FINDINGS, SUGGESTIONS AND CONCLUSION

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Educational system adopted by the agricultural universities in India is based on the Morrill Federal Land Grant system of U.S.A. The bibliographic education / user education has its origin in these Technical universities, wherein the credit courses were introduced. When the agricultural universities concept was conceived in India some of the universities also introduced the information management skills programmes for users as part of their curriculum.

Since the information management skills programmes for the users are of great importance, the subject was discussed at the national level in the seminar organised at PAU Ludhiana, during 1977. The seminar recommended that all the agricultural university libraries in the country to introduce user education programmes as credit courses. This recommendation was accepted by the Indian Council of Agricultural Research, a national body which coordinates agricultural research education, extension and training.

Excepting a few reports made at the conferences, no systematic efforts were made to study in detail about the information management courses adopted in the agricultural university libraries. Hence it was felt necessary to study in detail all the agricultural university libraries in India about their user programmes, the curriculum, teaching methods, evaluation pattern, the resources, faculty associated with teaching, use of self learning packages, problems etc.
As the Information Management programmes aim at "Education for Life" and help for "Independent study" for the professionals, it was felt necessary to conduct an impact study in the libraries for the professionals in agriculture. The feedback collected from this impact study may help in modifying the existing programmes.

Thus this study concentrated on the "Information Management Programmes" in agricultural libraries and also impact study conducted at NAARM, Hyderabad.

7.1 FINDINGS OF THE STUDY

1. It was observed that out of 32 universities and institutes engaged in education only 24 universities (75%) have introduced credit courses on information management for users in the libraries.

2. Among these 24 agricultural universities only 19 universities have introduced (79%) the information management programmes as compulsory credit courses.

3. Excepting the deemed to be universities and NAARM no ICAR institute libraries have developed user programmes.

4. Course title and coverage made in all libraries is not uniform. About 22 universities (92%) have prepared the course catalogue / structured curriculum.
5. In retrieving information, eight topics are commonly covered by all the universities (100%) viz., Library organization and inhouse services; Information search strategies; Information sources; Using abstracting journals; Using indexing journals; Databases and databanks; CDROM databases; and Frontiers of agricultural information services. Topics like reading skills (8%); Listening skills (4%); Observation skills (4%); are the least covered.

6. In organising information skills, abstracts writing(100%) indexing techniques (100%) and personal information organization (83%) were given more importance.

7. Information evaluation component in user programmes have, been introduced only in 14 libraries (58%).

8. In communication skills component writing skills; Research paper writing. Synopsis writing: Abstracts and summary writing; Bibliographical references and citations pattern have been introduced in all 24 libraries (100%).

9. There is no uniformity in the duration of the courses. Credit hours vary from 1 to 3. Eighteen institutes have introduced compulsory credit courses. In five institute (21%) it is optional one credit hour. At NAARM it is integrated with training programmes.

10. Information management programmes in all agricultural universities are handled by the librarians, but in 18 universities (75%) faculty members from extension education, press: editors: English department, are also associated.
11. About 20 institutions use OHPs (83%) and only 15 institutions use slides and tapeslide programmes (63%) in teaching.

12. Individualized instructions through workbooks and practical exercises through structured learning has been adopted by 20 institutions (83%).

13. Performance evaluation adopted is not uniform. Nineteen universities (79%) conduct examinations at the end of the semester. Objective type, descriptive and practical exercises and worksheets are commonly used by all the libraries in performance evaluation.

14. Developing self learning / travelling workshop kits for teaching were felt quite essential. Self instruction manual and tape slide programmes required to be developed (100%). Need to develop travelling workshop kits were expressed by 30 libraries (94%).

15. ICAR research institute libraries gave more weightage to develop self learning packages for users on current contents (89%) Agrindex (85%) CAB services (91%) Abstracts on Trop Ag. and Rural (78%) DAI (75%)

16. NAARM Hyderabad was a unanimous choice to act as a National clearinghouse on Information Management programmes for users by the agricultural universities (75%) and ICAR research institutes (76%).
17. Only five librarians (25%) had training on instructional technology. Training of Trainers on Teaching techniques (78%) Communication skills (75%) Use of A.V. aids in teaching (81) were the priorities.

18. Scientists those trained at NAARM have opined the usefulness of the information skills in their job as excellent (38%) and adequate (39%)

19. About 552 scientists (92%) were very much satisfied with the coverage made at NAARM. About 180 scientists out of 253 who repeated the course at NAARM rated the programme at NAARM as outstanding 91 scientists (36%) excellent 89 scientists (35%) and better 61 scientists (24%).

20. It was unanimously opined by the scientists (86%) that the information skills teaching should be introduced at P.G. level for M.Sc and Ph.D., programmes.

21. Relevance of information management programmes in the professional work has been expressed by 588 scientists (97%) 

22. More than 70% scientists expressed the need to develop self learning packages for Current Contents (92%), Science Citation Index (89%), Index to Scientific Reviews (88%), Atlases of Sciences (88%), ISTP (83%). Agrindex (92%), Bibliography of Agriculture (86%), ATA / Trop. Ag. and Rural (87%) DAI (74%) and information services of CGIAR institutes (87%).

23. Scientists also expressed that a national clearinghouse on "Publishing" be established.
24. Scientists also expressed a need to establish "Agricultural Documentation Centre" for resources sharing and information delivery.

25. It was opined by the scientists that the information skills programmes have to be more practical oriented and hands on experiences which will help them a lot to learn information skills for independent study and life long education.

7.2 SUGGESTIONS

User education "Education for life" and "Instruction for lifelong learning" has become quite essential in the present day's information society. "Users who do not educate themselves and keep educating themselves to participate in the new knowledge environment will be the peasants of the information society". Many sophisticated user education programmes have been developed focussing on information structure and research strategy. Course related and course integrated instruction has displaced the earlier trends in user education.

User instruction for lifelong learning must convey the fluidity of information environment, cover key institutional sources of information and suggest strategies for maximum utilization of sources/services at minimal cost. User programmes must take into account changes in scholarly communication. In the changing environ when electronic and informal communication channels are gaining importance, it is the librarians task to promote these systems and educate the user to access and manipulate.
On Summarising the data and important findings some of the following suggestions have been drawn which could help in the effective implementation and improvement in information skills programmes for users in Indian agricultural libraries.

1. Course related user programmes in the libraries have to be introduced having a large components of knowledge skills, information skills and communications skills. Bibliographic instructions should be provided in an integrated fashion.

2. Information skills have to be treated as an integral component of training in scientific methodology. Research organizations should concentrate on providing this facility as life long process by organising many inhouse programmes.

3. The Information Management Skills should be introduced as two credit compulsory courses in all agricultural institutions where agricultural subjects are taught at Post-graduate level.

4. Once the user programmes at post-graduate level are implemented, these may be extended to under-graduate courses also, depending on the availability of resources.

5. Communication skills and information handling skills should form as an integral part in user programmes in order to have a good impact. Skills like study skills, note making/taking skills, memory skills, etc., may also be introduced at under-graduate studies.
6. Uniform evaluation pattern has to be adopted for user courses in all the agricultural universities and research institutes. Emphasis should be more on practicals and project works. Descriptive analysis and questions may be avoided.

7. Multi-campus Universities having colleges at different places should introduce these courses effectively by providing sufficient staff. In order to have uniformity in course content, the pre-recorded audio-visuals, training kits etc., should be developed and used in teaching.

8. All the University and Institute Librarians should be the members of the Academic Council for proper organisation and implementation of user programmes. This helps in updating the programmes, whenever there is a change in the curriculum and shift in curricular emphasis.

9. Model curriculum may be developed based on the present information Technology applications separately for
   (i) Post-graduate students; (ii) Research workers and faculty members in institutes and universities; and (iii) Short term training programmes.

   Such a curriculum should be in a modular form to permit a particular institution to choose the modules that seem most important or relevant to its own environment. The model curriculum might include various forms of instructional package, including videotapes and kits to support travelling workshops. These may be kept with one of the ICAR institutes or agricultural universities or national clearinghouse.
10. There is an urgent need to develop the trainers training kits and users self-learning packages specially for the secondary periodicals. On a cooperative basis these can be developed at the UNDP advanced Centre on Educational Technology established at NAARM, Hyderabad. Further, planning and initiation for developing such kits has to be taken up keeping in view the guidelines of SCONUL (2), Reynolds and Simmonds (3); experiences of travelling workshop experiments (4), SNDT Women's University (5); IFLA, FID, IATUL, INFUSE, Project LOEX, ALA, BLR & DD, USER and others.

11. Information technology has revolutionized the library services. Electronic libraries and virtual libraries are the talk of day. Many databases are available on online and in CDROM format. These also should be taught in the programmes by providing hands on experience to the users.

12. Course Evaluation (feed back) should be conducted immediately after the programmes evaluation should be conducted. It shall act as a feed back for the organisers in improving their programmes. The changes in the user behaviour and use of the library resources before the training and after the training could be an interesting observation and may be considered by the organisers of the programmes in collection building and resource utilisation for their clientele group.

Further research may be initiated for conducting comparative studies of all the course curricula and case studies developed which would help in
updating the programmes offered by different agricultural universities and institutes.

13. User Education and information skills training for information use should be addressed to all members of the agricultural institutions and has to be carefully designed to their needs at the beginning and as well as for the continuing education.

14. Teaching staff, students, information specialists, information brokers, librarians, should democratically design the curriculum which has to be implemented by the Librarians.

15. With the growing use of new technologies, librarians need to know the uses of new technologies. Adequate education and training should be provided to all information professionals as basic or continuing education so that they can assume full responsibilities for education and training for information use to their clientele.

16. Library and information science departments do very little to train the librarians for the job of teaching the library use. There is an increasing demand to imbibe with the products of library science departments to have adequate teaching and communication skills and exposure to curriculum design and development.

17. Sufficient, dedicated trained staff suitable for handling information skills teaching should be made available or identified from among the available staff. Separate budget towards resource development, training tools etc., should be made available.
18. Many of the libraries are now computerizing the resources and many facilities like online, CDROM, Multimedia video disc technology etc., are being established. Training the users on these new media may be considered.

19. **Agricultural Library Instruction National Clearinghouse**: In most of the agricultural libraries, the library use instruction and information skills teaching activity changes from year to year. Many experiments have been made to revise the curricula, use of new teaching methods and developing teaching materials. Often the agricultural libraries fail to trace the source of such material and also find it difficult to keep pace with the developments. In India the user instruction now has taken a momentum and many libraries are planning to introduce. Many more developments, activities, research and development are also expected in future in addition to developing trainers training kits.

In order to coordinate all these activities in agricultural field, the "Agricultural Library Instruction National Clearinghouse" (AGLINC) may be established in India by the Indian Council of Agricultural Research in one of its institutions. This Agricultural Library Instruction National Clearinghouse as concluded in this survey, preferably may be established as one of the activities of National Academy of Agricultural Research Management (NAARM), Hyderabad, where the UNDP Advanced Centre on Educational Technology also has been established. This clearinghouse, once established, should concentrate on the following problems of user education in addition to the functions and activities enlisted below.
Problems:

a. Education, instruction and training of trainers.

b. Investment in teaching materials and media.

c. Preparation of teaching materials.

d. Proliferation of teaching material and media.

e. Creation of a databank of written and published case studies.

f. Cooperative and coordinated efforts in user instructions.

g. Research and extension and development in user studies and instruction, and

h. Collection and development of literature on user instruction.

Functions of AGLINC, India

1. Accessibility of the material available at clearinghouse.

2. Acquisition of information and material - printed, audio-visual material, teaching material, library produced guides, research reports on user instruction, journal articles, unpublished literature, notes, views, news, developments etc..

3. Dissemination of information: Following are a few activities which can be taken up by the clearinghouse to disseminate the information relating to information management programmes for users.
a. Enquiry Services.

b. Databases - Range of material could be all sorts of teaching materials, library produced guides, course outlines, exercises, commercially produced material, research proposal, reports, journal articles, books etc., on library use instructions.

c. Publication of Newsletters on library use instructions covering Indian activities, overseas news, research reports, research directory, calendar of conferences, reports of the conference proceedings, reviews of books and audio-visual materials and new products, information needs of trainers etc., This medium could provide an opportunity to the library professionals, those handling user education programmes to place their experiences and clarify doubts.

d. Conducting of conferences, seminars and meetings in the user education area, and publication of conference proceedings, books, bibliographies etc.

e. Distribution and lending of teaching and training material for use in agricultural libraries on demand.

f. Planning and bringing out (production of) trainers training kits, learners' information packages, structured learning exercises with audio-visual packages on cooperative basis.

g. Organising trainers training programmes for effective use of audio-visuals in teaching, production of reading material; Communication and Public speaking;
designing and layout of the lectures / talks; preparation of slides and other audio-visuals.

h. Advisory and consultation services

i. Developing model curricula for all levels, including short courses and specialised courses in agricultural sciences.

7.3 FUTURE RESEARCH

The user instruction and information skills teaching is not an end in itself. The future ahead opens with the newer challenges in the areas of information skills teaching for the use of libraries. The librarians must become more involved in curriculum design and development, teaching methods, assessment of work, help in structuring the development of a field of specialization in the educational system by identifying the research front specialties etc.,

1. Evaluation is one of the most important areas in the educational process. At present there is no uniformity in the performance evaluation of the students undergoing information skills training in agricultural universities. A systematic research work and recommendations could help those offering courses.
2. A comparative study of the curriculum of all library schools in India be taken up regarding the library instruction courses. Teaching techniques and skills of instructional librarian, required to be covered in the curriculum may be worked out.

3. A detailed study may be conducted in identifying the lead, impact and core journals in all the disciplines of agriculture in India.

4. Research on developing course curriculum for inservice training programmes for the senior scientists and faculty members has to be undertaken.

5. Research on establishing a national clearinghouse for information skills teaching in agricultural sciences be taken up. Detailed study on functioning, funding, staffing, what to acquire and what to share with the tutor librarians, problem solving of individual cases, dissemination of information, advisory roles etc., be studied for further guidance.

6. Research on "Outreach Programmes for Users", "Outreach Programmes for the Trainers" development of packages for remote delivery through electronic medium and computer assisted instruction may be taken up.

7. A comparative study of the user programmes adopted in Indian agricultural libraries and the UNISIST guidelines, be studied and the reasons for deviance if any be projected.
7.4 CONCLUSION

Agricultural Scientists in India have to face many new challenges and the most publicised one is that of "increased food production". The natural calamities, droughts and famines, climatic changes, ecological imbalances, biodegradation, pollution, diseases, pests etc., are constantly affecting the agricultural research. In order to meet these challenges there is a great demand to have updated information in the areas the Scientists are working and also the scientists would like to keep in touch with all the literature generated the world over from time to time. To lay hands on all these resources and to collect required, pinpointed information without much wastage of time user instruction is most essential to the professionals in agriculture which will equip them with necessary skills for life long education and effective research output.

In the wake of the emphasis on "(1) Life-long education as a cherished goal of education; (2) assistance in self-learning; (3) transformation of teaching methods; (4) sharing of resources; (5) reading and creative writing habits; (6) Networking etc", in our Prime Minister's new education policy the agricultural institutions of higher learning and continued education in the country are the leaders and have effectively introduced the user instruction programmes integrated with the courses. These programmes can be a model for others who plan to initiate or review their programmes.
Advent of distributed, electronic access to information, presents enormous opportunities and significant risks for the information consumer as well as the library. Electronic environment may lead to user ignorance of relevant databases, the content, and shortcomings of individual search strategies. Thus the Tutor Librarians have an on going responsibility to educate the patrons in the deficiencies as well as the capabilities of the new information technologies.

"Information literacy" being one of the basic goals of the information skills teaching in Indian agricultural libraries, the librarians role will be significantly redefined on the campus. First, it will enhance campus perception of the library as a permanent indispensable resource whose mission is to provide access to information and knowledge in any format. Second, by focussing on lifelong information competencies as a instructional goal, the library will demonstrate a clear capacity for useful adaptations to environmental change. Third and most important, the library will gain visibility on campus by proving its effectiveness in providing access to information and may as a result command a large share of institutional resources.

To conclude, the information skills teaching by the libraries will provide a great opportunity for the librarians to be a partner in the overall development of society and progress in science and education. Thus let me close with one of the old Chinese proverbs which has a great relevance to this reporting -
"If you give a man a fish
He will have a single meal.
If you teach him how to fish
He will eat all his life long".
REFERENCES


