RETRIEVAL EFFICIENCY OF 'INTUTE':
ESTIMATION OF BIOTECHNOLOGY RESOURCES

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ABSTRACT

The study compares nine constituent gateways of Intute: Health and Life Sciences by submitting select Biotechnology related terms. The results reveal that "Bioethicsweb" contain largest number of resources on 'cloning' and "Vetgate" retrieves largest number of resources for 'Antibiotics' while great strength of resources on select term 'Gene' is found in "Bioresearch" gateway. However, the 'Intute' provides a platform to retrieve results from all the nine gateways in a single interface. It is observed that the 'Intute' supports Boolean, Truncation and Phrase searching. The results further reveal that significant resources are not retrieved while searching on resource type basis.

KEYWORDS

Biotechnology; Subject gateways; Quality resources

INTRODUCTION

Subject gateways (SGWs) act as a common point of access to high quality resources on the web where specialists identify and select resources and create their description. Intute is one such SGW available

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under four major sections: Science and Technology, Arts & humanities, Social Science, Health & Life Science. Intute: Health and Life Sciences database (replacement of BIOME) is a dedicated gateway for Life Sciences and allied fields like Biotechnology containing quality resources. It provides a common interface for nine distributed gateways namely Omni, Agrifor, Bioethicsweb, Bioresearch, Medhist, Natural, Nmap, Psicom and Vetgate having different resource strength.

THE STUDY AND SCOPE

The focus of present study is the 'Intute' limited to Life and Health Sciences (HLSc) section. Since the 'Intute' is an amalgamation of many databases and gateways and facilitates search under different resource classes, the actual potential and benefits of its common searchinterface and its resource strength under individual resource class need to be explored to analyse efficiency of this emerging retrieval system and ascertain need to further enhance it for developing friendly interface, services and build resources in an effective manner.

OBJECTIVE

The main objective of the study is to explore the retrieval efficiency by estimating results of constituent databases of the 'Intute' for simple search terms and gauge resource potential to support interdisciplinary terms by the gateway. The study is also undertaken to

find out the productivity of the gateway under individual "Resource types".

LITERATURE REVIEW

Many articles focus on areas covered under the four major databases of the 'Intute' to create awareness of 'Intute' services among users. However, thrust of such articles is on disseminating various reference, referral and primary sources through hyperlinks and not intended to evaluate the resources and retrieval mechanism. The article by Hutchins, **(John, 2006)** introduces several learning & teaching institutions, reference material, journal and magazines, organizations and societies, programming and software and other instruction sites related to the Intute computing. Similar type of study is performed on Intute Environmental Engineering by Intute Staff **(Intute, 2007)** which elaborates important journals, tutorials, resource guides, organisations & associations, information sites and research centers. **Intute (2006)** make a selection (not exhaustive) of some of the most useful websites for users of Health and Life Science including factual databases, bibliographic databases, electronic books journals and full text documents.

Different approach is adopted by **William (2006)** who study 'Intute' in context of the online information environment and outlines the new 'Intute' services, its profile, current project activities. The study provides a blueprint for the future. Charnock **(Lisa, 2006)** reflects on the benefits of merging records of resource discovery network into a single

searchable database. 'Intute'. The study provides detailed information on what 'Intute' has to offer and how to become a contributing member of the 'Intute'. Robert. **(Abbort, 2006)** make a case study of 'Intute' Health and Life sciences and compares it with its previous version BIOME highlighting the benefits of integrating and enhancing services of new face of BIOME i.e. Intute : Health and Life sciences database.

METHODOLOGY

The study was carried out in two stages. To start with, out of four major gateways (Science and Technology, Arts and Humanities, Social science and Health and Life Science) Health and Life Science constituting nine gateways was accessed and searched in advance search mode by activating the nine gateways on individual basis for three search terms *'Cloning', 'Gene' and 'Antibiotics'* .The results were analysed to find out significant difference in the results. In the second stage, interdisciplinary term *"social, ethical issues of cloning"* was chosen for submission to monitor the support for interdisciplinary approach from all the four major databases. The search term was modified by introducing Phase search, Truncation and Boolean operators to find out retrieval efficiency under these advance search techniques. Finally, the strength under various resource classes included in the gateway as a whole was analysed by activating select resource types out of large number available in advance search mode.

RESULT AND DISCUSSION

The largest number (110) of resources on 'cloning' is found in "Bioethicsweb" and least in "Natural" while "MedHis" does not find any resource. "Bioresearch" gateway reveals highest proportion (770) of results for 'Gene' whereas "MedHis" does not turn up a right choice for users to search for the 'Gene' & related fields. "Nature" and "MedHis" display no results for search term 'Antibiotics' while "Vetgate" retrieves the highest resources (26) on the term. It is evident from the study that if a user searches the databases on individual basis, one could miss a great deal of resources and in certain cases finds no result when Intute facilitates retrieval from all the nine gateways by cumulating resources and results. (Table .1)

Table 1: Results of the Select terms retrieved by individual gateways of the 'Intute'

Gateways	Intute catalogue results		
	Cloning	Gene	Antibiotics
Omni	6	25	23
Nmap	6	4	7
Vetgate	4	9	26
Bioresearch	27	770	3
Natural	3	21	-
Agrifor	7	18	12
Bioethicsweb	110	54	-
MedHis	-	2	1
Psci-com	33	38	1
Total	196	941	73

The 'Intute' catalogue includes large number of "Resources types" and offers provision to narrow or broaden the search according to user requirement. The Intute HLSc databases contain 51 research papers for *'cloning'* but no resources for either *'Gene'* or *'Antibiotics'*. Forty (40) non-bibliographic databases are included for *'Gene'* where as it does not retrieve any database for 'Antibiotics'. The Search under 'Associations' and 'Lecture notes' produce no results. Equal number (2) of results are retrieved for 'e-books' for all the three search terms where as resource types like 'Research centers and guides', 'Research projects' and 'Directories' produce equal results (8) for 'cloning' but meager results are found under resource types like 'Images', 'Full text Journals', 'Statistics' and 'Thesis'. (Table.2)

Resource types	Results produced from the database		
	Cloning	Gene	Antibiotics
Associations	-	-	-
Bibliographic Databases	-	2	-
E-books	2	2	2
Images	1	4	-
Journal contents & images	4	29	-
Journal full text	3	5	-
Lecture notes	-	-	-
Non bibliographic databases	1	40	-
Research Papers	51	-	-
Research centers & Projects	8	29	-
Research Guides &directories	8	5	-
Statistics	3	-	-
Total	81	116	2

Table2. Results analyse according to resource types in the Gateway

Table. (3) manifests the 'Intute's' capability to support interdisciplinary research. Twenty five (25) results for term *social and ethical issues of cloning'* are retrieved from all the four databases in simple search mode. The major outcome is from Health & Life Science database (21) while results retrieved from Arts, Humanities and Social Science databases does not exceed two (2) results respectively and no output from Science and Technology database.

Table.3. Results for interdisciplinary terms

Gateways searched	Search term= Social, Ethical issues of cloning
	Catalogue results
Health & Life Science	21
Arts & Humanities	2
Social Science	2
Science & Technology	-
Total	25

The Boolean logic support of the 'Intute' was tested by submitting complex terms using 'AND' and 'OR' operators and also submitting the term as a *phrase.* The increase in results for the second search term indicates that the 'Intute' supports Boolean logic and decrease in results for third term in comparison to second term shows its capability to support phrase searching. The truncation is not visible keeping in view least

number of results retrieved by the gateway. All the four complex search terms shows increase in results under harvest search which collects resources   outside the Intute catalogue having no quality assurance. (Table.4)

Table.4. Results retrieved through Boolean operators, Phrase searching & Truncation

Terms used	Catalogue Results	Harvest Result
Social, Ethical issues of cloning AND cloning technology	35	64
Social, Ethical issues of cloning OR cloning technology	25868	116727
Social, Ethical issues of cloning OR "cloning technology"	19763	73403
Cloning*	129	201

The study reveals that "Bioethicsweb", "Bioresearch" and "Vetgate" are productive databases for 'Cloning', 'Gene' and 'Antibiotics' respectively. The decline of results under certain databases clearly indicates that the gateway's retrieval potential increases only through aggregation approach adopted by clustering databases but does not work well for multidisciplinary terms siphoned from one database, according to their policy, though to the disadvantage of the users of other discipline. The precision element introduced through Boolean 'AND' and 'Phrase' search facilities provide a filter to capture quality products while provision to

support Boolean 'OR' and 'Truncation' enhance recall but a greater variability is visible in resource types perhaps due to the collection development policy, presently not known to the investigator . The overall search interface is similar to that of traditional library database (familiar to the users) with provision to search by simple or advance mode. However, in order to become a true one stop for users it will be more fruitful to adopt the multi-consortium approach for database acquisition and equally adopt OAI-PMH and other recent popular XML based formats like RSS 0.9 etc for effective alliance.

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