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User Education and Information Literacy in Agricultural Universities of India

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USER EDUCATION AND INFORMATION LITERACY IN UNIVERSITIES OF AGRICULTURAL SCIENCES IN INDIA

Role of libraries towards life long learning

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ABSTRACT

Twenty-six of the agricultural universities in India teach user education and information literacy (IL). This article evaluates these courses and investigates if and how the course curriculum blends research and technical writing skills effectively. Unfortunately, the courses lack uniformity in teaching IL and technical writing skills. Since the universities are under state government control, they are unable to provide uniform curricula throughout India. There is also a need for a credited course on IL, integrating ICT and computer skills, and another course for research and technical writing.

INTRODUCTION

Agriculture has played a pivotal role in determining the dynamics of Indian economy. It has been the backbone of the country and the main source of economy for large numbers of people residing in rural areas. It contributes nearly 25 percent of the gross domestic product (GDP) and about 70 percent of the population is dependant on agriculture for their livelihood according to the Ministry of Information and Broadcasting (2003). In the present era of IT revolution, access to agricultural information has become vital for the development of the agricultural community. Agricultural universities, colleges and research centers have been playing a crucial role in imparting agricultural education as well as conducting research and providing extension services. Today there are 34 state agricultural universities, one central university and four deemed universities under the Indian Council of Agricultural Research (ICAR).

The Libraries and Information Centre of the agricultural universities has grown along with the growth and development of these organisations and has been acting as a nerve center by providing valuable information catering to the universities' needs. They have been playing an important role in supporting education, research and extension activities of their universities. In order to bring qualitative improvements in education to the agricultural sciences, the agricultural universities, unlike the other universities in the country, are offering a unique credit bearing course integrated into the regular curriculum to educate the students and develop their skills in the use of library resources, techniques of information retrieval, use of databases and e-resources and to acquaint them with various sources of information so that they

will be able to identify and locate information on their own without much guidance from the staff.

User education in the Agricultural Universities of India had its beginning in the land grant colleges of the American agricultural universities. The agricultural universities in the country had their roots from these colleges and follow the land grant pattern of imparting education. User education and information literacy was considered important by the academic councils and was made part of the curricula ideally to teach the students on use of the library and its resources and to develop their information seeking skills.

There has been a paradigm shift from stand alone libraries to networked electronic or digital libraries. Today as information resources are increasingly becoming digitized and libraries are focusing on automating their activities, developing databases and providing access to web based information housed in remote server locations across the world, the relevance of these courses has not only become more important but also mandatory in the present information age. To use these automated and electronic libraries having digital collections in machine readable form and to access their databases, the users need to be educated on retrieval techniques and use of OPACS.

The prime objective of these courses offered to the students of agricultural sciences, particularly the postgraduate students, is to make them information literate and to acquaint them with various scientific information sources, knowledge classification and retrieval techniques and also to train and develop their skills and competence to be confident and self-reliant in searching and retrieving information. The

librarians and information managers at agricultural universities are thus discharging the dual functions of teaching credited courses and participating in academic activities of the university as well as discharging administrative functions of managing information services and technical activities of the library.

REVIEWING INFORMATION LITERACY AND USER EDUCATION

User education, as viewed by Fjallbrandt and Malley (1984), is concerned with the whole information and communication process. One part of user education involves the total interaction of the user with the library. This should be a continuous process starting with school and public libraries, and with the possibility of extension into academic and specialized libraries.

The tradition of library instruction in an academic institution developed in Germany prior to its origin in the United States in the late 19th century. Melvil Dewey, the founder of the modern library system, articulated as early as 1876 the role of the librarian as an educator.

Many studies have been made on on the role of librarians educating users and teaching library skills and now studies in information literacy world wide have been made. A few examples are a study by Parrish (1989) which stated that discussion of library services through orientation programs had low impact and reported low attendance and a survey by Piette and Dance (1993) which found that tailored Information Literacy programs had more positive responses and filled in knowledge gaps. Another study by Brown (1999) revealed that information literacy programs helped students to assess themselves, helped students to be able successfully to determine the extent of

information needed, access information effectively, evaluate critically and incorporate information into their knowledge basis and to use information effectively.

Researchers Chrzastowsk and Joseph (2006) and Jankowska et al (2006) found that graduate students primarily use journal articles rather than books. Students preferred electronic access and cross database searching. Providing appropriate collections for graduate students is the key role of academic librarians and ensuring that students know how appropriately to use and evaluate information is equally important. The study also found that graduate students (like many information seekers) learn about the library and their information needs from their peers. Once they realize that advice from their peers is not sufficient and fulfilling their information needs, students appreciate and prefer a personal library liaison to help and guide them in their research process.

A study by Green and Bowser (2006) and a study by Proulx and Mallet (2006) on cooperative teaching arrangements between instructors and librarians through out the semester indicated that cooperative study communicates library services and IL to students quite well. The partnership has been noted in social sciences and education graduate programs which tend to offer more structured research and thesis writing. Green (2006) and Schmidt (1993) found that topics in these types of sessions include developing search strategy tools, evaluating sources and discussing how to conduct a literature review.

In addition to curriculum based library instruction or information literacy, the workshop approach to information literacy is presently gaining importance across many

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subject disciplines. Workshops are independent from curriculum based courses so they can be targeted towards a wide variety of graduate students and can be held at any time. Research by Harrison et-al (2005) found that a workshop for graduate students can focus on teaching students specific tools, for example, the use of bibliographic management software. Another study by Fyffe and Walter (2005) found that through the workshop approach, graduate students can explore more theoretical concepts such as copy right issues, and concepts like students' responsibilities as future faculties, etc.

Research by Rempel and Davidson (2008) on providing IL to graduate students through a literature review workshop found that graduate students responded well to a conference style environment and actively participated in small groups. Students were not up-to-date with library tools and new technologies as we might think. Many were unfamiliar with tools like citation database and benefits of controlled vocabulary, etc. The pre-registration and pre-assessment facilitated students' engagement by encouraging them to think about what they already knew about the literature process and library services and what they needed to know more.

More recently a study by Brasely and Sterling (2008) on information literacy programs emphasized the role of librarians and faculty collaborative models for integrating information literacy beyond the one dimensional definition of IL. Students should be equipped to handle multidimensional facets of information. They need to be able to handle the economic, social, cultural, technical and ethical demands of information. This is a call to action for educators. The authors have described a framework for collaboration between the librarian and discipline faculty for multidimensional IL development and infusion.

In India research on information literacy is still in preliminary stages but it is fast gaining importance as it is in other Asian countries. Information literacy embedded in the university system through curriculum based instruction is not so popular in the conventional universities as it is in the western world. However, exceptions do exist as in the case of the agricultural universities which were set up on American land grant models. These universities have been offering credit based information literacy courses since the 1970s to their graduate students. The first university was the India Gandhi Agricultural University in Raipur.

Although several studies on user education and information literacy have been undertaken in India by the LIS professionals at various points of time, a few of these have studied information literacy courses offered by the agricultural universities in the country. A few that deserve mention are the study by Tirth (1977) on readers' instruction in agricultural universities. This article states that an undergraduate finds himself bewildered when he first enters a university library and he feels overawed to find it so different from the 'library' of his school. All students, whether they are undergraduates, postgraduates or research scholars, should be oriented on library use and its resources through a formal instruction course on user education.

Prasher R. G. (1983) states that user education programs should be essential parts of college educational programs as followed in some of the agricultural universities of the land grant pattern. Perusal of course content of 4 agricultural

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universities, i.e., the Punjab Agricultural University, Haryana Agricultural University, G. B. Pant University of Agriculture and Technology and the Indian Agriculture Research Institute (IARI), shows that the course content focused on both library orientation and user education and gives considerable emphasis on technical writing. There is less emphasis on search strategy and interest profiling. The author has suggested that the course should be more realistic and need based. The study further states that at no place in India has the course been designed according to the latest developments in either the user education field or in terms of guidelines.

A study by Singh N (2002) on LIS user education courses in agricultural universities states that attempts made by agricultural universities to devise a suitable credit bearing course to develop information literacy skills of postgraduate students of agricultural sciences is commendable. The main objectives of such courses are to teach students to evaluate various information sources available in the library, to develop their information seeking skills and retrieval techniques, to familiarize themselves with various bibliographical tools, to learn to use OPACs and agricultural databases and to formulate search strategies. After analyzing the course content of 11 agricultural universities across the country, it was noted that the course content was a blend of teaching library skills and technical writing skills. The course content followed by the various universities in different states lacked uniformity.

Gupta and Kanujia (2006) mention that formal user education courses are offered to post graduate students. A survey of agricultural universities conducting user education courses states that the students are satisfied with the course and become more

confident and self reliant in their literature search .The courses are offered under the semester system with different course names and either emphasize technical writing or storage and retrieval of information. The author suggests that there is a need to organize a regular training course for faculties and scientists also and to introduce the user education course in all agricultural universities in the country.

However, all the studies so far seem to have been conducted on a limited scale considering a few agricultural universities. These studies also do not focus on quality integration, the need for sharing of ideas on strategies to improve the course content, and upgrading the courses regarding the latest developments and trends in information management and retrieval techniques. Because of the shortfalls, the present study is imperative.

OBJECTIVES OF THE STUDY

The present study was undertaken with the following objectives:
1. To discuss the objectives of IL courses followed by the agricultural universities.
2. To analyze and evaluate the course content in changing context.
3. To evaluate the quality and need for restructuring the course content.
4. To ascertain the suitability of these courses in achieving their objectives.

METHODOLOGY

The data has been collected from a brief questionnaire on user education and information literacy and from the course contents of 20 universities of agricultural

sciences from various states across the country. The data has been classified, grouped and analyzed to determine the various dimensions of the study. For the purpose of the present study, the data obtained from these universities have been analyzed. Thirty- four universities were requested to send their course curricula and other related data out of which 26 universities responded. Six universities stated they did not have any user instruction courses though they had orientation at the beginning of the session.

SCOPE AND LIMITATION

Access to data and timely completion are important factors for the success and accomplishment of prerecorded objectives of any investigation. Hence keeping in view the limited time span and cost, the present study is based on the data collected from 20 universities of agricultural science and technology in the country. The study set forth the following limitations:

1. The study covers 26 agricultural universities in the country (i.e. limitation by number of universities).
2. It covers the state agricultural universities and one central university (i.e. limitation by type of university).
3. The study includes one deemed university of the Indian Council of Agricultural Research (ICAR) i.e. Indian Agricultural Research Institute (IARI) catering to agricultural sciences. The study excludes institutions like the Indian Veterinary Research Institute (IVRI,) Izatnagar, National Dairy Research Institute (NDRI,) Karnal and the Central Institute of Fisheries Education of

Mumbai (i.e. limitation by subject).

ANALYSES, INTERPRETATION AND DISCUSSION

The study analyzes the objectives of user education in the context of teaching information literacy skills at universities offering these courses. The study also analyzes the nature of the course content which has been integrated into the curriculum, the credit hours and the duration of the course.

OBJECTIVES OF TEACHING LIBRARY AND INFORMATION SKILLS

The objectives of different LIS offerings have been analyzed from the brief course content of the various universities included in this study. The basic objective of the agricultural universities offering user education to their students is to equip them with knowledge and skills on the use of library and information resources. Educating the students not only improves the quality of utilizing information sources but also aims at providing knowledge necessary for them to identify, evaluate, select and locate information for solving problems related to their respective subject area. The following are the stated objectives by the various universities under the present study:

i) To introduce students to facilities and various sources of information available in the libraries including e-resources.
ii) To provide basic understanding of the library and acquaint the students with the principles and functions of libraries and its

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importance in the supporting of university education.

iii) To develop information seeking skills of users and make them self sufficient and independent users.

iv) To educate and train the students in the skills of using a library catalogue and OPAC for retrieval of information.

v) To provide necessary skills in using electronic databases in the form of CD ROM/ DVD ROM and web based resources and to create search strategies.

vi) To acquaint students with the information explosion and problems associated with scientific literature, language, and scatter, etc.

vii) To provide knowledge of various National and International Agriculture Information Systems and library networks.

viii) To demonstrate the classification and cataloguing system followed in the library, Current Awareness Service (CAS) and Selective Dissemination of Information (SDI) services.

ix) To educate students on bibliographical control, knowledge of abstracting and indexing periodicals, etc., as well as preparation of indices.

With reference to Technical Writing the main objectives are:

x) To provide knowledge of technical writing, its functions, research communications viz. review of literature, principles of sentence construction, use of footnotes, Latin abbreviations, symbols, proof reading, etc.

xi) To demonstrate knowledge of

compiling bibliographies, preparing thesis/dissertations, writing scientific reports and technical reports, research papers, term papers, etc.

xii) Formulating a research project proposal, collection, analysis and interpretation of data and preparing a manuscript for publications in journals.

It is noted that the universities offering these courses have merged the course contents of library and information skills with that of technical writing skills. The technical writing part in the course curricula focuses on technical jargons used in compiling bibliographies, indexing, writing scientific references, preparing a thesis, etc. Therefore, the course content has a blend of both library and information skills and the skills of technical writing.

ORIGIN OF USER EDUCATION AND INFORMATION LITERACY COURSES

User education in agricultural universities in India had its origin in the American land grant pattern universities. Agricultural universities started library and information science courses slanted to user education in the nineteen seventies. Indira Gandhi Krishi Vishvidhalaya, Raipur (Madhya Pradesh) was the first university to start in 1970 followed by G. B. Pant University of Agricultural Sciences in 1976. Marathwada Agricultural University, Maharastra, started in 1997-97 and Panjabrao Deshmukh Krishi Vishvdhalaya, (Akola, Maharastra) started in 1978.

Chaudhari Charan Singh Haryana Agricultural University, Hissar, Palampur Agricultural University in Palampur, Indian

Agricultural Research Institute (IARI) in New Delhi, and Sher-e-kashmir University of Agricultural Sciences in Shrinagar started in 1982 followed by Assam Agricultural University (Jorhat) in 1983. Later on the course was also adopted by Dr. Y. S. Parmer University of Horticulture and Forestry, Solan, in 1985-86. Kerela Agricultural University, Trissur, started the course in 1996 and Sher-e-kashmir University, Jammu, started in 1999.

NATURE OF THE COURSE DESCRIPTION

The analysis of the course description followed by twenty universities of the agricultural sciences across the country reveals that the course content has been designed keeping in view the basic idea to educate the clienteles, i.e., the students in the use of library resources, techniques of identifying, locating and evaluating information sources and training them to be informed, empowered and knowledgeable.

The course content of all state Agricultural Universities except for Rajasthan Agricultural University Bikaner has been divided into two parts. One part deals with the content of library and information sciences with the slant to educating the users, whereas the other focuses on skills of technical writing and research skills. The library and information science content centers around topics like: types of libraries; their uses and functions; library rules and ethics; knowledge classification; arrangement of books and cataloguing systems; use of library catalogues and OPACs; sources of information; knowledge of several national and international agricultural databases; library networks, databases, and web resources; library services viz., CAS, SDI; and indexing and abstracting, etc.

The technical writing content included in the course curricula provides skills in preparing a dissertation, writing scientific references, compiling bibliographies, preparing scientific reports and manuscripts for publication in journals, technical jargon like the use of Latin abbreviations, writing footnotes , and proofreading, etc.

Although the course curriculum followed by several universities of agricultural sciences across the country has been suitably tailored to the needs of students on the use of library resources, the curriculum has been lacking in uniform allocation of the course content in library and information sciences and technical writing. Appendix B and C highlight the course description followed by five major agricultural universities in the north and southern part of the country.

The course content of G. B. Pant University of Agriculture Science and Technology, Sher-e-Kashmir University of Agriculture Sciences, the Indian Agriculture Research Institute and Y. S. Parmar University of Forestry and Horticulture have given reasonable coverage to library and information science content whereas some universities, viz., Punjab Agricultural University, Sardar-Krushinagar University of Agriculture Science and Technology, and Assam Agricultural Universities have emphasized technical writing. Rajasthan Agriculture University emphasized more on library science and its use with absolutely no content on technical writing. Perhaps at undergraduate level it was not required. At Kerala Agricultural University, the section "Use of Library" is a part of the course "Research Planning and Implementation" with research areas having the major share in the content. A few universities like the Orrisa University of Agriculture and Technology, Mahatma Phule Krishivisvidhalaya, in Maharastra, Bidan

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Chandra Krishi Vishvidhalaya in West Bengal,and Sardar Patel University of Agricultural Science and Technology in Meerut have not introduced such courses in their academic curriculum. CSA University of Agriculture Sciences and Technology in Kanpur, Uttar Pradesh, and Central Agricultural University in Manipur are yet to introduce such courses in their academic curriculum also.

DURATION AND CREDIT HOURS OF THE COURSES

The user education courses devised by the agricultural universities are curriculum based and generally one credit hour. Most of the universities follow a semester system; hence, the course is offered in the first or the second semester particularly to postgraduates (PG). Only two universities Sardarkrushinagar Dantiwada Agricultural University in Gujarat state, and Kerala Agricultural University are offering this course for three credit hours. Some universities like CCS Haryana Agricultural University in Hisar, Dr. Y. S. Parmer University of Horticulture and Forestry, Solan, A.N.D University of Agriculture and Technology, Faizabad and Kerala Agricultural University are now offering these courses to PhD students also. Surprisingly, the Rajasthan Agricultural University, Bikaner, was offering this course to undergraduate students only but it has now been withdrawn. The library has not introduced such a course to postgraduate students yet. However, orientation is being provided at the beginning of the academic session when students enter the university. The University of Agricultural Sciences, Bangalore, is not offering any credit based course but only orienting the undergraduate and postgraduate students to the library services.

The study further reveals that all credit based courses have been made compulsory for PG and PhD students. Only G. B. Pant University of Agriculture and Technology offers the course on an optional basis. In most of the universities of agricultural sciences, the courses are graded in the final examinations. At Assam Agricultural University, Jorhat, the course is of non-credit nature. It is noted that these courses in all universities are offered under the semester system except for the Indian Agricultural Institute (IARI) in New Delhi which follows a trimester system. Assam Agricultural University offers it under the annual system. Appendix A lists the universities offering user education and information literacy courses at Postgraduate and Ph.D. levels along with their course titles.

OBSERVATION AND DISCUSSIONS

The Information Literacy courses followed by the agriculture universities are divided into two parts. One aspect deals with the topics of library and information sciences basically from users competency skills and the other part deals with technical writing which emphasizes topics like preparing a thesis, writing a project proposal, writing scientific reports and manuscripts for publications, writing bibliographic references and citations, creating footnotes, and proofreading, etc.

The course content followed by 20 agricultural universities across the country focuses on library and information sciences as well as technical writing and is offered to Postgraduate students. Only one university, Rajasthan Agricultural University in Bikaner, has course content that is focused exclusively on library and information sciences and does not include any topic on technical writing. Besides the course is

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offered to UG students and has now been withdrawn by the university. Presently the university is only instructing their students how to use library resources. Five universities, viz., Orissa University of Agriculture and Technology at Bidan, Chandra Krishi Vishwavidhalaya, CSA University of Agriculture and Technology at Kanpur, Sardar Patel University of Agricultural Sciences, in Meerut, and Central Agriculture University at Imphal are not offering any user education through curriculum based courses.

Ideally user education courses on information literacy are offered by the university libraries and as such there is no department of library and information sciences. At G. B. Pant University of Agriculture and Technology, the courses are taught by the staff of the Library and Learning Center under the Department of Humanities and Social Sciences. At Punjab Agriculture University, the Centre for Communication Languages and Culture is offering the course. In India there is no concept of subject librarians like in the US or Europe for teaching user education or information literacy courses. The course is taught by faculty librarians who are either assistant librarians, associate or deputy librarians or librarians.

The courses are generally offered to postgraduate students and are compulsory. Acharya Narendev Krishi Vidhyapeeth in Faizabad, Dr Y. S. Parmer University of Horticulture and Forestry in Solan, C. C. Singh Haryana Agricultural University in Hisar and Kerala Agricultural University in Trissur are offering this compulsory course to the Ph.D. students also. It is noted that course content for both postgraduate and Ph.D. students is the same. The students who have not studied the course in their post graduation days and those who have joined

the University afresh for Ph.D. programs from other universities have to study this course and it is compulsory. At G. B. Pant University of Agriculture and Technology, the course is optional. However, strong emphasis is given by the advisors to study this course. Rajasthan Agricultural University, in Bikaner, was offering this course to the under graduate students only but it has now been withdrawn. The University of Agricultural Sciences, Bangalore, is only orienting their undergraduate and postgraduate students to library resources at the beginning of the academic session.

The course is for one credit hour and is generally offered in the first or second semester. A few universities such as Sardar Krushinagar Dantiwada Agricultural University, Gujarat, and Kerala Agricultural University are offering such courses for 3 credits and Punjab Agricultural University is offering it for 2 credits. The course title varies from university to university. For example the Indian Agriculture Research Institute, (IARI) New Delhi, offers the course by the title "Agriculture Information System" while G. B. Pant University of Agriculture & Technology offers it by the title "Storage and Retrieval of Scientific Information." The University of Agricultural Sciences, Dharward, offers it by the title of "Library and Information Usage" and Himachal Pradesh Krishi Vishwavidhalya, Palampur, offers the course by the title "Literature and Technical Writing." Sher-e-kashmir University of Agricultural Sciences and Technology, Shalimar, offers the course by the title of "Library Science and Technical Writing." (Appendix A)

QUALITY INTEGRATION AND RESTRUCTURING

Although the course content followed by the universities of agricultural sciences has been suitably designed to equip the students with necessary knowledge and information seeking skills and to enable them to interact with the library resources and use them effectively without much staff guidance, efforts should be made by the universities to update and restructure the courses and improve their quality as per the need of present times. The libraries in the present situation have undergone paradigm shift from acquisition and collection building to providing access to information from network servers, web resources, etc. Most libraries are now functioning under automated environments which have digital resources; therefore, the course content needs to be built upon keeping these aspects in consideration. More emphasis needs to be given to develop students' skills to identify information sources, to evaluate and to locate/retrieve effectively when the need arises.

The study reveals that the course content followed by some of the universities has not been updated recently. These universities are: Jawaharlal Nehru Krishi Viswavidhyala, Jabalpur; Rajasthan Agricultural University, Bikaner; Indira Gandhi Krishi Vishwavidhalya Raipur, and Dr Punjab Rao Deshmukh Krishi Vishwavidhalaya. These universities are yet to incorporate the application of information technology for information retrieval, use of databases, formulation of search strategies, and library network web resources in their course content. Digital technologies need to be integrated into these universities' libraries.

Some universities have made efforts to update their course content in the use of OPACs, CD Rom databases, e-resources, knowledge of national and international information systems, and Library networks, such as the Developing Library Network (DELNET),and the Information and Library Network (INFLIBNET). These universities are the Dr. Y. S. Parmer University of Horticulture and Forestry in Solan, the G. B. Pant University of Agriculture and Technology in Pantnagar, the S K University of Agriculture Sciences & Technology in Shalimar, the Indian Agriculture Research Institute in New Delhi, the Kerela Agricultural University in Trissur and the H.P. Krishi Vishvidhalaya in Palampur.

Few universities have included in their course curriculum contents that are irrelevant from the user's point of view. The Indian Agriculture Research Institute (IARI) is teaching about document collection, acquisition and technical processing, etc. Similarly Indira Gandhi Krishi Vishwavidhalya in Raipur is teaching cataloguing codes, particularly the classified catalogue code and Anglo American Cataloguing Rules. Five Laws of Library Science have been included in the course content of Dr. Punjab Rao Deshmukh University. These topics of LIS are more relevant to the students of library and information sciences (as LIS professionals) than to the students who are being trained for life long learning.

Some universities like the University of Agricultural Sciences in Dharward have included topics like "complexities of books and periodicals," "technically reading a book." S D Agricultural University and Sardarkrushinagar University have included how to make a research project proposal and how to present reports and make presentations before a group and how to prepare a thesis and technical reports. Similarly Indira Gandhi Krishi Vishwavidhalaya has included a topic

relating to a study of a model thesis maintained in their library. Dr. Punjabrao Deshmukh University acquaints their students with various scientific agencies in the field of agriculture sciences and technology.

Regarding technical writing, all universities have included topics like compiling bibliographies, the use of scientific references and citations, preparation of a thesis and scientific reports, the use of Latin abbreviations, writing footnotes, and proofreading.

The study further reveals that the course description followed by 20 agricultural universities across the country is varied and indicates lack of standardization. This is because the universities in different states are autonomous and formulate their own course content and get approval from their respective academic councils. A few universities have emphasized library and information science skills fairly well. Examples of these universities are the G. B. Pant University of Agriculture and Technology and the Dr. Y. S. Parmer University of Horticulture & Technology. Other universities have given more coverage to technical writing. Examples of these universities are the Punjab Agricultural University and the Assam Agricultural University. The Kerala Agricultural University in Trissur has emphasized research planning and implementation. Several universities have not updated their course curricula according to the need of the present times. Hence, there is a need to restructure the course curriculum followed by the agricultural universities by including tool literacy which is an ability to retrieve and use both print and electronic sources of information including various software used in the library for automation and digitization. It

would be advisable to have one credit course completely focused on Library and Information Science skills for life long learning and for integrating the latest technological developments required for students to identify and evaluate various information resources and learn retrieval techniques. A separate course for technical, scientific writing skills and research communications is needed.

SOME SUGGESTIONS FOR TEACHING INFORMATION LITERACY

In order to have wider focus on user education and information literacy skills, the course content followed by the universities should be updated and restructured periodically keeping in mind the ongoing changes in information management and retrieval resulting from the rapid developments in the field of information and communication technologies.

1. The course should be offered to postgraduate and Ph.D. students who are likely to be more dependent on library resources for research work. The course should be made compulsory and graded in their final exams. For graduate students, it would be more fruitful to include these research skills early in their degree program so they are well versed in library user education skills while working on graduate research projects. Universities not offering these courses should make an effort to include them in their postgraduate course programs.

2. The course content followed by

the agricultural universities lacks uniformity. While some universities have given emphasis on LIS content, others have given more emphasis to technical writing skills. It is suggested that all universities in the country should work together in order to bring about uniformity in the course curricula. There should be a forum for the agricultural librarians to discuss such matters extensively before taking it to the respective academic council of the university. The Agricultural Librarians Association, which had been lying dormant, has been revived recently. It needs to be strengthened across the country with a massive membership drive and the active participation of agricultural information professionals. This would serve as a very interesting forum for the agricultural LIS professionals to share their experiences and a place where they could work towards building uniformity in course content and where they could discuss the latest developments in their field.

3. There should be appropriate or suitable distribution of content in library and information sciences and technical writing skills. This is suggested because some of the universities either emphasize more library and information skills or more technical writing. Writing a thesis or a project report needs to be reconsidered; ideally it should be taught as a part of technical writing skills.

4. The course curriculum needs to

be made more realistic and need based. Contents like practical work on cataloguing and classification, cataloguing codes/rules, laws of library sciences, acquisition, document selection, technical processing, etc., should be removed since these topics are not really relevant for the users being trained for life long learning and information literates. Contents like digital libraries, Meta search, search engines, interlibrary loan, etc., need to be incorporated.

5. A library requires big investments and students have the right to draw maximum benefits from using the resources fully. Information literacy courses make this possible. Efforts should be made to persuade the universities not offering these courses , such as Orissa University of Agriculture and Technology, Bidan Chandra Krishi Vishvidhalaya (WB), Central Agriculture University Imphal, etc., to include an information literacy course as an essential part of their educational program. The Agricultural Library Association's forum once revived can be used for wider discussions and lobbying.

6. More emphasis needs to be put on the use of gray literature, e-resources (including e-journals and open access journals), evaluation of digital information, use of databases and library Networks, Information Gateways and consortiums. Students also need to be made aware of

scholarly communication, plagiarism, importance of copyrights, and 'write and cite' tools like 'RefWorks.'

7. As the libraries are getting hi-tech and complex in nature with e-resources and services to provide access to remote databases and wider use of IT for information storage and management, it is suggested that a separate credit course should be offered on information retrieval and library use. The technical writing, though important, could be included with the courses offered by the language and communication departments of the universities.

The success of the IL courses is based on the understanding of course curriculum and course objectives; therefore, the Librarians and Information Managers of Agricultural Universities should work together to revive the dormant Agricultural Library Association of India. There is a need to develop a platform to exchange and discuss information literacy and professional matters with other universities from time to time. In order to bring qualitative changes and uniformity in the course content as per the latest developments, the platform of the Agricultural Library Association will prove very fruitful. Efforts in this direction have already started but the Association needs to involve more and more younger and active professionals in the network.

CONCLUSION

User education and information literacy courses are important, particularly keeping in view today's context where there is reduced library staff interventions in the

user's search for information in the digital environment. The agricultural universities' libraries in India are already offering one credit course to postgraduate and PhD students. These courses are mostly compulsory except for a few universities where it is offered on an optional basis. The course content is a mix of library skills and technical writing knowledge. This article highlights that there is no uniformity in the course content; since universities are state subject, they follow their own devised curriculum. While some universities emphasize more on teaching library skills, others focus on research and technical writing skills. Librarians and information managers of agricultural universities should work together to strengthen the Agricultural Library Association in order to bring qualitative changes and uniformity in IL courses across the country. The Association will give a platform to the agricultural information managers for fruitful discussions towards bringing uniformity in course content besides working towards up grading and integrating the latest developments in the subject. Examples would be to include areas like RefWorks' 'write and cite tools,' information about gray literature, plagiarism and copyrights into the course curriculum. It is advisable to have an exclusive credit course integrated into regular course curriculum on use of library resources and retrieval techniques and a separate course for imparting research and technical writing skills. Finally, library professionals will need to stay alert to changes and constantly be willing to change how and what they teach.

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APPENDIX A — AGRICULTURAL UNIVERSITIES OFFERING CREDIT BASED USER EDUCATION / INFORMATION LITERACY COURSES IN INDIA

Name of the University	Course Title	UG/PG / Ph.D.	Year of Starting	Compulsory/ Optional	Credit Hours
Acharya Narendra Dev University of Agriculture. & Technology, Faizabad.	Use of Scientific and Technical Literature	PG & PhD	-	Compulsory	1 (1+0)
Assam Agriculture &Tech University, Jorhat	Technical writing and Library Use (TWL)	PG	1983	Compulsory	Non credit
C C S Haryana Agriculture. University, Hisar (HAU)	Library Science and Technical writing	PG & Ph.D	1982	Compulsory	1 (1+0)
Dr.Panjab Rao Deshmukh Krishi Vidhyapeeth, Akola	Scientific Report Writing and use of Library AG,Extn-613	PG	1987	Compulsory	1 (1+0)
Dr Y S Parmer Univ. of Horticulture & Forestry, Solan	Literature and Technical writing –501	PG & PhD.	1985-86	Compulsory	1 (1+0)
G B Pant University of Agriculture. & Technology, Pantnagar	Storage and Retrieval of Scientific Information-610	PG	1976	Optional	1 (1+0)
Himachal Pradesh Krishi Vishwavi. Palampur	Literature and Technical Writing –501	PG	1982	Compulsory	1 (1+0)
Indian Agriculture Research Institute (IARI) New Delhi	Agriculture Information System (AIS)	PG	1982	Compulsory	1 (1+0)
Indira Gandhi Krishi Vishwavidhyalaya Raipur	Biological Literature and Reference work	PG	1970	Compulsory	1 (1+0)
Jawaharlal Nehru Krishi Vishwavidhyalaya. Jabalpur	Agriculture Information System (AIS)	PG	-	Compulsory	1 (1+0)

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APPENDIX A (CONT.)

Name of the University	Course Title	UG/PG / Ph.D.	Year of Starting	Compulsory/ Optional	Credit Hours
Rajasthan Agriculture University, Bikaner	Library and Information Usage	UG	-	Compulsory	1 (1+0)
Sardarkrushinagar Dantiwada Agril.Univ. Banaaskantha Gujarat	Scientific and Technical Writing (STW)	PG	-	Compulsory	3 (3+0)
Sher-e Kashmir University of Agriculture Sciences & Technology, Shirinagar	Library Science & Technical Writing (LIB 601)	PG	1982	Compulsory	1 (1+0)
Sher-e Kashmir University of Agriculture & Technology, Jammu.	Library Science & Technical Education	PG	1999	Compulsory	1 (1+0)
Tamilnaidu Agriculture University	Research methodology & Library Use ABT -610	PG	-	Compulsory	1 (1+0)
University of Agricultural Sciences, Dharward.	Introduction to Library Sc. (Lib-14)	PG	-	Compulsory	1 (1+0)
University of Agriculture Sciences, Bangalore	Utilization of Library facilities	UG & PG	-	Orientation. As per requirement	Non credit
Kerela Agriculture University, Trissur.	Use of Library is part of Research planning & Implementation course RM (610)	PG &PhD	1996	Compulsory	3(2+1)
Marathwada Agriculture University Parbhani	Scientific Report Writing	PG	1977	-	2(1+1)
Punjab Agriculture University	Technical Writing & User Education (TW 501)	PG	-	Compulsory	-

APPENDIX B — A COMPARATIVE VIEW OF COURSE DESCRIPTION OF THE FIVE MAJOR AGRICULTURAL UNIVERSITIES IN NORTHERN INDIA					
	CC H A& U (Haryana State)	**G.B P U & AT (Uttrakhand State)**	**H.P K V (Himachal Pradesh)**	**SKUA&T (Jammu &Kashmir)**	**IARI (New Delhi)**
1.	Role of library services in university uducation	Role of library in university education	Role of library in university education	Role of library in teaching & research	Role of library in society
2.	Organization of university library	Functions of library in self study	-	Functions of library	Functions of library
3.	Classification & organization of library resources	Knowledge of library classification	-	Introduction to classification schemes DDC, UDC etc.	Classification, document selection & technical processing
4.	Use of Catalogue/ OPAC and Kardex	Use of Catalogue / OPAC Call number, Book number	Use of Catalogue / OPAC	Use of Catalogue. Types of entries, AACR-II	Use of catalogue and OPAC
5.	Scientific literature, and types	Scientific literature, Information Explosion. Language, Scatter, etc.	Scientific Literature. Information Explosion. Language Barrier.	Information Explosion, Scatter & language problem	Scientific literature fundamental categories of documents
6.	Sources of information. Primary / Secondary/ Tertiary	Sources of information. Primary/ Secondary/Tertiary	Information Sources. Primary/ Secondary/ Tertiary	Sources of Information. Primary/ Secondary/ Tertiary	Information Sources. Characteristics of information.
7.	Knowledge of data bases and retrieval techniques	Machine readable database. CD ROMs. Online information retrieval and search	Knowledge of databases. CD ROMs. Search strategies	IT in libraries. Knowledge of databases. Search system. CD ROM, Multimedia	Knowledge of databases. Search Strategies .CD ROMS, Thesaurus.
8.	-	Library networks. national and international e.g. INFLIBNET, DELNET	-	Internet. Library network, national & international. INFLIBNET , DELNET' etc.	Knowledge of electronic publishing and products
9.	Bibliographical control abstracting indexing services	Bibliographical control. abstracting & indexing services	Bibliographical control abstracting & indexing current awareness , SDI services	Reference services. indexing , abstracting current awareness, SDI services.	Library tools. Documentation services.

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APPENDIX B (CONT.)

	CC H A& U (Haryana State)	G.B P U & AT (Uttrakhand State)	H.P K V (Himachal Pradesh)	SKUA&T (Jammu &Kashmir)	IARI (New Delhi)
10	Compilation of bibliographies	Techniques of compiling bibliographies	Knowledge of compiling bibliographies	Techniques of compiling bibliographies.	-
11.	Preparation of a dissertation. Writing technical papers	Preparation of a thesis / dissertation	Preparation of thesis / dissertation	Preparation of dissertation writing, research articles, term papers.	Scientific report writing
12.	Writing footnotes. Use of latin abbreviations. Proof reading symbols. Use of tables, illustrative materials.	Use of Ibid, Op.Cit. Idem. Proof reading and footnotes, etc.	User of footnotes, Ibid, Op.Cit.., Latin, abbreviations.	Proof reading. Use of abbreviations	-

APPENDIX C — A COMPARATIVE VIEW OF COURSE DESCRIPTION OF THE FIVE MAJOR AGRICULTURAL UNIVERSITIES IN WESTERN AND SOUTH INDIA.

	UAS (Karnataka state)	KAU (Kerela state)	TAU (Tamilnaidu state)	Dr PRDKV (Maharastra state)	SDAU (Gujarat state)
1.	Role of library in university education	Role of library in education.	Role of library in university education	Role of library in higher education	Library and its use in university education
2.	Functions of library in self study, organization & acquisition	Use of library for collection & collation of scientific literature	-	Functions of university library services. Laws of Library.	Functions of library, type of libraries
3.	Classification, DDC and Call Numbers development of subjects.	Knowledge of library classification	Classification system in library	Library organization, classification schemes, DDC, UDC etc.	Classification. Arrangement of books & resources
4.	Use of Catalogue/ OPAC. Cataloguing , main & added entries	Use of Catalogue / OPAC	Use of Catalogue / OPAC	Use of catalogue. Types of entries, authorship pattern	Use of Catalogue

APPENDIX C (CONT.)

	UAS (Karnataka state)	KAU (Kerela state)	TAU (Tamilnaidu state)	Dr PRDKV (Maharastra state)	SDAU (Gujarat state)
5.	Scientific Literature, Scatter. Information Explosion & barrier to information	-	Knowledge of scientific literature	-	-
6.	Sources of Information. Primary / Secondary/ Tertiary	World information resources/information systems in agriculture	Information Sources in agriculture	Sources of scientific Information. Primary / Secondary/ Tertiary	Information Sources
7.	Machine readable Database. CD ROMs Information, retrieval and search	Online Information, retrieval and search	Knowledge of databases. CD ROMs. Search Strategies	Knowledge of databases	Knowledge of databases in agriculture sciences
8.	-	Library Networks. National and International	Library networks	-	-
9.	Bibliographical Control Indexing & abstracting. Reference & referral services and tools.	Bibliographical Control.	-	Bibliographical Control of Scientific Literature, abstracting & indexing services	Reference tools. Citation methods.
10	Compilation of Bibliographies. Knowledge of Union catalogues	-	-	Writing bibliography and references	-
11.	Scientific writing. Technically reading a book. Complexities of books & journals	Scientific writing, thesis. Research report. Progress report, etc.	Preparation of Thesis / Dissertation. Scientific writing	Preparation of dissertation, writing research articles. Kinds of reports, scientific reports etc	Preparation of dissertation. Scientific writing, research articles. Technical reports. Present research report before group.
12.	Use of Op cit, Ibid, footnotes. Use of punctuations	Proof reading. Correction in scientific writing. Documentation, etc.	Preparing manuscript for research , journal publications	Use of abbreviations etc. footnotes	Proof reading. Use of abbreviations. Preparing manuscript for research/ journal publication.

APPENDIX D — BRIEF QUESTIONNAIRE USED FOR DATA COLLECTION

1. Name and address of the:
   a) University
   b) Library and Information Center

2. Does your library offer any User education / Information literacy course to students?
   a) Yes
   b) No

3. If yes, is it offered to:
   a) Under Graduate (UG)
   b) Graduate students/ Under Post graduate (PG)
   c) PhD

4. When was the course started?---

5. What is the name of the course and course number ?--------------------------

6. Who is teaching the courses ?---

7. Is the course integrated into the regular course curriculum? (Yes/No)

8. What are the credit hours of the course? --------------------------

9. What are the contents? Please include/attach a copy of the course content you follow.

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