

ECP-2008-DILI-518001

BHL-Europe

Second user evaluation report

Deliverable number	<i>D5.9</i>
Dissemination level	<i>Public</i>
Delivery date	<i>15 May 2012</i>
Status	<i>Final</i>
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eContentplus

This project is funded under the *eContentplus* programme¹,
a multiannual Community programme to make digital content in Europe more accessible, usable and exploitable.

¹ OJ L 79, 24.3.2005, p. 1.

1 Document History

1.1 Contributors

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1.2 Revision History

Revision Date	Author	Version	Change Reference & Summary
19 April 2012	Henning Scholz	0.1	Draft components
20 April 2012	Graham Higley	0.2	Edit
26 April 2012	Jiří Kvaček	0.3	Edit
9 May 2012	Jiří Frank	0.4	Edit, User testing, User survey
11 May 2012	Jiří Kvaček, Jiří Frank	0.5	Edit
13 May 2012	Henning Scholz	0.6	Review and corrections
15 May 2012	Graham Higley	0.7	Final amendments
15 May 2012	Jiří Kvaček	1.0	Final version

1.3 Reviewers

This document requires the following reviews and approvals.

Name	Date	Version
BHL-Europe WP leaders	15 May 2012	1.0

1.4 Distribution

This document has been distributed to:

Group	Date of issue	Version
BHL-Europe WP leaders	15 May 2012	0.7
BHL-Europe consortium	21 May 2012	1.0

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3 Purpose

BHL-Europe has to understand and evaluate the requirements of the target users and how they are going to use the results of the project. This document describes what lessons we learned from the two initial survey of the projects and how we used these to develop and implement the new BHL-Europe Portal. In addition to user surveys, we also have to evaluate the development progress continuously and thus established a testing process in BHL-Europe. This is described in detail herein as well as the outcomes of the three testing phases. Eventually, we did a final user survey to evaluate the final outcomes and matched them against the user preferences identified before.

4 Catalogue of user preferences for the BHL-Europe Portal

BHL-Europe made two user surveys in order to find out what features users would like in a BHL-Europe Portal (see D5.8 for the user survey done in collaboration with BHL-US). In addition to these formal surveys, we have spoken to users directly to elaborate more on preferences and suggestions for Portal functionalities. The outcomes of the surveys and discussions were further developed into use cases (see [BHLWiki](#)¹). This catalogue is a summary of all this information, from the user's perspective, on functionalities the users of a BHL-Europe Portal would like to see. This catalogue provided a picture for the development team to take into account during the development process for the BHL-Europe Portal. Of course, not all functions, as described by users, were able to be delivered given the constraints of time and cost.

4.1 Features

In order to structure the features into logical packages, we identified four groups of features:

- 1) **Search & Retrieval:** This feature set is required to facilitate the access to information and its retrieval.
- 2) **Integration of Indexing Tools:** This feature set is required to assure optimised recall (of information) taking into account multilingual aspects. This includes taxonomic intelligence tools, name finding tools and other services important for users. The integrated Web services for name finding and taxonomic intelligence are based on the OCR of the documents and the full-text indices.
- 3) **Content Viewer:** This feature set is required to display content, i.e. images, and content related metadata.
- 4) **Multilingual Community Portal:** This feature set is required to provide multilingual access to the BHL-Europe content and metadata, including user services and information exchange.

¹ https://bhl.wikispaces.com/BHLE_WP2

4.2 Feature Categories

The above features are divided into feature categories that comprise:

- **User Roles & Rights** - describes the roles of users (such as admin, registered user, public) and also describes what kind of feature is available for which role.
- **User Profile Personalisation** - describes personalisation/ customization options for registered users.
- **User Action & Feedback** - describes user's interaction with components of the portal (e.g. metadata editor, feedback, surveys).
- **Browse Index** - describes by what navigational means content is browsed.
- **Simple Search** - describes how a simple search is initiated.
- **Advanced Search** - describes how a more complex search is initiated.
- **Search Result List** - describes how search results are displayed.
- **Metadata View** - describes how metadata about titles/items is displayed.
- **Content View** - describes how metadata and/or content are displayed in the content viewer.
- **Content Download** - describes how metadata and/or content are made available for download.
- **Community Portal Site** - describes any static and dynamic content which is displayed on the site (such as help, wiki, forum, newsfeed).

4.3 Search and Retrieval

4.3.1 Feature category: Simple Search

No	Feature Name	Feature Description	Preconditions
1.1.1 (#33)	Search with unordered keywords (default setting for advanced search)	e.g. 'amphipod' and '1967' and 'Hedley' Search with unordered keywords, e.g. 'amphipod', '1967', 'Hedley' Restrict result view to items only including all search terms. Sort/ filter by facet list General filtering done by facet list with active links to individual search terms. This is default setting for the advanced search.	Simple search is restricted to main categories (author, title/ journal title, year, taxon)
1.1.2	Search with Boolean operators	In 1.2.14 Advanced Search	
1.1.3	Autocomplete search	Autocomplete involves the program predicting a word or phrase that the user wants to type in without the user actually typing it in completely. Autocomplete features shall be enabled by default (in simple search). Note: Not to be used in advanced search	Full index of metadata including OCR (if part of metadata)

1.1.4	Search with words including diacritics (default setting for advanced search)	Search with terms including diacritical mark, e.g. ä, ö, ü, ç, à, shall also recall results with Unicode translation ae, oe, ue, etc. and the original letter. Ranking should be done by best match. Example: search for 'Österreich' gives results for 'Österreich', 'Oesterreich' and 'Osterreich'.	Search term based on Latin alphabet
1.1.5	Search in various languages including language specific characters (default setting for advanced search)	Search support Unicode characters for a number of non Latin alphabets, e.g. Cyrillic	
1.1.6	Search with special characters (default setting for advanced search)	Special characters, not diacritics, shall be treated as regular characters. Some examples: !"\$\$%&/()=?+*#'-.,_::^°~<> Special characters shall not interfere with the system.	
1.1.7	Search with truncated terms	Now Advanced Search 1.2.15	
1.1.8	Search in all or specific main search categories	Search in main categories: author, titles, year, and taxon. Select specific categories (check box).	predefined metadata fields as main search category, integration of uBio
1.1.9	Search with incomplete words using wildcard options (*)	Now Advanced Search 1.2.16	
1.1.10	Fuzzy Search	“approximate string matching”, search with incorrect search terms	
1.1.11	Search for ID / URL of document	Now Advanced Search 1.2.17	

4.3.2 Feature category: Advanced Search (simple search functionalities included)

No	Feature Name	Feature Description	Preconditions
1.2.1	Search metadata of digitised or/and non digitised content	perform search in BHLs digitized corpus and/or perform search in GRIB data; select either 'digitized' (BHL corpus) or 'all' (including super records of GRIB)	perform search in BHL-Europe's digitized corpus or/and perform search in e.g. GRIB data (super records)
1.2.2	Search by year of publication	Search by exact year of publication	
1.2.3	Search by range of years of publication	Search by range of years of publication, e.g. 1850-1950	
1.2.4	Search by dates in special format	Search by special format, e.g. 12th century	multilingual thesauri for era/ year
1.2.5	Combined search in different metadata fields	Select/ combine different metadata fields for search; e.g. search for author and year, or search for taxon name in a certain time interval	Define metadata fields for search and give alternative title (for the user)

1.2.6	Search for journals titles	Enter a journal title, search in 'journal index' of BHL-Europe, e.g. 'The American journal of anatomy'; display all digital holdings/ Volumes under the name of this journal.	Index of journal titles (including acronyms and various spellings), see: http://www.mainlib.uwi.tt/divisions/eps/guides/epsjournalabbguide.pdf http://www.bioscience.org/atlas/jourabbr/list.htm or GRIB super records? (only if reliable and working)
1.2.7	Search for journal acronyms	Search for acronym of journal title, e.g. Organisms Diversity and Evolution = ODE. There are various acronyms for journals. Using a webservice for search term amplification.	Index of journal titles (including acronyms and various spellings), see: http://www.mainlib.uwi.tt/divisions/eps/guides/epsjournalabbguide.pdf http://www.bioscience.org/atlas/jourabbr/list.htm
1.2.8	Search on article level	Search on article level in volumes (books, items), exclude monographs in search.	Annotation of single articles in metadata of provided by CP (see OLEF schema layer - article level) other webservices to be integrated: BioSTOR http://biostor.org/ or CiteBank http://citebank.org/ Crowdsourcing? (Annotation software)
1.2.9	Search within previous search results	Search within previous results with new/ different parameters, not 'filter search results'	performed search (existing result list)
1.2.10a	Search origin of publication	Search in metadata field origin of publication, e.g. Search for books published in Berlin or Germany Extension: invoke web services in order to get the location/ country of a city, provide a map	For extension: Integration of geographic reference web services
1.2.10b	Search for publishing language	Search in metadata field language e.g. Search for books published in German or Spanish; use unified language identifiers, abbreviations	Provision of language information by CP in metadata, or use language recognition tools
1.2.11	Search for words/ names in document	Live search in OCR document in content viewer, highlight search terms in OCR text	OCR for documents
1.2.12	Search with exact phrase only	Search for exact phrase, e.g. 'evolution of'; no deviation allowed	

1.2.13	Search with truncated phrases	Search with truncated phrases with automatic wildcards at the beginning and the end of the search phrase, e.g. 'relle de mo' should enable finding "Histoire natuRELLE DE MOLLusques" but not "Histoire naturelle des annelides et mollusques". Like MS Word search function.	
1.2.14	Search with Boolean operators	AND, OR, +, "search term"	
1.2.15	Search with truncated terms	Search with truncated terms at the beginning and at the end, e.g. 'volution', 'evol'	
1.2.16	Search with incomplete words using wildcard options (*)	Search using wildcards, e.g. [], *, ?	
1.2.17	Search for ID / URL of document	Search by URL, ID	stable URL/ID

4.3.3 Feature category: Browse Index

No	Feature Name	Feature Description	Preconditions
1.3.1	Browse by categories	Browse by main search categories, e.g. titles, authors, year, and most common search terms; - alphabetical index.	Defined main categories
1.3.2	Browse by most common search terms	Browse by most common search term	Web analytics
1.3.3	Browse by 'download'	Browse most frequently downloaded items	Web analytics
1.3.4	Browse by most viewed items	Browse most frequently viewed items	Web analytics

4.3.4 Feature category: Search Result List

No	Feature Name	Feature Description	Preconditions
1.4.1a	Metadata fields displayed in result list	Include information on the following metadata per item in the result list: (1) Journals (single volumes): title of journal, (title of volume), publisher, place of publication, publishing date (start year) (2) Journal article: article title, author, year, journal title/ volume/ page range, (content provider?) (3) Monograph: title, author, year, content provider General requirements: List sorted by title (automatically) Numeration of results Hyperlink (title) links to metadata view	Annotation of content type
1.4.1b	Indicate content type	Content type should be indicated by icons; defined content types: monograph, article, journal (Volume)	Design icon for content type

1.4.1c	Indicate scan status	Provide scan status check box (icon?)	Enable search in digitised and not digitise content; integration of GRIB (scan status)
1.4.2	Sort result list by facet list	Sort result by main categories: material type (by category): serial (journal), journal volume, monograph; author (alphabetically); date (numerically); language (by category); content provider (sort by category); scientific name; ... Display number of hits per category	Expandable facet list
1.4.3	List journal titles	List journals alphabetically, include acronym; only one line per journal title, direct link to 'BHL-Europe main page of journal', show main journal page including all content of this journal available in BHL corpus and additional bibliographic data (OPAC style)	See 1.2.6/7; stable URL to main journal page in BHL-Europe
1.4.4	[Display results in facet list]	replaced by 1.4.2	
1.4.5	Display scan quality	Indicate scan quality (start rating system or technical data, e.g. resolution)	Technical information in metadata, e.g. resolution, user feedback/ crowd sourcing system
1.4.6	List items in bibliographic basket	Now Community Portal 4.1.21	
1.4.7	Modify list in bibliographic basket	Now Community Portal 4.1.20	
1.4.8	List items in batch download basket	Now Content View 3.1.17	
1.4.9	Modify list in batch download basket	Now Content View 3.1.18	

4.3.5 Feature category: Metadata View

No	Feature Name	Feature Description	Preconditions
1.5.1	'Bibliographic information page' and download bibliographic information	Display important metadata fields: For articles: title, author, year, page range, journal title (hypertext link to 'journal page', volume title, publisher, place of publishing, language of the text, content provider For monographs: title, author, year, number of pages, publisher, place of publishing, language of the text, content provider For journal titles (Create journal title page for BHL-Europe content): journal title, available volumes, articles (hierarchical structure), acronym, editor, series, period of publishing, place of publishing, content provider.	

		Representation of digitised content by thumbnail (front page, in result list icons!). Provide back to result list button Abstracts shall be kept in a separate page for a better overview. Direct download of bibliographic record in various formats, e.g. MARC21, DC, Endnote, Reference manager, etc., indicated by icons (optional: add to 'Bibliographic basket')	
1.5.2	Download item directly in various formats	Download item directly in various formats, not from content viewer but metadata view, start download by clicking on link (thumbnail pdf, OCR, Images)	
1.5.3	Display origin of content	Provide link to source of content at content provider's site, e.g. in 'bibliographic information page' in the field: content provider (link/ hyperlink to content in content provider site/ portal (like Europeana).	Provide link to portal of CP
1.5.4	Display size of to be displayed item (renamed, Metadata view)	Estimation or actual size of to be downloaded item before it will be displayed in content viewer.	File size in metadata or algorithm for estimation of file size

4.4 Integration of indexing services

4.4.1 Feature category: Advanced Search

No	Feature Name	Feature Description	Preconditions
2.1.1	Search for content by colloquial name	Enter colloquial name, search in metadata (titles, additional) and OCR documents, give results; or translate Latin names found by uBio into colloquial names by other web services (search term amplification)	Index Latin names, and colloquial names (coordinates) in titles and OCR text, integrate services, e.g. Sp2000, PESI, ...
2.1.2	Search for content by scientific (binominal, Latin) name	Enter scientific name (genus, species, binominal, taxon), search in metadata/ OCR text	uBio integration (TaxonFinder), save coordinates of names found in OCR in metadata (OLEF)
2.1.3	Search by author including synonyms and various spellings	Search by authors name (various spelling (languages), abbreviation, synonyms), search in author metadata field, filter results by facet list e.g. Linné = Linnaeus	Integration of VIAF; index of authors name in metadata and OCR text (optional)

2.1.4	Multilingual search for colloquial species name	Multilingual expansion of search term in selected languages/ or other languages (available). e.g. search for dog - indicate other languages/ all - also search for Hund, chien, etc. (see German prototype)	Multilingual thesauri or web services, e.g. CoL (Sp2000)
2.1.5	Search species protologues (original descriptions of taxa)	Search by scientific name (taxonomic), select 'only protologues', search in metadata/ annotations of OCR texts	Integration web services, e.g. AnimalBase (for zoology), or provision of information in metadata
2.1.6	Search for synonyms of species names	Search by species name (taxonomic), search for taxonomic name and identified synonyms (expand search) e.g. search for <i>Minutella minuta</i> - expand search with synonyms - include search term <i>Thecidellina minuta</i> (synonym of <i>M. minuta</i>)	List of synonymies for species names, integration of web services, e.g. Sp2000, PESI
2.1.7	Search identification keys in publications	Search by taxonomic name, select 'only identification keys', display only content with identification keys and link to respective page	Tagging of identification keys in OCR text by crowd sourcing?, mark-up content, e.g. Zookeys or provide with metadata
2.1.8	Search by geographic information, provenance	Search for geographic term	Use index of geographic information (similar to TaxonFinder for geographic names), crowd sourcing?

4.5 Content Viewer

4.5.1 Feature Category: Content View

No	Feature Name	Feature Description	Preconditions
3.1.1	View Content	Display content (OCR text or pdf) with various functionalities, minimum time for loading page (5 sec), indicate loading process of page; compare with BHL portal book viewer	OCR for all items
3.1.2	View TOC of item	Display table of contents	Pagination (in metadata) or default pagination (pages of scanned document)
3.1.3	View title of item	Display title of item	Defined metadata field
3.1.4	View contributor of item	Display content provider in content viewer.	Defined metadata field
3.1.5	Show bibliographic information	Show bibliographic information in content viewer upon request by user. One option: refer to 'bibliographic information page' (button).	bibliographic information page
3.1.6	Display selected page, plate listed	Click on page, plate, etc. in TOC	Pagination of scanned item,

	in table of contents	and display respective page - use real page numbers in document and not! number of scanned page	table of contents
3.1.7	Navigate in document	Implement user friendly buttons: up, down, select page, forward, backward, go back to first page, go to end of document, etc.	
3.1.8	Zooming	Enlargement buttons 30-50%, no full screen option, no thumbnails in original image	
3.1.9	[Print item]	Deleted - <i>Click on button: print (not download) volume, page (actual page and page range) - implement 'safe the environment' button</i>	pagination
3.1.10	Change display quality	+/- buttons for low-high display quality (different view modes) or colour/ black-white	decide default setting
3.1.11	Show all recognized taxa in content (per page)	List scientific names recognised by uBio in content viewer, e.g. per page as in BHLUS portal (lower left box)	Integration of uBio (TaxonFinder), save names and coordinates in metadata (OLEF)
3.1.12	View entry page of document as default page	Show first page of publication, not page first scanned (author and title)	Correct pagination of scanned item in metadata
3.1.13	Copy text from content viewer	Mark text in document in content viewer, copy/paste	OCR of item
3.1.14	Search (real) page number and display	Enter page number in box. Display only requested page.	Correct pagination or image numbers.
3.1.15	Search for plates and images in document	Enter number in box for figure or plate. Display only requested figure/ plate.	Indexed plates and images in OCR document. Identification of Arabic and Roman numerals.
3.1.16	Scaling page? - Distance Measuring of Depictions in Units	Calibrate the distance using a ruler, apply calibrated ruler to depiction, scale page to appropriate size of window.	

4.5.2 Feature Category: Content Download

No	Feature Name	Feature Description	Preconditions
3.2.1	Download single pages/ plates/ figures of document	Click on single page/figure/plate in table of contents, or enter page numbers in box.	Correct pagination
3.2.2	Download item/content	Direct download from result list or bibliographic information page.	
3.2.3	Download item in different qualities	Download in different qualities: high, low resolution, colour/bw	'Quality' tick box
3.2.4	Download item in different file formats	Download items in different file formats: pdf, jpg, OCR	'Format' tick box
3.2.5	Download single article in volume	Select article for download in volume by title, author, etc. '(see BHLUS approach) or page range.	Article level in metadata (Correct) pagination

3.2.6	Direct download (link) from result list – previously 1.4.1	Provide direct link for direct download (formats, icons?) or redirection to content viewer in result list. Direct download options for articles and monographs only. Display size of to be downloaded item.	Pre-generated PDFs, content viewer File size in metadata or algorithm for estimation of file size.
3.2.7	Download content directly in various formats – previously 1.5.2	Download item directly in various formats (PDF, OCR, TIFF, etc.), not from content viewer but from ‘bibliographic information page’ (only for articles and monographs, maybe volumes) or result list. Start download by clicking on icon for format; or redirect to content viewer (optional: add content to batch download basket). Display size of to be downloaded items.	File size in metadata or algorithm for estimation of file size
3.2.8	‘Batch Download Basket’ (previously 1.4.8)	Add items (monographs), articles, pages, ... to ‘Batch Download Basket’ (by click, or drag & drop) The ‘Batch Download Basket’ shall be integrated in the content viewer to enable direct selection of the items to be downloaded. The selected items (see above) will be listed in a 'shopping basket' like environment and a batch download can be initiated any time (directly or by email or connection to FTP site...). By choice, the user can request to receive a compressed file. This basket only enables batch download of content, not metadata (see bibliographic basket). Display size of to be downloaded item.	Set up batch download environment. Enable drag and drop animation, if required. File size in metadata or algorithm for estimation of file size.
3.2.9	Change download format in ‘Batch Download Basket’ (previously 1.4.9)	Change download formats in 'Batch Download Basket', e.g. PDF, OCR, TIFF, per item/ list.	Set up batch download environment. Provision of content in various formats

4.6 Community Portal

4.6.1 Feature category: Community portal

No	Feature Name	Feature Description	Preconditions
4.1.1	Design of portal	User friendly design of portal, wireframes.	
4.1.2	Count user visits	Display user visits of BHL-Europe portal on main page.	Website analytics
4.1.3	Help for Search	Provide link to help and	Create help/ tutorial for

No	Feature Name	Feature Description	Preconditions
		tutorial.	search.
4.1.4	Help for download	Provide link to help and tutorial.	Create help/ tutorial for download.
4.1.5	Help for account/ registration/customization of user profile	Provide link to help and tutorial.	Create help/ tutorial for account/ registration /customization of user profile
4.1.6	Search/ Find BHL-Europe content with various search engines	Find BHL content (URL's) with search engine, e.g. Google	Index BHL-Europe content
4.1.7	Show BHL news	News feed (RSS): BHL Blog, Tweets, Facebook; Display on main page	
4.1.8	Help for additional services	Provide link for help and tutorial on additional services, e.g. bibliographic basket, batch download basket, usage-integration of web services (VIAF, uBio, CoL, PESI, extended search), specific search functionalities, and content viewer.	Create help/ tutorial for additional services.
4.1.9	Link BHL-Europe link of record (URL) with personal webpage	Copy/paste link of BHL-Europe record/ content in URL bar to your personal website	Stable URL/ ID Copyright clearance
4.1.10	Receive BHL news via email	Provide subscription box for, e.g. newsletter, RSS feeds, etc.	registration with email address
4.1.11	[View scan status of item]	Deleted, duplication with 1.4.1c	
4.1.12	'Bibliographic basket'	<p>Add items (metadata) on all available content in BHL-Europe to ' Bibliographic basket' (by click, or Drag & Drop).</p> <p>Modification of list of metadata records (sort function, change bibliographic format, etc.).</p> <p>Export in various formats: MARC21, DC, Endnote, Reference manager, etc.</p> <p>The bibliographic basket shall be integrated in the portal to enable direct selection of bibliographic information/ metadata to be downloaded.</p> <p>The selected items will be listed in a 'shopping basket' like environment and an export as well as manipulation of the formats shall be possible. An export can be initiated any time (directly or by email or connection to FTP site). The user can define the output formats for the metadata as well as different styles.</p> <p>Display size of export file.</p> <p>.,This enables the users to</p>	<p>Set up bibliographic download environment.</p> <p>Enable Drag & Drop animation, if required.</p> <p>Algorithm for estimation of file size.</p>

No	Feature Name	Feature Description	Preconditions
		'construct' their own bibliographic list/ reference list; for example for a publication. The batch export of bibliographic information will be mostly helpful for scientists, e.g. export bibliographies on a specific taxon into Reference Manager or Endnote. But can be also a helpful tool for librarians. In combination with the GRIB super records (search in non digitised content) the users can produce virtually complete reference lists."	
4.1.13	[Batch download of articles 'batch download basket']	Deleted, duplication of 3.2.8 Deleted, duplication of 3.2.8	
4.1.14	[Download compressed files/ folder]	Deleted, duplication of 3.2.8	
4.1.15	Download bibliographic data, content, taxon names with application programming interfaces (AIPs)		
4.1.16	Look & Feel	Applying web design to BHL-Europe Drupal theme	
4.1.17	Assess and evaluate user activities	Download volume(page/ volumes), users edits, feedback, scanning requests, performed search, usage of TaxonFinder, etc.	Web analytics, BHL server log files, user profiles
4.1.18	Access frequency of (internal/external) link usage	Clicks per partner institution; display only most used link on main page (for example) web analytics, BHL server log files	Web analytics, BHL server log files
4.1.19	Access frequency of item usage	Preferred downloaded or viewed items (precondition for browse)	Web analytics
4.1.20	Modify list in bibliographic basket (previously 1.4.7)	Modify the list of bibliographic items in bibliographic basket: set up different lists (name lists, e.g. 'literature on trees', 'literature of Darwin') modification of formats (per list), e.g. Endnote, Reference Manager, library formats (MARC21, DC, maybe BibTex)	Set up bibliographic basket provision of metadata in MARC21, DC, etc.) provision of metadata in Endnote, Refmanager format
4.1.21	Count visits per item and display on bibliographic information page	Count user visits per item. Display on bibliographic information page. Extension: Sort by most viewed content in particular category. It is important for us internally to get information on user visits per item in order to access which kind of literature, disciplines/epochs etc. is more	Web analytics

No	Feature Name	Feature Description	Preconditions
		<p>or are less requested. Provides important background information for libraries who try to get funds for digitising literature.</p> <p>For example we could then provide information on "comparison of average user visits per literature with metadata record 'Language: Italian' compared with average visits total", for libraries who need to show that Italian literature is highly requested, in order to get money for digitising Italian works.</p>	
4.1.22	Receive notification – ready for download	Provide email for notification that items are ready for download	

4.6.2 Feature category: User Profile Personalisation

No	Feature Name	Feature Description	Preconditions
4.2.1	Change individual search setting	display, filter, sorting	Registered user.
4.2.2	Save search results	save and display search history	Registered user
4.2.3	Save results to favourites (URL's)	Provide link for saving search results in favourites (of browser)	Registered user
4.2.4	Change individual download settings	Define target-folder, formats, styles, etc.	Registered user
4.2.5	Change individual setting for batch download ('basket')	Define target-folder, formats, styles, etc.	Registered user, set up batch download basket
4.2.6	Change individual setting for bibliography download ('basket')	Define target-folder, formats, styles, application (Endnote, Reference Manager), etc.	Registered user, set up bibliographic download basket

4.6.3 Feature category: User Role & Rights

No	Feature Name	Feature Description	Preconditions
4.3.1	Search in BHL-Europe content and metadata	no login required	
4.3.2	change personal settings (search and download)	edit personal settings, extension: edit metadata, OCR, tags	registered user, set up user roles, e.g. scientists, public user, librarian with default settings
4.3.3	change login details	e.g. user name, password, email	registered user
4.3.4	set up user profile	Set up user profile with user name and password, personal information, picture, etc.	

4.6.4 Feature category: User Actions & Feedback

No	Feature Name	Feature Description	Preconditions
4.4.1	Edit bibliographic information of BHL-Europe content	Edit metadata, e.g. volume number, names, etc.	Advanced/ librarian user account
4.4.2	Add/ edit tags	Add/edit tags or flag status of item, e.g. provenance, disciplines, taxa	Advanced user account – crowd sourcing?
4.4.3	Feedback OCR (general) quality	Feedback template	Registered user, personal resources or automatic
4.4.4	Feedback scanning quality	Feedback template or rating system	Personal resources or automatic
4.4.5	Bug reporting	Report and evaluation of technical bugs	GitHub Issue Tracker
4.4.6	Scan request	Set scan request on item	Integration of GRIB, view scan status
4.4.7	Edit OCR text	Make changes/ corrections in OCR text	Advanced user account – crowd sourcing, WikiSource?
4.4.8	Login user survey (renamed: User survey)	'check box' for willingness to participate in the user survey when set up an account provide email contact information	

5 Tests of the Portal development and feature implementation

During the development and integration of software components it was necessary to regularly test the progress with users and investigate to what extent the development progress meets the user needs, to identify bugs, and to collect feedback on functionality and usability. To manage the testing process within BHL-Europe, we worked with the GitHub issue tracker. GitHub offers a user-friendly interface and facilitates the communication between the developers and testers.

The test team was set up during the annual review meeting in June 2011 in Tervuren. In the following weeks, we set up the testing evaluation environment in GitHub and identified the procedure to carry out the tests. The catalogue of user preferences was adapted and extended to more clearly specify and describe the features planned for development and implementation. The catalogue was then transferred to GitHub in order to have an issue for every feature. Testing milestones were created for each testing phase.

For each test phase, the most recent version of the Portal was deployed on a separate machine (bhl-test). This machine was separated from the actual development machine (bhl-int) to allow developers to continue updating code on the integration server and react immediately on bugs reported by testers and evaluated by the testing manager on GitHub without affecting the testing process.

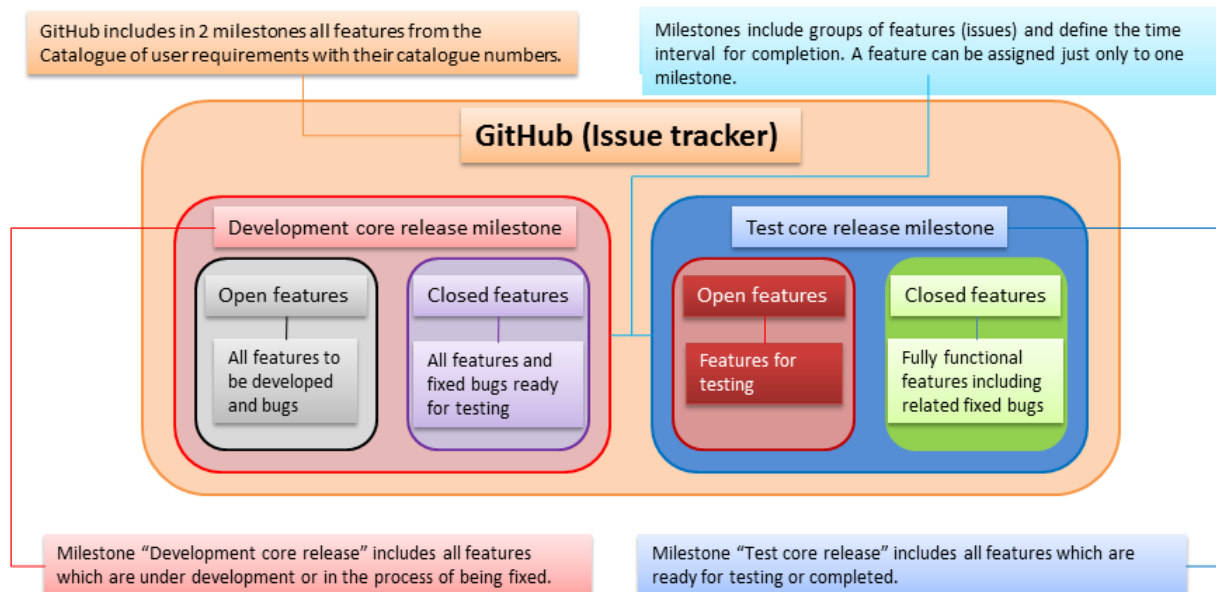


Figure 1. Workflow scheme using the GitHub issue tracker.

A workflow was developed in order to ensure that the testing was performed in a structured way every time (see also Fig. 1 and 2):

- (1) Product owner (PO) will create GitHub issues for all features from the catalogue of user preferences keeping their catalogue numbers.
- (2) All of these features will be assigned to the milestone “Development core release”.
- (3) PO will inform the developers about these GitHub features (via Techlist).

- (4) The developers will close the features in this milestone which are ready for testing. (defined deadline, notification via Techlist)
- (5) Testing manager (TM) will re-open all closed features from the “Development core release” milestone and assign them to the “Test core Release” milestone.
- (6) TM will send the test process email to the testers: how the testing process works and what is needed from them.
- (7) TM will assign testers to the feature for testing and notify the testers via Email to provide comments.
- (8) Testers have about 2 weeks for testing the features and provide comments via Email.
- (9) TM will collect all testers’ comments, review them and classify them: bug, done, new feature.
- (10) TM will consult with PO about results. PO will decide priority of the bug (minor, normal, critical) create the GitHub issue and assign responsible developer. PO will review feature requests by testers (if mentioned) and add them to the catalogue for later consideration.
- (11) If the feature is fully functional and all related bugs fixed, it will be closed in the milestone “Test core release”, which means that this feature is ready for use and for the public core release.
- (12) If the feature has a bug, this will be labelled as a bug, classified (minor, normal, critical) and reassigned back to the “Development core release” milestones for the developers.
- (13) If several bugs are reported by the tester for one feature, new issues with the description of the bugs and the unique number of the issue (still with number from the catalogue) will be created by TM and assigned to the “Development core release” milestones for the developers.
- (14) When the developers fixed the bug, they will comment it and close it.
- (15) At an appropriate point, the bhl-test will be updated to include the bug fixes; after which TM will reopen the closed issues from the “Development core release” milestone and assign to the “Test core Release” milestone. TM and PO will test the feature again. If the bug is fixed and the feature is fully functional, TM will close it.

The WP3 technical lead gets a report from the TM and PO describing which features are in what stage (closed for testing, in testing, ready) and which features are waiting to be assigned. They will also inform WP3 about critical bugs and new features suggested by testers and their priority. The WP3 leader is able to assign features to developers if necessary according to their skills and resources.

The first testing phase was organised in August 2011. In this phase 32 features were tested by seven testers. Several bugs were reported by the testers, new features were identified and the adaption of several functions was requested by the testers. The results from the testing were presented and discussed during the Public Core Review meeting in The Hague (early September 2011). According to the testing results, the developers prepared a new development environment, the catalogue of user preferences was revised and the new user interface design started.

The second testing phase was organised in January 2012 and focused on the new Portal interface and the new functions and features, which were developed since September 2011. In this phase we also tested for the first time the display of content ingested following our agreed workflow, including OLEF as the metadata schema. In this 2nd phase, 23 features/bugs were tested by ten testers, 19 features/bugs were closed, 4 bugs were reported, 8 features were re-opened for improvements and 5 new requests were created. During this period several new bugs were fixed and many improvements on the core features were implemented.

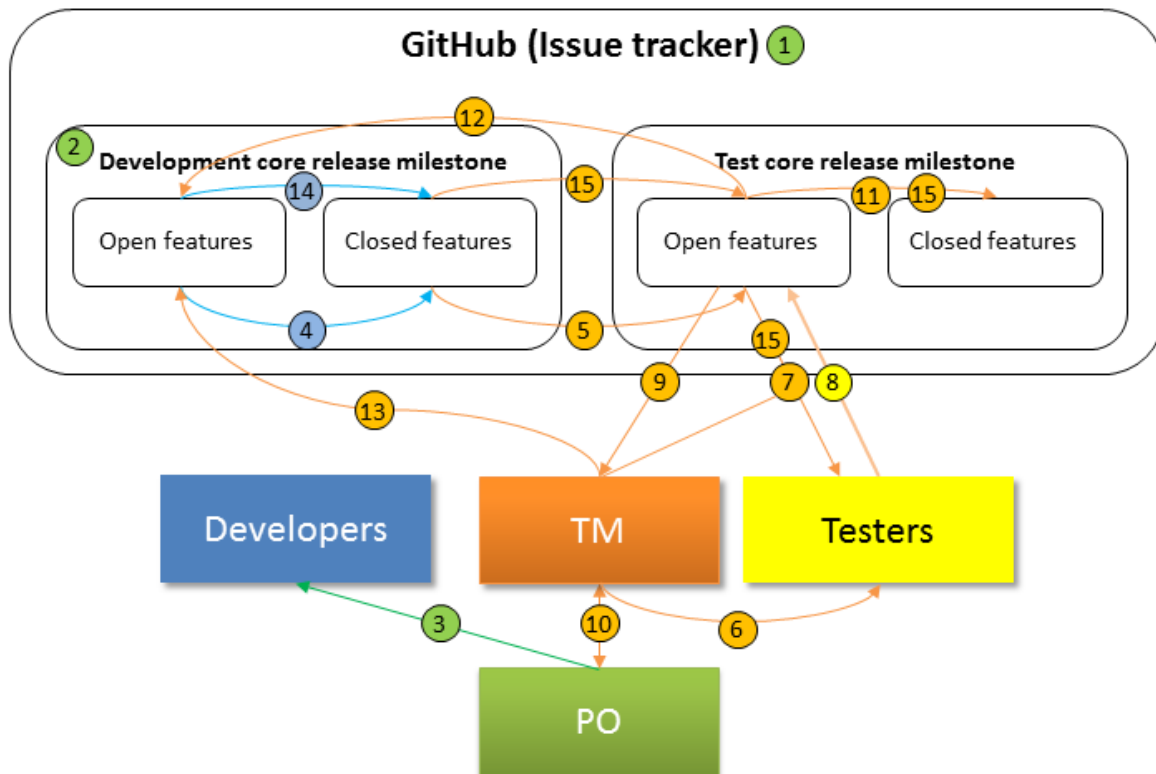


Figure 2. Schematic overview of the testing workflow in 15 steps as described in more detail in the text. Closed issues in the “Development core release” milestone identify features ready for testing. Open issues in “Test core release” milestone are in testing; when all are closed this means all features in this milestone are tested and functional.

For the third testing phase in April 2012, we extended the group of testers to 24. Several testers from the previous two testing phases were included to ensure a continuous report of Portal development through time and to confirm reported bug fixes. The majority of testers participated for the first time in the Portal testing and were unbiased by previous discussions and test results. In this testing phase 16 features/bugs were tested. The set of test content was selected to be as variable as possible and to include content from as many content providers as possible. The testers’ feedback was very helpful in finalising the Portal interface and the core features and functionalities of the Portal.

For a detailed overview of issues created and feedback reported back by the users, please refer to the BHL-Europe issue tracker under <https://github.com/bhle/bhle/issues>.

6 Final user survey

6.1 Introduction and background

The goal of the final user survey was to find out to what extent the Portal is delivering the features, functionalities and performance users would like to see. The survey should find how successful BHL-Europe was in tackling the challenges identified with the first user survey two years ago and summarised in D5.8.

The delay to the content ingest process delayed the user evaluation and reduced the time we had to promote the survey and collect the results. The user survey was only open from 27 April to 6 May 2012. As the survey only focused on functionality without the full content ingested, the results are also less meaningful than we expected. Without the Portal being fully loaded with content - we have not launched it yet - we reduced the number of potential testers. In the end we only had 33 users complete the questionnaire.

Like the first time, we set up the questionnaire in SurveyMonkey. For the design of the questions, we used the experiences from the last survey; and some questions were identical or at least very similar. For the general methodology, please refer to D5.8¹. As the Portal was not launched by the time of the survey, we approached all target users and groups of target users personally. NMP, MfN and RBGE particularly helped to identify and approach suitable users to fill the questionnaire. The user survey was based on the test implementation of the Portal on <http://bhl-test.nhm.ac.uk/portal/>.

6.2 User survey – questions and analysis

In the following part, the results of the user survey are presented in more detail.

6.2.1 Question 1

How often do you use the Biodiversity Heritage Library BHL (www.biodiversitylibrary.org)?

- Every day
- 1-3 times per week
- 1-6 times per month
- 1-6 times in 6 months
- 1-6 times a year
- I have not used it before

Results: More than half of the users are regular users of BHL (Fig. 3). We expect them to have a good understanding how BHL works in order to evaluate the BHL-Europe Portal. The opinion of this group is very valuable as the users have good experience. It is positive that we were able to also attract people that have never or rarely used the BHL Portal before. The opinion of these people should be unbiased and thus helpful to see if the BHL-Europe Portal also works for newcomers to the BHL world.

¹ <http://www.bhl-europe.eu/en/outcomes/documents/first-user-evaluation-report>

In the following, a distinction is made between experienced and inexperienced users of BHL. Experienced users are working every day or 1-3 times per week with BHL. Inexperienced users are working 1-6 times a year with BHL or never used it before. It is unsurprising that the answers of the experienced users are generally more differentiated using the full spectrum of reply options.

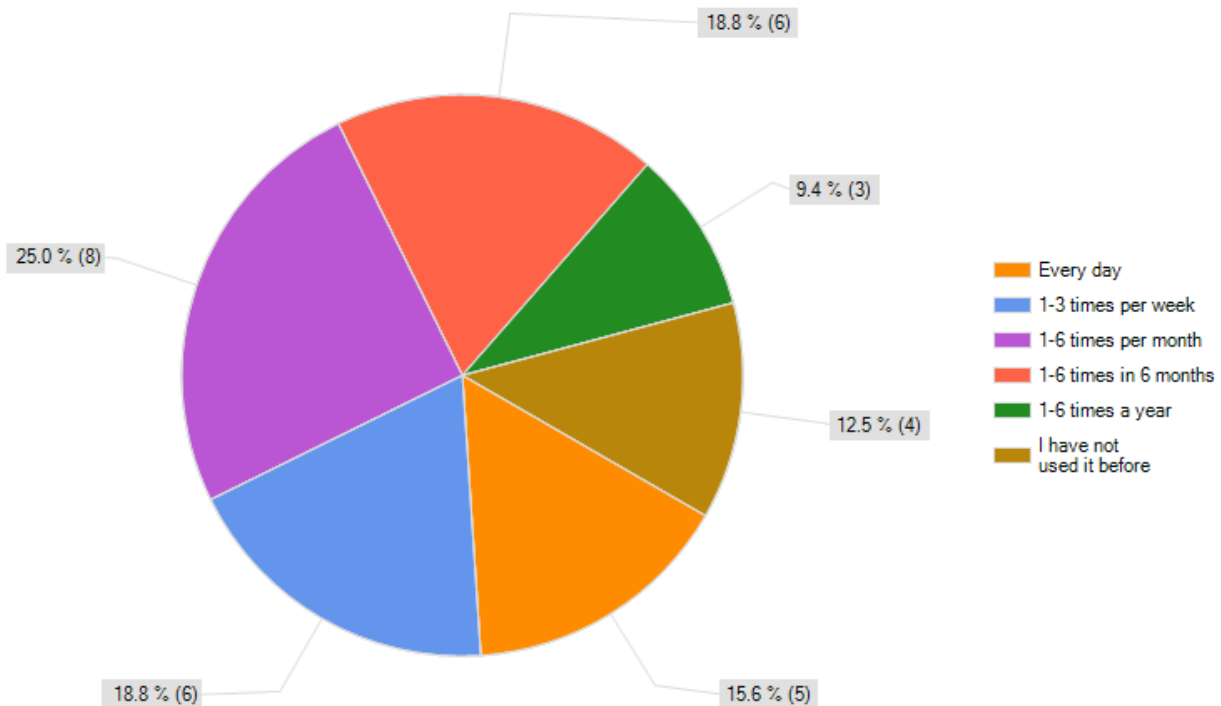


Figure 3. Results of question 1.

6.2.2 Question 2

We would like to know how satisfied you are with various features of the new BHL-Europe Portal (<http://bhl-test.nhm.ac.uk/portal/>).

[Scale: strongly agree, agree, neither agree or disagree, disagree, strongly disagree, I don't know/understand]

- I can quickly and easily get the results and find some content (books).
- I can easily search for taxon names.
- I can gain an overview of the taxa included in content using facet list.
- I can easily edit my search and narrow it down for the search terms I need.
- I can easily select and download the books bibliographic information (Summary, MODS...) using different formats.
- Reading the book online is comfortable.
- I can easily and quickly download a PDF of the entire book.
- I can easily and quickly download the full text (OCR file) of the entire book.
- I can easily download the high resolution images of pages I need.
- I can easily select pages to create my own PDF.

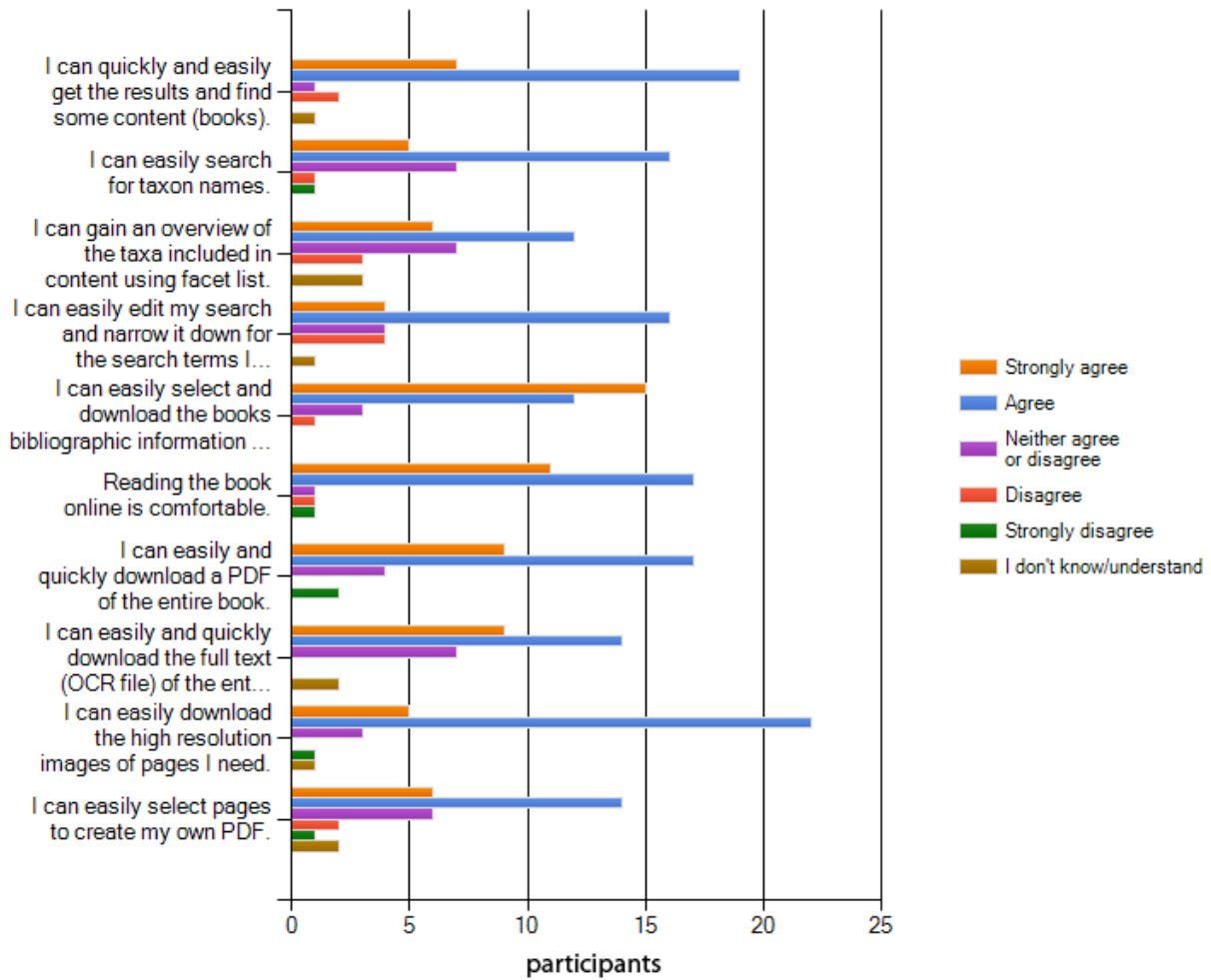


Figure 4. Results of question 2.

Results: From Figure 4 it is clear that the survey participants were most satisfied with the selection and downloading of bibliographic information. All other features are rated positive as well, although some features may either need to be improved or the functionality was not fully clear to the user. This is true for the taxon search, the facet list, and the content download functionalities, and, in particular, for the PDF creation from within the content viewer.

In comparing the level of satisfaction of inexperienced with experienced users it becomes obvious that experienced users appreciate the new features more and are more satisfied. This may be due to the fact that experienced users have a better understanding of other services and what they offer for the user.

Conclusions: The users are overall satisfied with the features of the BHL-Europe Portal.

6.2.3 Question 3

Which functions on the new BHL Europe portal (<http://bhl-test.nhm.ac.uk/portal/>) did you find most useful and which useless?

[Scale: very useful, useful, neither useful nor useless, useless, very useless, I don't know/understand]

- Search with wildcards
- Search with truncated terms
- Facet list to narrow down your search
- Edit your search
- Content basket to view books at a later stage
- Search term expansion (to do this click expand in the advanced search and this way you can search for different spellings of author names or common names of species)
- Search within a book (book viewer)
- Table view in result list
- Download of bibliographic data in various formats (e.g. Endnote)
- Browse by year options
- Save query option
- Some functions which are not mentioned [text responses]

Text responses:

- Exact search is useful
- In browse by year, there should be a possibility to search for a year interval or limits (earlier than, later than).
- Love the thumbnail viewing option for page images! I would like an additional of the BHL-Australia interface where, when you mouse your cursor over a page, a pop-up box comes up listing various options for things you can do with a page. I think that's a little more intuitive than the +/- box that adds it to a list for later download.
- We didn't really understand the difference between search with wildcards and search with truncated terms. "Facet list" may not be a well known expression.

Results: Most users rated most of the features as either useful or very useful (Fig. 5). The facet list and the functionality of the book viewer are rated very positively. The option to search with wildcards or truncated terms seems to be not very useful by most users, although a few did not understand the functionality well enough. An improved tutorial can help to show these features more clearly. The content basket and the table view of results were not used by some users. With more content accessible in the Portal, this may change in the future.

Conclusions: Generally, new and innovative functions were well accepted by the audience, although some were more controversial. The facet list, for example, was rated quite low in question 2 expressing satisfaction of users with portal features. In question 3 this feature is rated as very useful by the users. Maybe users need some time to get used to new features and learn their functionalities

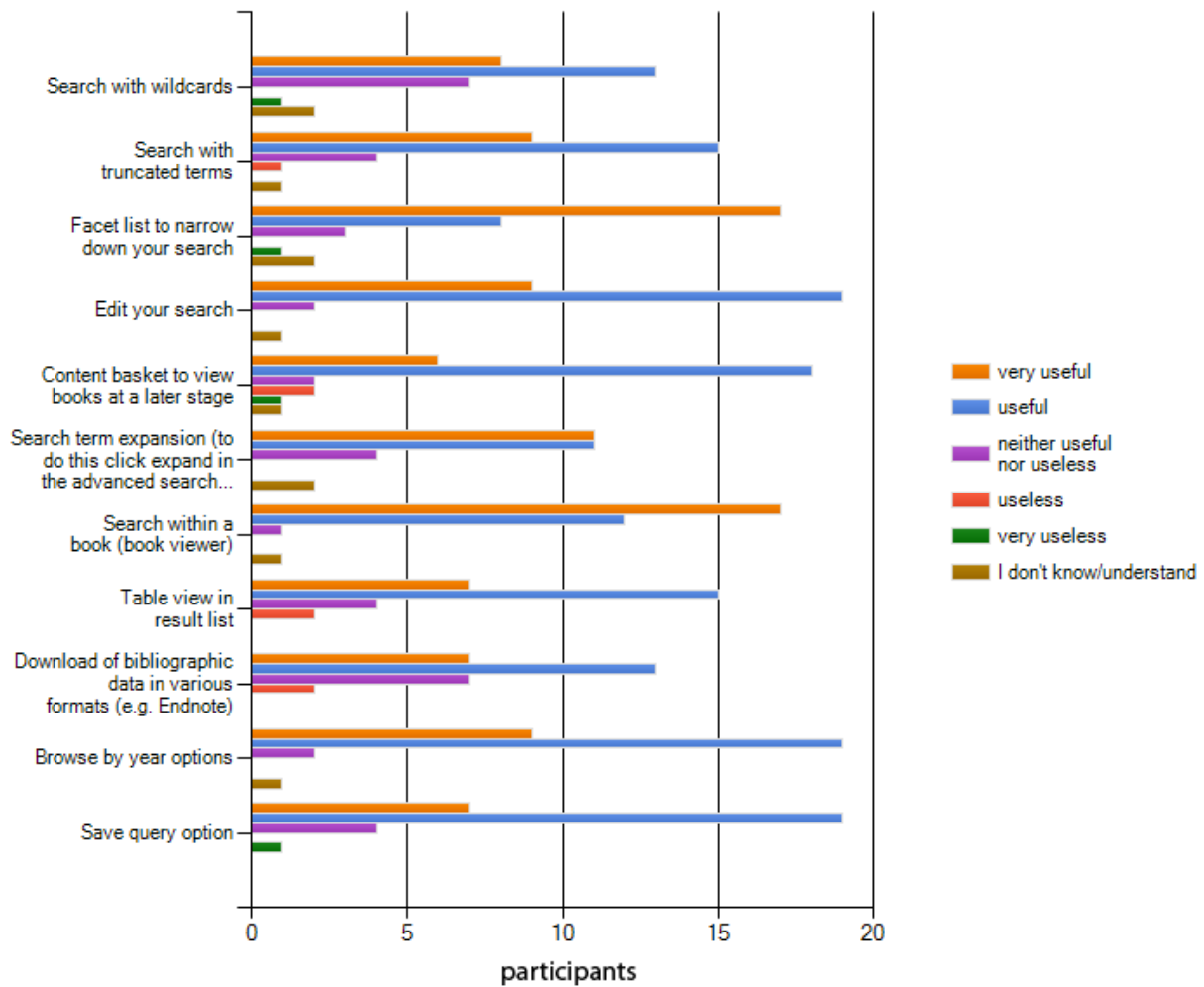


Figure 5. Results of question 3.

6.2.4 Question 4

Help us to understand your preferred method of searching for books under <http://bhl-test.nhm.ac.uk/portal/>. Please rate each of the following search options.

[Scale: totally prefer, very much prefer, moderately prefer, slightly prefer, not at all prefer, I don't know/understand]

- Search using the simple search at the main page of the portal.
- Search using the advanced search
- Search using the browse option
- Search using Boolean terms such as "AND", "OR", or "NOT" between keywords
- Search adding additional advanced search fields and additional metadata categories
- Search using wildcard options or truncated terms
- Search using the facet list to narrow down your search

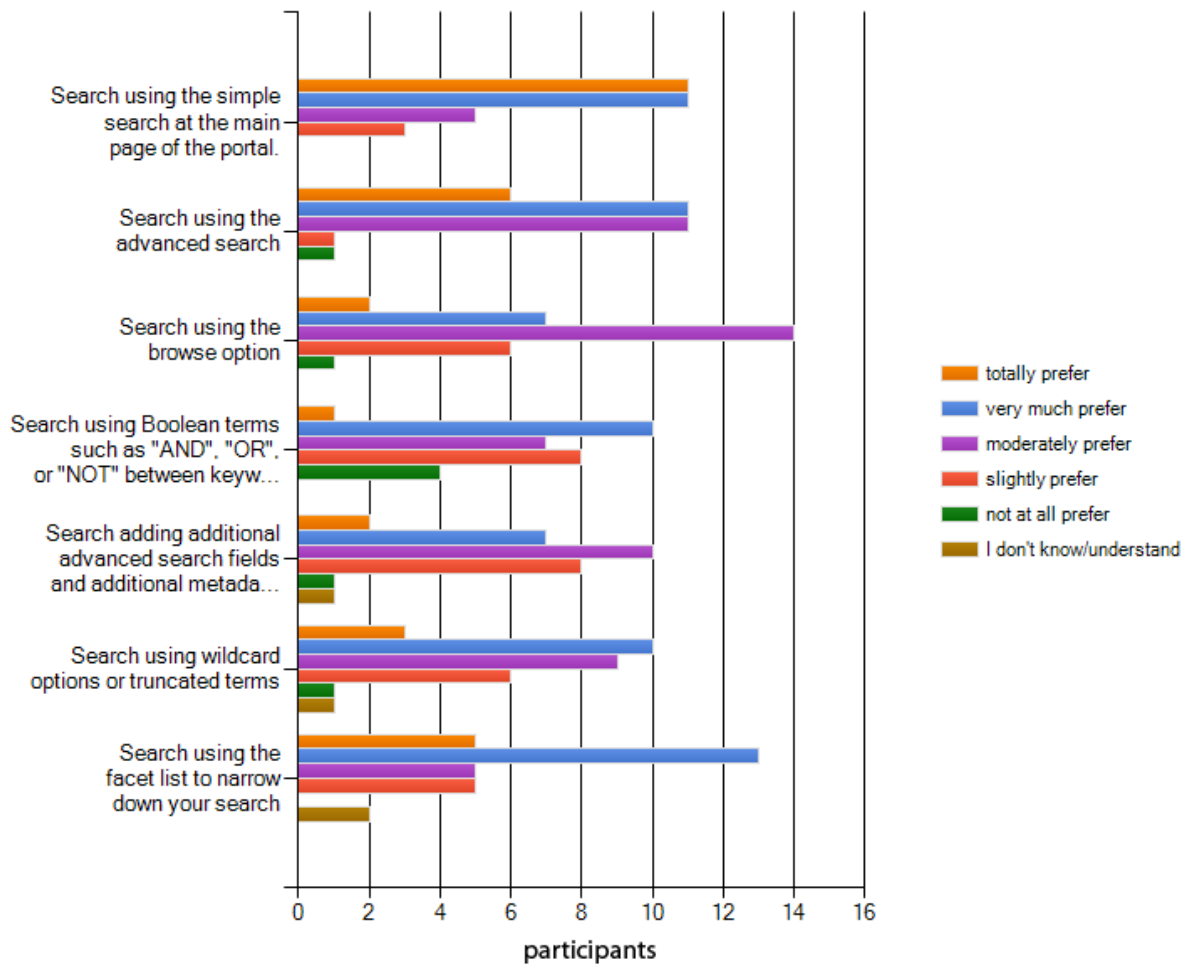


Figure 6. Results of question 4.

Results: Although most of the survey participants are professional bioscientists (see below), the simple search option and the facet list are the preferred search options for the users (Fig. 6). This is surprising as the advanced search with all its features (Boolean operators, several metadata fields, etc) allows taxonomists to find items more easily and effectively. However, the simple search is the way Google is used by most people. The advanced search option in Google is used only by few users. From what the user group said, it is obvious that the support for the simple search and the facet list comes from the inexperienced BHL users. Experienced users seem not to have any preferred search options. Wildcards and truncated terms are not very popular across the entire group of survey participants. However, this is a search method preferred by the library users.

Conclusions: Although the search options are all rated positively, we have to promote the advanced search option as a powerful method to find content. As one of our tutorial videos particularly highlight the advanced search option, we can convince the user to choose these options more regularly.

6.2.5 Question 5

We would like to know if it is easy or difficult to navigate through the BHL-Europe (<http://bhl-test.nhm.ac.uk/portal/>) and if you find functions necessary to perform the search, display or download of what is needed. Please rate!

[Scale: strongly agree, agree, neither agree or disagree, disagree, strongly disagree, I don't know/understand]

- The user interface of the front page is well structured and easy to navigate.
- The advanced search works intuitively.
- The browse option is well structured and clear.
- The result list is well structured and the data are well sorted.
- The facet list function works intuitively.
- The bibliographic page of the content is well structured.
- The content viewer navigation works intuitively.
- The download of content works intuitively
- The navigation through the entire portal is clear.
- Do you have any other comments for the user interface? [text responses]

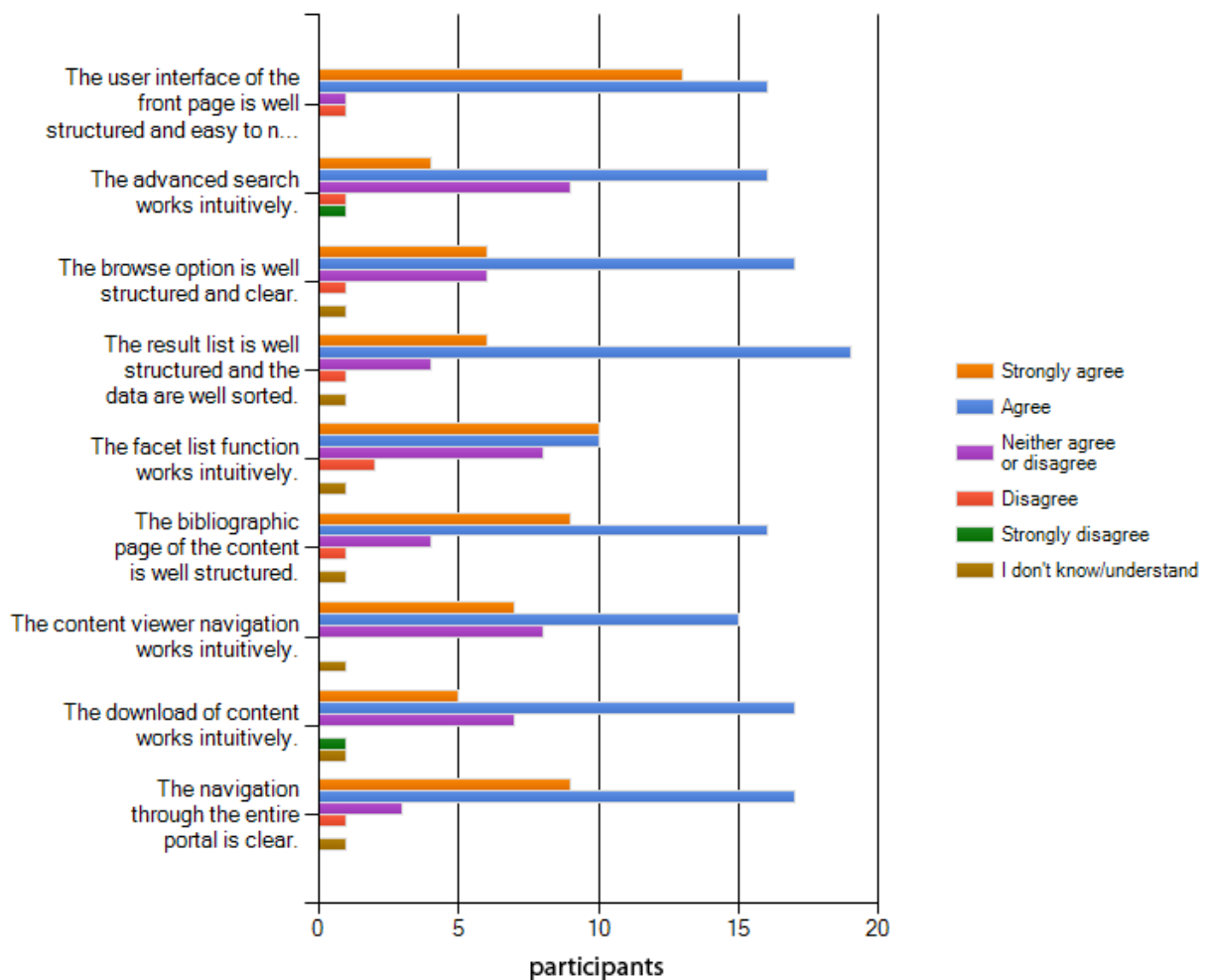


Figure 7. Results of question 5.

Results: The user interface is well structured according to most user survey participants (Fig. 7). Most of the elements work intuitively and navigation is easy. Only the advanced search caused some problems. We already have taken this feedback into account for our next release and improved the advanced search functionality. This will hopefully makes it easier for the users to work with this feature. The problems with the content quality will also disappear once we move from test to production with more content online accessible.

In contrast to the question on user satisfaction with features, experienced users are less satisfied with the navigation in BHL-Europe. Experienced users know the behaviour and performance of other services much better and can therefore evaluate the difference. Although they appreciate the new features and like them, the navigation still needs to work more intuitively.

Conclusions: The usability of the BHL-Europe Portal seems to be good based on the feedback provided by the user survey participants. The homepage was rated particularly positive so it is probably a good eye-catcher. However, the very positive rating may also have to do with the positive rating of the simple search option.

6.2.6 Question 6

What is your overall opinion of new BHL-Europe portal. If you work regularly with other digital libraries like BHL-US, Google Books, AnimalBase or Gallica – what is your general impression?

Text responses:

- Very good
- The portal is very clear, user-friendly.
- Will see with more content. Now the functionality looks innovative and user friendly.
- A lot of additional functions in nice and logically structured environment. Depending on the content and repeating use, but for now it looks acceptable.
- It is very good, but needs more books
- Similar to BHL-US. Google Books is more practical and detailed if working with time intervals (important for taxonomical work) and if searching for particular phrases (incl. searching for combination of taxon name and locality name etc.).
- I think overall the new BHL-Europe portal is wonderful. The aesthetics are very pleasing, and the overall navigation is intuitive. I have highlighted some things in the previous text box that I believe could be improved. I also like the inclusion of your social media links.
- Nice graphics, intuitive search
- There are lots of good features. It would be good if the portal could still be polished and developed further.
- Excellent - very user friendly and intuitive for all the functions I have used.
- Overall the BHL-Europe is very good and useful service.
- Very good. Easy to navigate. Images are clear. The help & tutorial very informative. Appeals to a wider audience with reference to the different languages available
- Sorry, in this time I use very rare this data source - libraries & digit. libraries
- Nice layout with high potential, but still some layout inconsistencies. Some simple shortcuts, doesn't work (i.e. Return-key in search field to submit the request).

- Like mobile phones, it is something which we had never thought of but now we can't do without. However, there remains a residue of works that I need but which I still cannot find. BHL does response to requests for additional works but slowly and erratically. Secondly I suggest that BHL connects itself to a Virtual Library Catalogue such as the Karlsruhe KVK - often my first problem is to find ANY library that has the book that I need to see
- The structure is overall very similar to the BHL-US with a newer look and feel. Much better than other online portals.
- Design is clear and easy to read. Navigation between pages is good. Help and Tutorial screens require more work. PDF generator excellent, also good clear facility to download bibliographic formats.
- I have a very good opinion of BHL-E portal
- The general opinion is very positive. I work regularly with the bibliographic portals (most frequently Real Jardin Botanico, Madrid, and BHL-US) and in most cases it is a very time saving alternative.
- Much worse than BHL-US, much worse than ZVDD (= Zentrales Verzeichnis Digitalisierter Drucke = Central Register of Digitised Prints), comparable to Gallica.

Results and conclusions: Most of the written responses are positive or very positive. One comment refers to the connection to a virtual library catalogue. This function is what the GRIB was built for, but not mentioned in the questionnaire. Thus, BHL-Europe actually has a tool that allows users to find the library that has the book, digitised or not. It is also important to see that users want to see a further development of the Portal. After the end of the project it is not realistic to expect a huge amount of progress beyond bug fixing and minor updates. However, we hope to get new project funding in order to invest in more features and functionalities in the future. In order to improve the tutorials, we will have tutorial videos online very soon to help users to navigate the BHL-Europe Portal more successfully.

6.2.7 Question 7

In the context of your research needs, what best describes your profession?

[Check-boxes that allow respondents to select multiple options]

- Professional bio-scientist / researcher (paid)
- Amateur taxonomist, hobby scientist (unpaid)
- History/cultural heritage scientist
- Teacher / professor / educator
- Student / school student
- Environmental agent, government official, policy maker
- Library staff
- General interest reader
- Bookseller, publisher
- Artist
- Database provider
- Other [free text answer]

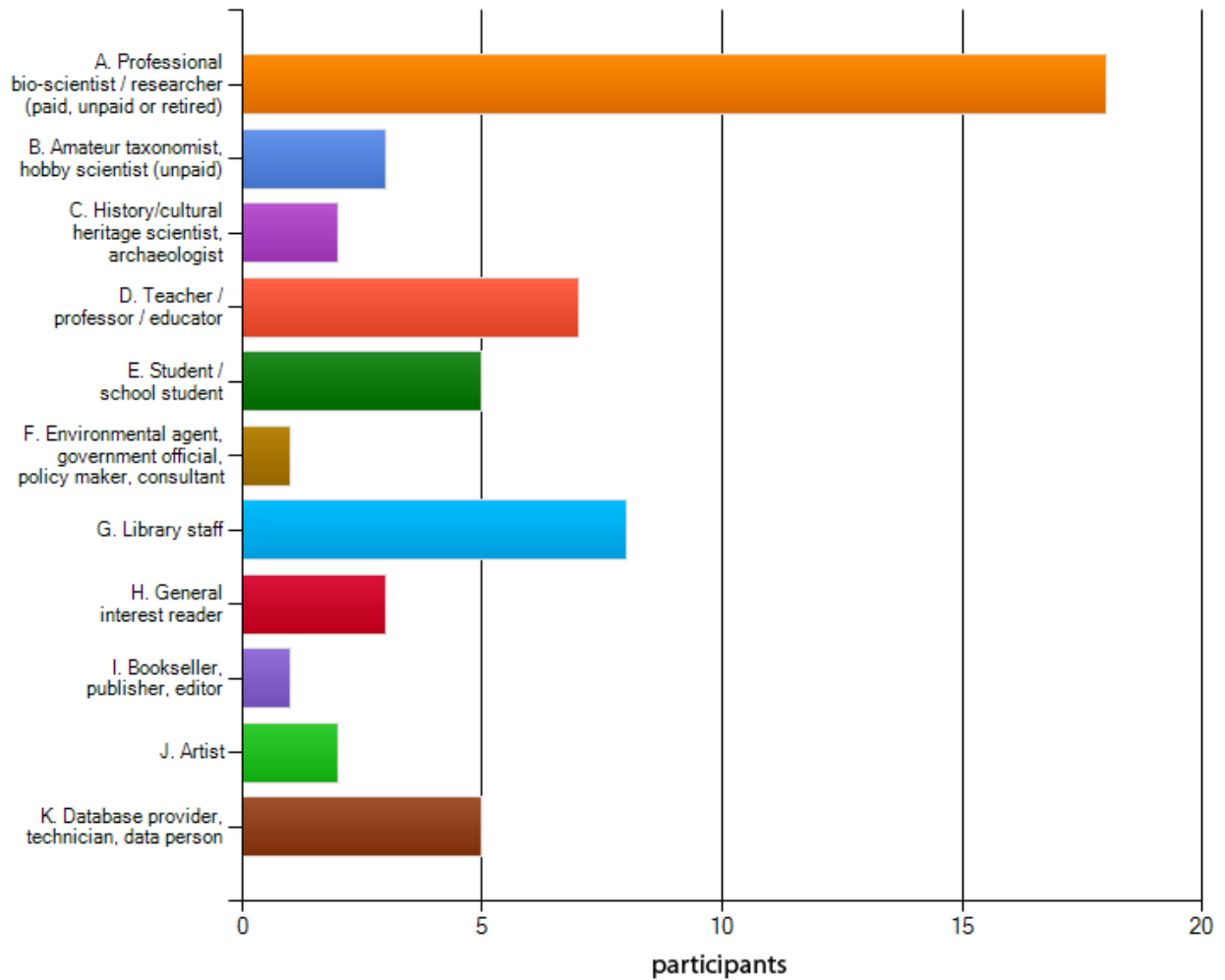


Figure 8. Results of question 6.

Results and conclusions: Although most of the respondents are professional bio-scientists, other stakeholders important for BHL-Europe filled the questionnaire as well (Fig. 8).

6.3 Comparison with the first user survey

The comparison of this with the previous survey is difficult. It is also difficult and perhaps subjective making large scale conclusions because of the large difference in the number of participants: in the first user survey we collected more than 1,000 responses while we only collected 33 responses now. As far as we can compare the results of the two surveys it is clear that we learned how to fulfil the requirements of the audience. The development of the new BHL-Europe was guided mainly by the catalogue presented in section 4. Based on this catalogue, we created a number of features and functionalities using new technologies. Going back to the main conclusion and lessons learned from the first survey, this is what we have achieved:

- (1) **The search function should be improved:** We completely restructured the search functionality based on the user comments and implemented new functionalities. It is now possible to search with wildcards and truncated terms. It is also possible to expand the

search to synonyms and different spellings of author names and scientific names (including common names). The advanced search also allows to search with Boolean operators and several metadata fields. This makes the search very variable and powerful.

- (2) **The set of results should be refined and metadata improved:** The set of results is displayed in two views, i.e. table and list. We also display the different content types to facilitate the search for monographs, serials, articles, etc. The facet list allows an effective filtering of the results. The metadata of each item can be downloaded and displayed in various formats, including the new BHL-Europe schema OLEF.
- (3) **The default language of the portal should be English in all countries:** This is a requirement for professionals, but does not work for the general public. Therefore, we provide a multilingual Portal (14 languages) and the default language is the language of the browser.
- (4) **The online viewer is important and should be improved:** We adapted the Internet Archive content viewer and implemented several new functions. The viewer particularly integrates some well appreciated features of the BHL-US Portal, which are the table of content and the display of the TaxonFinder results per page.
- (5) **For attracting new user groups it is indispensable to scan more recent literature, published after 1920:** This requirement will be fulfilled to some extent when all the content provided by the BHL-Europe partners is ingested. Some of our partners were successful in negotiating rights for in-copyright content to make more recent literature available in BHL-Europe.

7 Conclusions

Within the one week when the survey was open, 33 people filled the questionnaire and provided useful and helpful feedback:

- 1) The user interface of the new BHL-Europe Portal is well accepted.
- 2) We have a first idea of which Portal features are liked and understood, and which features we may need to promote more intensively with new tutorials.
- 3) More content is a requirement to get more reliable results. This will also help to attract more survey participants, which is a second requirement to make the result meaningful.

We plan to set up a third user survey within the next year. It will be announced through the social media and the results will be published on the BHL-Europe project Web site.