTakeRisks	0	27.7	32.6	38	41.3	38.5	50	100
ReflectivitySelfAwareness	12.5	46.5	49.2	52.1	53.2	30.8	83.3	100

Table 52: Responses to Main Survey Question 12, split by Age. The percentage of respondents in each age range who have acquired their skills using the given methods are shown, along with the number of respondents in each age group.

Age group	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	NA	Rather not say
Number of respondents in each age group	8	101	132	142	109	13	6	2
Within the Workplace	87.5	88.1	93.9	90.1	91.7	84.6	100	100
University Degree in Library/Information Studies	50	88.1	84.1	76.1	70.6	69.2	66.7	100
University Degree in Other Subject	12.5	34.7	33.3	35.2	37.6	23.1	16.7	0
Short Courses	12.5	48.5	55.3	69	73.4	46.2	50	100
Mentoring	0	25.7	15.2	19.7	22	15.4	16.7	50
Shadowing	12.5	15.8	12.9	12.7	7.3	0	0	0
Professional Networks	25	40.6	42.4	52.1	53.2	46.2	50	100
Online Learning (e.g. distance learning, MOOCs)	0	21.8	28.8	28.9	35.8	7.7	16.7	0
Attending Conferences	25	53.5	58.3	69.7	70.6	92.3	50	100
Reading	37.5	60.4	59.8	73.2	74.3	69.2	50	100
Life Experience	37.5	68.3	68.9	77.5	77.1	69.2	66.7	100

Age group	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	NA	Rather not say
Number of respondents in each age group	8	101	132	142	109	13	6	2
Within the Workplace	1.43 (1.13)	1.38 (0.76)	1.27 (0.63)	1.37 (0.7)	1.44 (0.8)	2 (1.18)	1 (0)	1 (0)
University Degree in Library/Information Studies	2 (0)	2.15 (1.03)	2.32 (0.96)	1.98 (1.01)	2.23 (1)	2.22 (0.97)	3 (0)	3.5 (0.71)
University Degree in Other Subject	2 (-)	2.37 (0.94)	2.2 (0.88)	2.16 (1.08)	2.17 (0.89)	1.67 (1.15)	3 (-)	-
Short Courses	3 (-)	1.92 (0.73)	1.88 (0.83)	1.82 (0.79)	1.71 (0.73)	2.17 (0.98)	2 (0)	2.5 (0.71)
Mentoring	-	1.5 (0.71)	1.75 (0.64)	1.96 (1.04)	1.62 (0.88)	2.5 (2.12)	1 (-)	3 (-)
Shadowing	3 (-)	1.56 (0.63)	1.59 (0.62)	1.72 (0.89)	1.62 (0.74)	-	-	-
Professional Networks	3 (-)	1.68 (0.69)	1.7 (0.81)	1.8 (0.91)	1.48 (0.75)	1 (0)	1.33 (0.58)	1.5 (0.71)
Online Learning (e.g. distance learning, MOOCs)	-	2.23 (1.07)	2.29 (0.84)	2.15 (0.85)	2.08 (0.98)	1 (-)	3 (-)	-
Attending Conferences	2 (0)	1.81 (0.78)	1.92 (0.81)	1.92 (0.83)	1.86 (0.82)	1.67 (0.89)	2 (1)	1.5 (0.71)
Reading	2.67 (2.08)	2.1 (0.75)	1.87 (0.74)	1.82 (0.84)	1.81 (0.79)	1.78 (0.83)	2 (0)	2 (1.41)
Life Experience	1 (0)	1.67 (0.87)	1.66 (0.64)	1.47 (0.74)	1.36 (0.65)	1.44 (1.01)	1 (0)	1.5 (0.71)

Appendix I: LIS University degrees reported

The LIS university degrees reported by respondents to the 'Other' option for survey question 12.

1.9. Undergraduate

- BA(Hons) Information and Library Management
- Bachelor in Information and documentation (Haute Ecole de Gestion, Geneva, 3 years)

1.10. Diploma/technician qualification

- Post-graduate diploma
- PG Diploma
- Library technician diploma at college
- IT/technical skills, Information literacy / search skills
- Information skills, IT/technical skills

1.11. MA degrees

- MA
- Information and Library Studies at Loughborough
- MA Lib and & Information Studies
- MA

1.12. MSc degrees

- MSc Info and Library Studies
- MSc in Information Science
- MSc in Strathclyde Uni, Glasgow
- MSc (City University)
- master in LIS
- MSc Information & Library Studies
- MSc in Information Science
- Msc Library and information management
- MSC Information & Library Studies
- MSc in Information Managament
- MSc
- Ionian University-Archives&Library Studies&MSc
- MSc Information Science
- MSc Information & LIbrary Studies
- Master en sciences de l'information documentaire, EBAD, Dakar (SENEGAL)
- M.Sc

1.13. Unknown Masters

- Masters degree
- Master's degree
- master information and communication
- Master
- Masters ILS course
- licence + master

1.14. Other qualifications

- Informatics
- N London Poly 1985
- Distance learning from Aberystwyth Uni
- Postgrad
- Licenciado en DocumentaciÃ³n. Universidad PolitÃ©cnica de Valencia.
- Postgrad
- PhD
- University Granada. Spain
- postgraduate level - basic KIM skills
- Information and library studies
- EBD in paris
- diplÃ´me de conservateur (ENSSIB in France)
- ENSSIB
- teaching course in library school
- ENSSIB
- Scientific Information management, bibliometrics
- Post grad

Appendix J: Degrees in other subjects

Public Health	Biology
Intellectual/analytic/problem-solving skills, research skills	Diploma in Management Studies
MA Hons	Psychology
education, communication theory	MSc health informatics
arts degree - transferable skills for time mgmt, research,	Psychology BA; Applied Population Research MA
Medicine	Master in Library and Information Science/IAL, Catholic University of Rome, my previous education in Sociology & Social work
PhD Biochemistry	Leadership and management post grad diploma
chemistry - transferable analytical skills	Have a Bachelor Science degree in Biology
psychology degree	Broadened my skills and knowledge of resources
Maths	Physics
Modern Languages	master history
languages and an assortment of courses	biology, health science
English/History at undegrad/post grad level	MA
Russian	biochemistry
English Literature - academic self discipline	PhD and scientific research experience
German (1970s) 2) Environmental Science (2000s)	Foreign languages
english	Marketing and Communication
translation	Music
BA Russian/Spanish; MA Health Informatics	Biology
BA English (communication skills, analytic skills, etc ...)	Psychology (Master, formerly: Diplom)
My journalism degree has given me core skills for my information career	I had a degree in geography, my first study
English, History, Classics	Education
Analytical and writing skills	Experimental Psychology
English language - important for editing skills	History studies
English Literature	History (gave me methods)
History and Occupational Therapy degrees	not absolutely necessary
History	Social Work
History	Pharmaceutical chemistry
History with Education - have been taught teaching skills.	BSW- Social Work
History	Communications
History / English / Biology undergrad	liberal arts
History	Biology
Some skills from previous degree transferable	Publishing
Law	Neurophysiology
Leadership and Management PGDip at UWE	History
Education & Psychology	Biology Medicine

MEd, PGCLTHE	French & Russian Literature, Teaching theory
Adult learning (andragogy)	Medicine
Teaching, science	I graduated the Faculty of Education
Teacher training	English Lit
health promotion and public health	medical knowledge/terminology
medicine Psychology	PhD in biology
BSc in Anatomy & Human Biology & Postgrad Diploma in Public Health Informatics	health economics
Anthropology	I have a Bachelor of Education and Bachelor of Health Science degrees
Management	linguistics
selection of course from university degree in library studies	Master in Biology : Intellectual/analytic/problem-solving skills
Management, teaching	social sciences
PhD in biomedical informatics	Pharmacology
Occupational Therapy	MD, PhD
Philosophy	Information management
Food Science and Technology	business administration
BSc and PhD	Philosophy
Being overqualified helps. Inspiration on how to solve a problem can come from any area of life or studies, and if you can pass useful knowledge on in a timely way, you have achieved part of your goal as a librarian.	Chemistry
health sciences research	Currently doing a masters degree in evidence based practice
Biology	biochemistry and biology
Health Sciences BSc	MD
MBA	Biology
European Politics	biology
Business Management	epistemology
MSC Health Information Management	veterinary medicine, pharmacology
Master's Degree in Education in University Research. Catholic University of Valencia. San Vicente Martir. (60 credits). 2012	biochemistry
Primary degree in human biology helps with medical terminology	Undergraduate degree - Archaeology and History
undertaking a second MRes to develop research and statistical skills	BA gave me good grounding in writing skills, concentrated work, eye for detail and reporting
Eye for detail/linguistic skills which help with search strategies.	Languages
BA(hons) History MA Irish Studies	For general skills e.g time management etc
BA	

Appendix K: Survey question 12, 'Other'

- Previous jobs
- Previous employment in various health related roles
- Previous career in scholl teaching
- Taking jobs outside health libraries which developed other skill sets such as teaching, reference.
- Learning from peers
- Working with other clinicial teams is invaluable experience
- colleagues, Linkedin groups, twitter profiles,, blogs,....
- writing scientific publications myself. And I learn a lot from teaching my daily work to PhD students.
- Voluntary work / leading walks and bike rides
- Attending events & conferences is also a good way to keep up with developments in profession, find out about new applications & ideas
- Visits to the BL to carry out LIS research
- Professional committee membership
- Collegues
- Non-graduate librarianship training
- Postgraduate degree librarianship
- I also follow some medical courses to be sure I understand the technical medical vocabulary of my users.
- Teacher training
- internship, training
- vocational training
- Social media/networks
- I have had to become an autodidact; identifying where and why I should make an impact then learning how to do it.
- A lot of my skills are self-taught e.g. watching Youtube videos or reading blogs etc. online
- Mailing lists eg LIS Medical
- Observing and learning from examples of good practice in the workplace and among fellow health librarianship professionals
- volontÃ© institutionnelle de nos dirigeants
- excellent public schooling
- through family work (patience, problem solving skills...)
- Internship
- Podcasts not directly related to librarianship
- personal initiative and interest, self teaching
- personal traits
- listservs
- Personality - natural tendency for being organized and thorough
- PhD- Adult and Organizational Learning

- trial and error
- working as a trade union representative has given me negotiation skills that I can use in my normal work

Appendix L: 'Other' results question 14, Main survey

- How to de-clutter
- New technologies
- nothing urgent
- current skills are ok, it is more about maintening skills level
- repositories, just venturing into this now
- Preparing for retirement
- specific service evidence review and reflective practice
- Leadership
- Governance - process, legal aspects etc.
- More indepth knowledge of systematic review and health technology assessment methods beyond the literature search
- Costing
- contract negotiation and management
- It is learning learning all the time for us
- project management, working well in a large corporation
- working with dishonest management
- Project management
- politics
- All of the above! Next to constantly update.
- All of these areas need constant CPD
- Knowledge Management - we need it here and don't have the skills/confidence to assist as much as I would like to
- in general I feel I need to continue to learn in all aspects to keep up with the profession and the world
- I could check all boxes...
- Pharmacovigilance

Appendix M: Examples of good websites

International

HLWIKI International http://hlwiki.slais.ubc.ca/index.php/HLWIKI_International (4 mentions)

LinkedIn https://www.linkedin.com/

ResearchGate http://www.researchgate.net/

UK

Contact, Health, Advice and Information Network (CHAIN) http://chain.ulcc.ac.uk/chain/index.html

Library and Information Health Network North West http://www.lihnn.nhs.uk/ (3 mentions)

LIS-MEDICAL mailing list https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=lis-medical (2 mentions)

Strategic Health Authority Library Leads (Shall) [now defunct and replaced by Library & Knowledge Services Leads Group (LKSL)] http://www.libraryservices.nhs.uk/shall/ (2 mentions)

Trip Database http://www.tripdatabase.com/ [a respondent suggested a version of this for EBLIP]

United States

MEDLIB-L mailing list https://list.uvm.edu/cgi-bin/wa?A0=MEDLIB-L

Canada

Peer Review of Electronic Search Strategies (PRESS) http://www.cadth.ca/en/resources/finding-evidence-is/peer-review-search-strat

Germany

Arbeitsgemeinschaft für Medizinisches Bibliothekswesen (AGMB; German medical librarians' professional body) http://www.agmb.de/papoopro/

Appendix N: Budget

The budget expenditure has been mainly on the Research Associate costs, and travel to the EAHIL events and other venues to gather data (Table 54), and to disseminate findings.

Table 54: Project WHIPPET total grant budget

Heading	Budget	Spent
STAFF COSTS	6,016.20	5,820.45
NON STAFF COSTS	2,113.80	2,475.72
Consumables		305.98
Equipment	650.4	0.00
Travel and Subsistence	1,463.40	2,169.74
TOTAL	£8,130.00	£8,296.27