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ICT competency framework for LIS professionals in India: a modular quotient

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The study aims to develop a quotient towards a methodology wherein standards of web-based ICT competency framework for LIS professionals in India can be codified in a broad-based model. This in turn could result in evaluating the current skill-sets and identify ICT requirements for future development in LIS areas. This is also an attempt to design a web-based platform for LIS professionals in ICT competencies in India. The modular web-based framework could be used in the national programme for continuing education of librarians as a tool to adapt curricula to the expectations of professionals in university libraries; foster career-long education and lifelong learning of librarians; support assessment according to the professional development plan and to enhance ICT competencies of university personnel.

Keywords: University libraries; Library professionals; LIS education; Competency framework; ICT skills

Introduction

A competency framework is a broad framework for integrating, organizing, and aligning various competency models. It is a structure that sets out and defines each individual competency required by individuals working in an organisation or part of it. By embracing the framework, professionals can gain an understanding of what it takes to be successful in their job and their career. Once they have this understanding, they will be able to take more control over their career development that will result in better services and users' satisfaction.

In this paper, a web-based ICT competency framework has been drawn-up, to provide LIS students, faculties and professionals, a standardized approach for awareness, assessment and continuous education of competencies while handling ICT based library functions and services.

Review of literature

According to Barajas & Higueras[1], acTIC (acreditación de competencias en tecnologías de la información y la comunicación) or certification of ICT competencies has been initiated among its citizens in Catalonia, Spain. This framework is based on a three-level model and deals with implementation of ICT for all its citizens above the age group of 16 years. Newman[2] explained that the BECTA's review of Digital Literacy ICT framework was aimed at children not exceeding 16 years of age. It provides a model for digital awareness and critical thinking for students and teachers. The Digital Competence Assessment (DCA) framework as explained by Calvani, Fini, Ranieri and Picci[3] is targeted at children of ages 15-16 years which enumerated the definition and conceptualization of digital competence. In Ireland, the National Council for Curriculum and Assessment (NCCA)[4] proposed an ICT framework for primary and lower secondary schools, which provides guidance for teachers in embedding ICT concepts in contextual curriculum component in all subjects. It identifies knowledge, skills and attitudinal perceptions normally expected from students attending the schools.

The United Nations Educational, Scientific and Cultural Organization (UNESCO)[5] framework was aimed at the entire gamut of all tiers of teachers on a

worldwide basis. This ICT Competency Framework for Teachers (ICT-CFT) identifies as well as defines various ICT competency skills required towards enabling them to integrate their teaching skills with technological processes. The framework through ICT, primarily aims to develop skills in pedagogy, school and collaborative innovations. Anusca Ferrari, an European project manager (Ferrari[6]) opine that the UNESCO project is a combination of policy framework, set of competency standards and implementation guidelines to provide a holistic overview for teachers. Though this primarily seems to be embedded in a complex structure, it has the foresight to foretell the elements of technical components. Academically speaking, this framework per se, is not entirely about digital competence but rather it visualizes the entrenchment of ICT in every nook and corner of aspect of all educational institutions. It specifies basic technology literacy in 12 levels. Such as hardware, software, web resources, communication technologies etc.

In 2013, IFLA[7] recommendations came out with findings in shape of 'IFLA Trend Report'. This report consisted of broad five trends prevalent across the globe namely, *'limitations and expansion of new technologies to information access'; 'effect on global learning through online education'; 'data protection and privacy policies will be redefined'; 'hyper-connected social media empower new groups'* and *'transformation of global information economy through new technologies*'. The report took a broader approach and identified the trends shaping the information society, spanning access to education, privacy concerns, etc. The background for the path breaking developments resulting in IFLA trends is that the possibility of trends on course of collision in the digital age could not be discounted. However, it is important that we should keep in mind the gold mine of information is translated into education with special emphasis to online education. It is both global and highly mobile in nature. But is also challenged by newer technologies and is vulnerable. Since its launch in 2013, the report has been the focus of study and discussion by LIS professionals around the world. The discussions mainly revolve around how the libraries could evolve and adapt to the Internet age. This by default is intimately connected to ICT areas of LIS, libraries in the digital information environment etc.

IFLA[8] has summarised the 27 themes and questions spread across five continents in 2016. The 'IFLA update' has various issues discerned depicting the challenges in area of LIS; *'technological advancements'; 'dynamics of digitization'; 'security concerns'; 'infrastructural and other support services'; 'possessing of relevant and desirable skills for librarians'; 'social equity and inequality'* and *'future role of library in the present age of internet universe'*.

The above issues are of concern in Indian context as well. The issues in the context of IFLA trends vis-à-vis ICT competency in India LIS are explored in this paper.

Objective of the study

- To suggest a nationwide standardized framework of ICT based competencies for LIS professional.

ICT competency levels for LIS professionals

The ICT competency framework for LIS professionals is arranged and proposed in three successive levels of competencies and each of them has been further defined in three successive sub-levels to reflect the context within which the competencies are being used according to the professional levels, designation, professional qualifications and work-profile of the LIS professionals. All these levels are explained in separate sub-sections and incorporated in the development of the competency framework. Figure 1 depicts the various levels of ICT competencies at a glance.

Level I: Technology basics

LIS departments of all the universities should have a uniform and up-to-date syllabus. The competencies of this level should be in three area, namely, 'general ICT awareness', 'basic windows functionality' and 'Internet and website handling'.

Level II: Functional aptitude and capability

The second level of competency should be based on job function, nature and responsibility. All new employees must be trained to acquire required ICT competencies to successfully meet performance objectives vis-à-vis related to position description. This needs to be completed within first three months of employment and then periodically re-trained

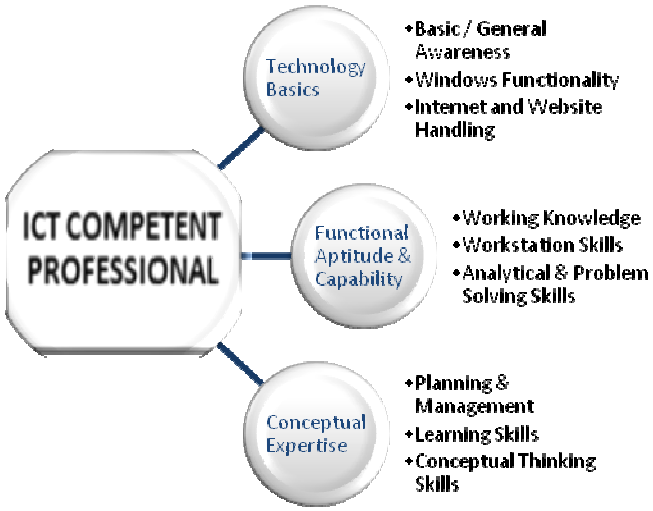

Fig. 1—ICT competency levels and sub-levels at a glance

continuously and repeatedly until and unless their competency level reached a satisfactorily to the next level. Competent authority should be made responsible for ongoing evaluation of such specific electronic competencies to be addressed in their annual performance evaluation. The competencies of this level were included through 'working knowledge', 'workstation skills' and finally 'analytical and problem solving skills'.

Level III: Conceptual expertise

The third level of competency goes beyond one's expertise or proficiency in the job. Competencies acquired as a result of the previous two levels would result in acquiring expertise, participating in administration sharing expert knowledge, teaching and research. As appropriate to each assignment, professionals may be expected to perform at an expert level in one or more level of competencies i.e. serving as a resource person for the other library personnel and providing training and/or assistance. In this level, there are three different specifics namely 'planning and management', 'learning skills' and finally 'conceptual thinking skills'. Although these skills as compared to previous levels are essential, but it is largely limited to those professionals who constitute the top level of LIS profession.

Proposed modules of web-based ICT competency framework

The proposed system has the modules namely, 'Administrator', 'Users', 'Web Registration', 'ICT Competency modules' and 'Search and Authentication'.

Administrator: He/She is the controller of the system and is responsible for maintaining the information in modules and sub modules such as 'feedback' received from users, 'useful links', 'images' uploaded and data of 'registered user'. Each sub-module is further divided into different categories where Administrator is responsible for data maintenance in systematic manner. These activities can be performed through the options given on the home screen like 'Home', 'About Us', 'ICT Framework', 'Contact Us', 'Feedback', 'LIS Work Profile', 'LIS Designation', 'LIS Qualifications', 'Ask an LIS Expert', 'Events', 'Important Links', 'ICT Skills/Competencies Levels', 'Press Clippings', 'Photo Gallery', 'Video Gallery', 'Privacy Policy', 'Disclaimer', 'Site Map', 'Mail Box', etc. These links are further divided in sub-modules, which are scroll-down links of their respective modules provided on the home screen.

Registered users: These LIS professions who are the registered users can search for different types of information regarding ICT competencies. They can download information and images from the websites. Web registration facilitates registration for those who wish to input data or upload information regarding ICT competencies required for ICT based library functions and services. Every user need to submit his complete information in the form of registration and generate a user ID and password. The user, who wish to enhance their ICT competencies need to first 'Sign-

Fig. 2—Page after signing-up

Up'. Screen shot of page after signing-up is represented in figure 2.

Home: Home page is the gateway that categorized various modules and sub-modules for searching information. The link is for returning back to home page and is given at each page It also explains about the competency framework in the sub-menus marked as *'Introduction of ICT-CF-LIS'* and *'How the study conducted'*.

About Us: This module is divided into three sub-menus as *'Overview of ICT-CF-LIS'*, *'Need and purpose'* and *'Aims and objectives'*.

ICT Framework: This menu has four scroll down sub-menus as 'ICT-CF-LIS (link to pdf file under sub-sections)', namely *'Arrangement of ICT-CF-LIS'*, *'Levels of ICT-CF-LIS'* and *'Levels of LIS Professionals'*. Levels of ICT-CF-LIS are arranged as follows:

- Level – I-Basic ICT Competencies: This menu is provided with three scroll down sub-menus as 'Basic Awareness', 'Basic Windows Functionality' and 'Internet and Websites Handling'.
- Level – II-ICT Competencies by Function: This has three scroll down sub-menus as 'Working Knowledge', 'Workstation Skills' and 'Analytical and Problem Solving Skills'.
- Level – III- ICT Expertise: This is also provided with three scroll down sub-menus given as 'Planning & Management', 'Learning Skills' and 'Conceptual Thinking Skills'.

Ask an LIS Expert: This menu has three sub-menus as 'Call an Expert', 'Write to Experts' and 'Meet an Expert (Chat online)'.

Events: This menu has three sub-menus as 'Conferences', 'Workshops' and 'Training Courses'. The contents are briefly elaborated as follows:

(i) Conference: Main thematic issues; its various branches and effects; generally evolved consensual resolutions towards developments in LIS profession etc.

(ii) Workshops: Theoretical and practical demonstrations; experiences; group and panel discussions etc.

(iii) Training Courses: Conducting of short-term, medium-term and long-term training courses combined with theoretical and practical classes; Invitation from industrial experts in relevant field of expertise; Arrangement of a holistic knowledge based curriculum replete with various developments; shortcomings with tools for betterment of services etc.

LIS Work Profile: This menu has fourteen sub-menus covering almost all the sections of the library. The contents of these sub-menus invariably could include namely 'Acquisition', 'Journals/Periodicals', 'Technical', 'Circulation', 'Membership and Reference Work' etc., would be both general and specific based informative services. Information pertaining to MOUs agreed upon; specific request of users pertaining to LIS services; information regarding any special need of professionals in other libraries etc.

LIS Designation: This menu has fourteen sub-menus as for all the designation/ post of the LIS professionals working in libraries.

LIS Qualifications: This menu includes five sub-menus as 'Certificate', 'Diploma', 'Graduation', 'Post Graduation' and 'Research'.

It is pertinent to mention that the rationale behind the necessity of development of the above information is that in the current scenario of acquiring of requisite degrees/certificates as desired/required by each LIS professional given respective domestic framework, results are immensely varied in current contextual environment. Therefore to differentiate on the basis of skills acquired/imbibed, the development of Menu of 'Designations' translates input of professionals into each slot of positions available in LIS profession as per their respective 'Qualifications'. The will result acquiring of competencies as per their requirement.

Important Links: This has three sub-menus as 'University Libraries', 'LIS Syllabus' and 'LIS Departments/Schools'.

Feedback: This is to provide/submit feedback and includes three sub-menus as 'Submission through Form', 'Questionnaire Form' and Suggestion Form'.

Contact Us: This has three sub-menus as 'e-mail', 'phone' and 'fax'.

ICT skills and competencies for LIS professionals: This is main module-link and is in questions-answer form for four different sub-headings i.e. 'Category', 'Designation', 'Qualification' and 'Work-profile'. All the tabs from 'category' to 'designation' to 'Qualification' to 'work-profile' is to be selected one by one so that users can click on them as per choices given in the further scroll down sub-menu. The menu given under as 'category' has four options in scroll-down form and appears in tab form simultaneously as 'Entry Level', ' Junior Level', 'Mid-Level' and 'Senior Level'. The User will select one option as applicable. The registered user have to click on the tabs of their choices one after another resulting in combination of all the choices which will lead to separate section of selected questions especially meant for the combination of that particular choices and will proceed to different tabs according to choices reply to that question in form of 'YES' and 'NO'. If the user click on 'YES' tab then it will proceed to next question or the tab for next question will be automatically appeared otherwise if the user click on 'NO' tab then five different types of hyperlinked tab will opened-up and user can click any or all of them according to their choices, which are given as under:

- **Option 1- Learn Here**: This link will direct to the page where the procedure is explained in easy learning manner.
- **Option 2- Expert Advice**: This link will direct to the list of expert in that field.
- **Option 3- Websites**: This link will direct to the list of different websites where the procedure is explained for learning.
- **Option 4- Model Libraries**: This link will direct to the list of model academic/university libraries where they can visit and learn by observing.
- **Option 5- Training**: This link will be providing information on different training courses in that particular area so that the users can register on time to learn those skills and competencies.

ICT Competency Module: The users can search information in ICT competency module regarding different competencies required in LIS profession. Competency module provides detailed information regarding skills/competencies required for ICT based library functions and services. Figures 3 and 4 represent the series of screen shots of different pages/modules which are self-explanatory.

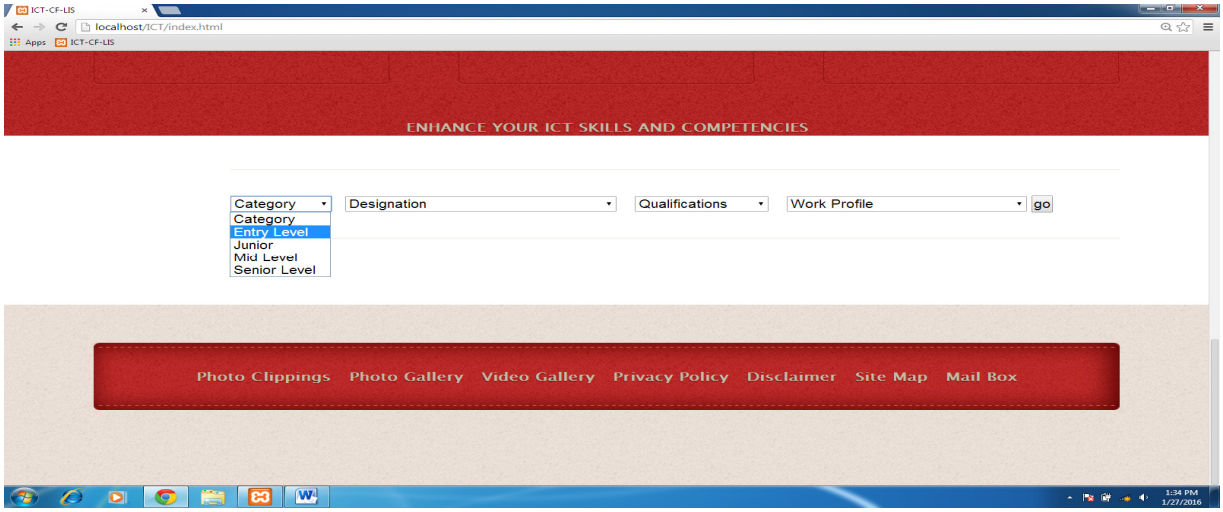

Fig. 3—Category

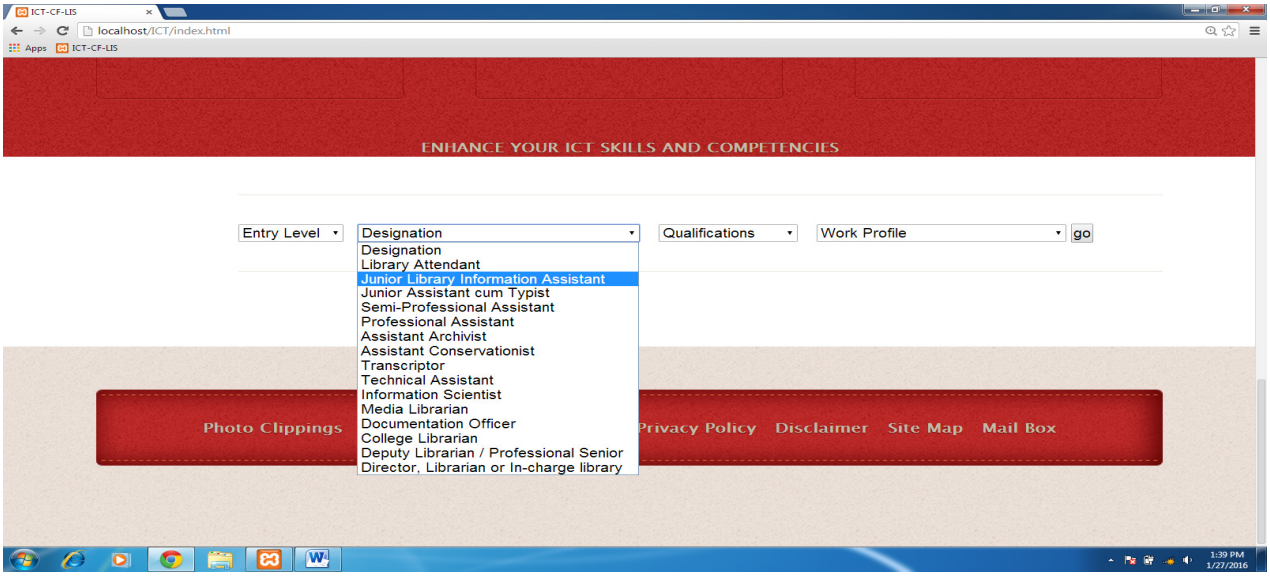

Fig. 4—Designation

These sub-modules gives detailed information regarding first, second and third levels of competencies and further sub-sections provides required ICT competencies according to category, designation-wise, work profile-wise and qualification-wise information for LIS professionals in India.

Search and authentication: The website provides search facility to the general users. General users can search for the categories and subcategories regarding competencies required for ICT based library functions and services. Authentication is for providing securities to the system. Here every user must enter into the system through login or registration page for submitting their views and ideas. The login page will restrict the unauthorized user. A user must provide his credential like user ID and password for logging on into the system/ page.

Conclusion

The proposed ICT competency framework for LIS professionals in India is essentially knowledge based information dissemination system in which co-ordination among different LIS communities are at top priority and may function as national web-based information system in India. The pivot of a successful

competency framework is the understanding of fundamentals of ICT and its applicability in various streams of resource generated information.

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