

The emergent field of information science continues to search for identity and a suitable paradigm: **Shalini Urs**

Professor Shalini Urs is a celebrated academician, information scientist, institution builder and a sought after speaker. She has served as a faculty of the University of Mysore for 42 years. A Fulbright scholar and a visiting professor at Virginia Tech, USA and the Indian Statistical Institute, Bengaluru, she pioneered the Vidyaniidhi Digital Library project, an internationally known Indian open access repository. She has served on the Board of Directors of the NDLTD and also the INFLIBNET and has been a consultant for UNESCO on several occasions and commissioned many studies. Shalini conceptualized and founded ISiM (International School of Information Management)—the first Information School in India at the University of Mysore with the global funding and collaboration. Well appreciated for her leadership and organising abilities, Shalini has built a vast network of linkages with industries such as Microsoft, Google, Infosys and many others.



In this interview with **Sarika Sawant** for **Open Interview**, Shalini talks on wide range of professional issues concerning teaching and practicing librarianship. She shares her inspiring journey of teaching, handling global project works and institution building. She is of the strong view that the dynamically changing global trends in library and information science (LIS) need to be seen through different lenses and maintains that LIS is a meta discipline and hence we have to become meta by rising above the disciplinary borders. Her message to the budding LIS teachers and professionals is worth following.

- **You successfully set up two educational institutes – International School of Information Management (ISiM) and MYRA School of Business. How was this 'institution-building' journey—the challenges you tackled and the impact story you created?**

I have been inspired by Mahatma Gandhi's famous quote—“Be the change you wish to see”, and it is this quest for change that led me onto the institution-building journey. I was aware of the challenges of treading into the untrodden path. But then I was also mesmerized by the possibilities of creating/innovating.

My journey of institution building (ISiM) began with sponsored research projects, particularly the Vidyanidhi Digital Library Project. The Vidyanidhi project that I initiated with funding from NISSAT (National Information System for Science and Technology), DSIR (Department of Scientific and Industrial Research), Government of India in the year 2000 and further expanded in scope with extensive funding from the Ford Foundation in 2003. I derived my confidence from my experience, expertise, and exposure in mobilizing funds, connect with experts from across disciplines and sectors and project management. My work in the domain of digital libraries during the decade of 1995-2005 had given the much needed international exposure and awareness of the iSchool movement that was taking shape in the US (<https://ischools.org/The-iSchool-Movement>). And I proposed and secured the Ford Foundation grants to embark on the experiment called ISiM. The munificent grants enabled me to embark on the ISiM journey. The support and grants from Informatics (India) Ltd. and my friend N.V. Sathyanarayana (CMD of Informatics) boosted my resolve. I must mention the fact and acknowledge the support of Ronald Larson, Dean of School of Information Science, University of Pittsburgh and a member of the iSchool Caucus whom I had met and interacted during several digital library-related workshops and conferences across the world during 2000-2005, invited me to attend the first iConference held in Penn State University in September 2005. My participation in the first iConference strengthened my belief in the idea of iSchool.

Both ISiM and MYRA School of Business are primarily experiments, spurs, and exemplars.

The key challenges that I faced were— perils of pioneering and forging of interdisciplinary alliances. For the success of any innovation, a pioneer needs early adopters and supporters. The challenge was finding a gang of at least three (I am using the word gang, primarily because the iSchool Movement started with a gang of three and then grew to four, five and ten). While it is natural to find imitators, it is a challenge to find and form a coalition in India. The iSchool idea and movement was primarily a response of the academic departments and schools (lead by LIS schools initially) to the challenges of the digital era heralded by the Internet. The exploding digital information and its management challenged academia to forge a new discipline at the intersection of information, technology, and people/society distinct from the purely technological paradigm. While the buy-in for such an experiment is better in the developed west, in India, it was a huge challenge to build a coalition of different disciplinary departments within a university as well as outside. Interdisciplinary collaborations and coalitions demand systemic and structural changes, which is not part of the ethos of Indian academia.

• **You established ISiM, a new institutional model. What merits and quality gap do you find in the present Indian LIS education system?**

The major inadequacy in the current LIS education system that I see is the inertia/inability to expand/modify the disciplinary framework of the domain in line with the changing landscape. While the LIS community and the LIS education system made the digital shift, the need of the

hour is to go beyond the medium/container of information. When we added the term 'information' to the domain of 'Library' way back in the 1970s, information was still in print medium. When it changed to digital during the turn of the century/millennium, we made the digital shift but not the paradigm shift. I use the phrase 'paradigm shift' not as a buzzword or marketing speak but in the true Kuhnian sense as identified and defined by Thomas Kuhn—the American physicist and philosopher.

Thomas Kuhn in his famous classic *Structure of Scientific Revolutions*, first published in 1962 proposes and explicates 'Paradigm shift' as a fundamental change in the basic concepts, tenets, experimental practices, and shared values of a scientific discipline. Just like the *Copernican Revolution* (Heliocentric view), changed our worldview from the *Ptolemaic model of Geocentric view*, libraries need to make the paradigm shift given the following transformations:

- Content—freed from the contours and constraints of a container
- Content— from scarce to overabundant commodity
- Content— from scholarly to the citizenry

This paradigm shift demands a shift in the disciplinary framework. In the past, the discipline of LIS has gone through three major shifts due to the three information revolutions:

Firstly, *the Gutenberg Revolution* in 1440 (the printing press) which made replication of information easy (resulting in unshackling the books);

Secondly, *scholarly communication revolution/ Scientific Literature explosion* (early to mid-1900s)—shift from book as dominant medium of scholarly communication to journals and other types of documents (what Dr. S R Ranganathan called as micro documents) which expanded the scope of the container (book) to include anything that is bounded in some form, giving rise to the change in the nomenclature of the field to documentation. I use the term *Bounded* in the mathematical sense here (having a specified initial point as well as direction and magnitude).

The third- *information revolution (Silicon Revolution)* was brought in with increased mechanization/computerization of especially the information retrieval function, leading to the information explosion and thus heralding the broader discipline of information science. While the field did claim to make a shift from library centric to the information-centric paradigm, it was not a paradigm change in its true sense. The talks and phrases like 'libraries without walls' did not fundamentally change the disciplinary framework. Many scholars such as Anthony Debons, BC Brookes, Peter Ingwerson and others developed a disciplinary framework for Information Sciences, and the discipline of LIS embraced these frameworks. However, it largely remained within the academic circles. From notions of information to measuring information and its impact were studied very extensively during the 1980s and the 1990s. This line of research led to the development of the cognitive paradigm of information as a basis for Information Science,

which was distinct and different from the transmission centric information theory of Claude Shannon.

Information Revolution 4.0 that we are currently witnessing is a revolution consequent to Industrial Revolution 4.0; the networked world that we live; AI and Deep Learning and IoT (Internet of Things) and such developments and demand a shift from individual cognition to distributed cognition and quantum cognition.

• **As ISiM did, how should Indian LIS schools realign and restructure their academic programmes to emerge as information schools?**

It is more than restructuring the academic programme. I think there is no point in reinventing the wheel. The best strategy is to follow the model of the iSchool movement. The challenge is to establish a unique identity for Information Science and find a suitable paradigm. The strategy includes building a multidisciplinary group of academics and departments and evolve into iSchools which is a blend of LIS, IS, and Communication Studies. The emergent field of information science continues to search for identity and a suitable paradigm. When I entered the profession in the early 1970s, the term information science was added to library science. The search for identity began then as evidenced by the highly influential book *Information Science: Search for an Identity* edited by Anthony Debons (1974). The search continues still.

In addition to digital technologies, we also need to embrace the other two related domains – the Archives and Museums. Libraries, Archives and Museums are three public memory institutions, and today given the digital technologies, their borders are blurring and offer us an opportunity to merge. eScience and Digital Humanities is another area that is emerging strongly. What I am suggesting is an expansion and merger of different disciplines and domains with 'information' as its axis. While information is comprehensive, library is one of the institutions under the broad umbrella of information. LIS is a subdomain with the broader domain of 'information'. As is happening in the iSchools across the world, each iSchool could identify and focus on all or some subdomains. For example, the University of Michigan iSchool (which was one of the partners of ISiM) offers both bachelors and masters degree in information and its curriculum encompasses both the social and the technical aspects of the digital revolution – from liberal arts to engineering and technology side as well. At the masters level, Michigan iSchool offers three areas of interest – Digital Archives and Library Science; Data Science/Data Analytics/ Computational Social Sciences; Human-Computer Interaction/ Social Computing/ User Experience Design. Besides, the iSchool also offers two other masters programs—one in Health Informatics and another in Applied Data Sciences. The point I am making is about expanding the horizons of the field.

We need to find an appropriate theoretical foundation, as well. While the five laws of library science continue to be relevant, I believe that perhaps it is time to revisit and reinterpret/expand them. I believe a shift from the container-centric to the content-centric framework and from use to the usability of information would define the contours of the new framework. Let me outline and explicate some of my thoughts here.

Firstly, 'content and cognition'. *Cambridge Dictionary* defines content as 'the ideas that are contained in a piece of writing, a speech, or a film.'

To define content in the context of LIS, I would propose the use of Distributed Cognition Theory as the framework. Distributed cognition (DCog) is a theoretical and methodological framework developed by Hutchins and his colleagues at the University of California, San Diego to explain cognitive activities as embodied and situated within the work settings in which they occur. This framework entails the involvement and coordination between individuals, artefacts and the environment.

'DCog' studies the "propagation of representational states across media." Mental content is considered to be non-reducible to individual cognition. It is more appropriately understood as off-loaded and extended into the environment, where information is also made available to other agents. DCog studies the ways that memories, facts, or knowledge is embedded in the objects, individuals, and tools in our environment.

I would define content in this framework as 'unbounded' as it is in constant interaction between internal and external cognition and dynamic as well as it is ever-changing (similar to the notion of quantum cognition.) Quantum cognition is an emerging field which applies the mathematical formalism of quantum theory to model cognitive phenomena such as information processing by the human brain, language, decision making, human memory, concepts and conceptual reasoning, human judgment, and perception.

Secondly, 'usability'. ISO defines usability as "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." The product of use can be any information in any form or anything a human interacts with. Usability takes care of a whole range of attributes/values--from accessibility to efficiency to efficacy to everything from both the design of the product as well as the user.

I propose the following new laws/principles of LIS (with due respects and apologies to Dr. S R Ranganathan)

1. Content is for all (content is inclusive and exhaustive)
2. Curate content for each and everyone (every user defines his content and the kind and level of curating)
3. Curate content for usability (the primary function of libraries is curating)
4. Accessibility, accuracy, and efficacy of content defines usability (measures of usability)
5. Content is unbounded and dynamically changing (content is like a flowing river, one cannot step into the same river again)

• **What trends and developments do you notice in LIS education and research in the South Asia region? Where does India stand?**

The trend is similar. Some schools choose to restructure their curriculum with more and more digital technologies dimension introduced. But as I said before, we need to completely rebrand and reposition ourselves, and so far no school has joined the iSchool bandwagon by becoming a member.

We must follow the international movement with our Indian flavour. I do realize the challenges, and it is not easy. We need robust and intellectual leadership at the present juncture to completely rebrand and reposition ourselves. We need a coming together of LIS and other schools and form a coalition. It is not easy, but we must give it a try at least.

• **The nomenclature of the LIS courses is changing. ISiM, DRTC and a very few institutes/universities have already experimented it. The designation of university librarian is now Director; university library is now Knowledge Resource Centre and also there is a demand from college librarians to change their designations. Are our roles and designations really gelling? How do you see this development?**

I do not believe in the simple changing of the nomenclatures. We need to change our mindsets and paradigms. If our roles and labels have to gel, then we need to expand and change our roles too. Let me elaborate a bit more.

Libraries traditionally have served the ‘consumer’ end of the information life cycle. Today we need to expand it to both the consumer and creator end of the information life cycle. While in a way libraries have been serving researchers in their creator role by selecting, collecting, and building finding tools and systems, today we need to serve the researchers more directly and explicitly in their knowledge creation function through our institutional repositories/eprints and such. Libraries could have taken a more active role in the green route to the open-access model. It is not just about enhancing access to information resources published by others and elsewhere but to build systems to enhance access to the information resources created by our faculty and users. Libraries could become the signal boosting systems for our faculty and students,

Another shift that we see in science and scholarly communication, in general, is scientific data curating and management or what is broadly termed as eScience. eScience offers excellent opportunities for libraries and LIS professionals to expand their role and range of functions in support of research/knowledge creation process. Let us embrace the entire information life cycle as our scope and boundaries of the profession.

- **We have certain challenging issues- the number of students enrolling for LIS PG courses is gradually diminishing; the number of students passing NET is increasing; there is an increased number of PhD holders; we have produced more eligible candidates to the market although falling short to skill sets as required by the employer/employment, etc. Why and where are we failing? How the universities, teachers and LIS schools should collectively work on this front?**

In my view, the primary problem is the branding and positioning of the information profession.

For repositioning of LIS, continuing the argument made earlier, I reiterate the following:

- Supporting the creator, curator, and consumer end of the Information Life Cycle: Traditionally, LIS has focused on the user (consumer) end of the information cycle, today while continuing to be responsible for access and availability of content in support of education and research, it is necessary to focus on the creator end of the information life cycle and support researchers and the public in their knowledge creation process. In other words, to all users across the spectrum of information.
- Institutional Repository and Open Access Publishing (i.e. both green and gold) are endeavours in that direction. LIS professionals have taken leadership in this space. Nevertheless, we need to strengthen and augment it further.
- The professionals and the professional bodies have to include this role and responsibilities into the job description (JD) of LIS professionals in especially in academic and research libraries (ARLs). While it is happening evolutionarily, it needs to be enlisted in the functions of ARLs and JDs.
- This shift also demands that LIS formally embrace and practice marketing the institutional repositories (IRs), curating to ensure the discoverability of the content beyond keywords and such to include features like those who read this/downloaded this also, and others and move beyond IRs to other research metrics and measurements.
- ResearchGate, Academia.edu are some examples that the LIS profession could emulate.
- Curator end of the information life cycle demands that the field focus on developing protocols, standards and methods for curation (just as Ranganathan developed classification and cataloguing rules, principles and schemes, developing the ontologies, crosswalks are some examples.

For rebranding-

- While libraries are venerated institutions, we need to make them happening places too. How do we do that? Adopting the Starbucks model (my observation in the US and to some extent in India too, Starbucks in the vicinity of campuses are virtually student hubs, teaming with students who come, study, do their assignments, collaborate and such).

- In the US, academic libraries are primarily spaces for students and researchers to come and study offering the most conducive ambience and facilities. And public libraries have continued to be the hub of the local communities and community's cultural centres.
- This brings me to the topic of libraries as places. One great asset of libraries is their real estate that too in the heart of the campus/cities. Designing spaces for interaction and collaboration in addition to coffee and refreshments are the way forward.
- One other way is as data labs or Informatics Labs or such with all the needed hardware and software for supporting eScience and creating content (research papers/ thesis/ assignments and such).
- Since information resides everywhere, we need a place for people to work with/ engage with information and rebranding libraries as a place or hub for all such scholarly activities of reading/ writing / interacting with information.
- Libraries need to have book talks (just as best sellers or popular book talks/ readings happen in bookstores or literary festivals and the like. Libraries have to be the place to meet and interact with authors (Nalanda library was such an abode for scholars.

Finally for reclaiming-

- Libraries were known for not just information/knowledge but the accuracy and authenticity of information/answers they provided.
- In today's post-truth era, disinformation is spreading, and credible sources of authentic information are the need of the hour and libraries could perhaps reclaim this by being the resource/centres for checking fake news and disinformation
- In today's post-truth era, there is an urgent need for training people in the art and science of detecting fake news. Our information literacy programmes have to incorporate the same.

• Recently many professionals criticized when a non-LIS professional made it to the institute, which was most suitable for the LIS, professional. How do you see this issue?

In my view, it goes back to the challenges of quality, the rigour of scholarship, and branding. We need to reclaim our position through scholarship, coalition, and leadership.

• There was an era where theses and dissertations were highly inaccessible and meant for referring within the library premises. Although the present status is altogether different, globally, how far have we achieved 'open access to the research works' through the ETDs (electronic theses and dissertations) platforms?

Globally, ETD has been a great success or witnessed at least reasonable success. One of the reasons for its success (globally) is again due to the fact of a diverse community of stakeholders—policymakers, librarians, academic community at large and sustained efforts to champion the cause of ETDs and open access in general. For the success of the ETD also, we

need to build a stakeholder's community of students, faculty, policymakers, and the LIS professionals to start and strengthen the movement.

• **Vidyanidhi Digital Library project was one of your key accomplishments. Now the Shodhganga is making all efforts which you had visualized. Even you had served INFLIBNET long back as a member of its Governing Board. Which other endeavours India needs to do to showcase our intellectual treasure?**

Vidyanidhi Digital Library Project in fact engendered Shodhganga. The antecedents of Shodhganga are as follows. As part of the Vidyanidhi project, in order build a coalition of universities under the aegis of UGC, I had organized a brainstorming meeting of some twenty-five vice chancellors with Prof. Arun S. Nigavekar in May 2003, which lead to the formation of a committee for the Electronic Theses and Dissertations, of which I was a member too. And the rest is history, as the cliché goes.

One thing we are still not good at is- appreciating and understanding the importance of marketing our products/services/initiatives. I remember listening to a talk at an international digital library conference, where the speaker said “if we build, will they come?” So the key is not just building these repositories but also to populate and propagate it. This is exactly where the expanded role of LIS professional could come in. Libraries and LIS professionals do a lot of 'user education' programs for increasing the use and usage of information resources. Similar workshops and initiatives for institutional repositories and also to help market the intellectual assets of the faculty/organization and to showcase the increased visibility/downloads and other metrics would help LIS to reclaim their position in the heart of the campus. I would like to take the example of ResearchGate and Academia.edu about enhancing the services of our repositories.

• **The UGC has initiated working on reviewing the ‘awarded theses’ to find out the status of the quality of the theses. How do you see this development?**

I am not in favour of anything retrospective (whether taxes or punishments). I always believe in paying more attention/working hard towards prevention instead of cure. Let us strengthen the system of quality assurance of theses before they are awarded. Let us add more rigour to the PhD Programme. From the literature survey to research design to methodology to data collection to data analysis, academic rigour becomes the key for quality assurance. For example- in the University of Mysore, as a member of the PhD rules revision policy, I was instrumental in introducing the policy of a minimum of two published articles before the submission of the thesis along with course work and such measures. Of course, this leads to predatory journals and all sorts of other issues. To avoid this, we should come up with a standard list of journals in each discipline wherein two articles are to be published. I am sure UGC CARE is working in this line.

• **Right from projects to courses, collaborative works to faculty exchange, publications to projects, you have international linkages and wide connection? How did you develop these skills and abilities?**

Thanks for the kind words. Once we seek out/have the confidence to do some honest hard work, we look for quality irrespective of geographies. Knowledge knows no boundaries. Learning was global even in ancient times. Our ancient Nalanda University is supposed to have attracted scholars from across the world. As in sports, in academics too we must play with/against the

best. One thing I learnt early (thanks to my parents and upbringing) is- extensive reading. Reading expands one's horizons in many ways. I was also introduced to not just reading school textbooks but beyond newspapers in both English and Kannada and magazines—from *Readers Digest* to *Time* and *The Economist* quite early during my college days. I guess this opened up my eyes. While as a student of LIS, I started reading international journals such as *Journal of Documentation* and *Journal of the American Society for Information Science*. I would attribute it to this habit of extensive reading and also developing a global mindset. My mantra was always, “think global; act locally.” I seized every opportunity to go abroad and build linkages. Perhaps another reason could also be my specialization/focus more on information sciences. My doctoral research delved on the notions of information and the cognitive paradigm of information sciences. There was not much research done in India in that domain. Since 1995, I could also leverage email technology to build and sustain connections, “Let noble thoughts come from every direction” is my philosophy.

Computer applications and later digital libraries were the areas of my sponsored research projects, which again also meant that I had to connect with especially the advanced western world to collaborate. In digital libraries domain in the mid-1990s, we not just talked about dissolving barriers but practised it as well for further collaborations.

While it is cliché but I would still like to use the phrase coined by Thomas Friedman “the world is flat”, and digital technologies make way for digital neighbourhoods. At one level there is not much of a difference between some one sitting in your own building and another continent in terms of digital connections. So, it is a combination of mindset, confidence, and the technology that enabled me to be ‘global.’

• **You wear different hats- teacher, researcher, speaker, consultant, administrator, information scientist, institutional builder, etc. Which of the role is closer to you and how are your family and professional colleagues instrumental in shaping it?**

I am an academic first and last. All others come as part of that turf. And that hat covers the rest in no small extent. I would cherish my role as a teacher first and foremost because of the opportunity that it offers to shape young minds. I have always enjoyed teaching, and I am in my elements when I am in a class. My family stood behind me in every possible way—from

supporting to actively participating indirectly. First, I must say it was my parents who inculcated the right values and attitude towards work and work ethics. My parents wanted me to excel in everything I did and were very proud of me. My husband has been the Rock of Gibraltar in life as well as profession.

Given that my husband is also an academic and in the university, we served as sounding boards for each other, and much of the endeavours were joint endeavours if you will. We had some sort

of an unwritten pact – the first fifteen years of our marriage, I would take a back seat raising my family of two children and he could go and travel the world—which he did. The deal was after the first fifteen years; I would take off. I still remember in the year 1995, when my son was ten years old, I decided that it is time for me put my career on steroids and go full throttle, I discussed with my children about being away and travelling, etc. and they were not only fine but enthusiastically welcomed (I guess being the disciplinarian that I was and believing and practising tough love, they welcomed the idea of me getting off their back 😊).

Institution building is exciting and challenging. As far as colleagues go, there were a couple of them at ISiM, who helped me build it in addition to the international network of professional colleagues who supported me in every possible way. Special mention that I would like to make is that of Angrosh Mandya who currently is a research fellow at the Department of Computer Science at the University of Liverpool, UK. He was the one with me from 2005 to 2009 and helped build ISiM.

• **As an LIS teacher for thirty-five years, indeed, you are an inspiration for teachers like me/us. What is your message to the LIS teachers and also the librarians?**

By the way, I was a teacher of LIS for 42 years! My message is simple. As an academic one should have a boundless curiosity to explore, deep-dive, and broaden the horizons of knowledge. You must read for the sheer joy of knowing. It is not just a job but it is a calling. Please remember as an academic you define your boundaries and contours of your work—that is the beauty. Crossing boundaries is par for the course.

I have one general philosophy in life – turn disadvantages into advantages.

As LIS teachers, look at the positive side of it rather than the negative side. Yes, there is a negative side, because of the low status in the totem pole of the disciplines in a university; we don't get to enjoy a certain status that comes with certain other disciplines. I must share one funny anecdote with you. Way back in the 1980s, I was speaking at a faculty development workshop of engineering teachers at a local engineering college. And after my talk one participant came up to me and said some kind words of appreciation for my talk and said “for an LIS professor, it was a super lecture” I did not know whether I should laugh or cry. So I am aware of the challenges of an LIS teacher within the academic community in the campus. My message

is- prove and showcase that you are better than teachers in other disciplines through your work. Let lower status spur you to advance more rather than dishearten you.

Now let us look at the brighter side of the LIS teacher. Because of our discipline we have an opportunity to easily expand and explore other disciplines and borrow, integrate, and merge with them. Ours is a meta discipline and hence we can and have to become meta by raising above disciplinary borders. For example at the University of Mysore, I was able to create a new division called the ICD (Information and Communication Division) and head it as its director for a couple of years and during my tenure, was able to build the ICT infrastructure of the University. Let me take the example of my student and hire– Angrosh Mandya. His training and disciplinary background are LIS, but his research hinges more on the computer science side, and he is working in the CS Department of Liverpool.

Cross boundaries of disciplines and geographies and go beyond the LIS framework and thereby, you will be enhancing the substance, status, and the stock of LIS!

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Note • All the answers/ opinions expressed in this interview/document are of the interviewee.



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