Upcoming Libraries and the role of IT in the transformation of academic libraries

Syed Muhammad [1] & Muhammad Anwar[2]

Abstract

This piece of work aims to analyze the role of information technology in regard to the transformation of academic library and its services. It started with a deep evolution and development of academic library while continuing with the present challenges as well as opportunities. It than state the ongoing role of academic library in regard to use of new technology and suggesting that how the traditional method of using library changed into information technology. This article also discuss innovative technological developments for learning, data management and impacts of such developments on academic library sector, including the need for library staff to develop new skills and roles such as "embedded librarian role", while it concluded with reflection on current as well future developments and with particular regard with IT and modern librarianship.

Key Words, Academic Libraries, IT, Transformation, Higher Education, Digital Library DL

Introduction

The concept that technology is strength of "disruptive information" in library field being argued at a length in the scholastic literature and wider press. Whatever competition field and new innovations are opening for librarians in both public and private sector is obvious to everywhere. It is beyond suspicion that in many developed and under developing countries the professionals in library science have been acknowledged the changes while diverting from one aspect to other (from traditional book keeping records to e-books, software). From these new developments the existence of physical library and librarian is being questioned in various platforms. Such advancement in the field and innovation of new technology calling the prominent role of professionals in academic library. What is or what should be the role of librarians in 21st century? For example the notion of "library

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[1] Librarian, University of Balochistan, Quetta
[2] Assistant Professor department of library & information sciences, University of Balochistan, Quetta.

without walls' has been debated whereby the user can use the services of the library irrespective of physical existence" (Weiss, 2004). Predictions regarding death of physical library has not reached yet but as compare the days before the arrival of new technology the user physical movement toward academic library have been turning down with passing of every day. "The increasing student's number in higher institution shows that with the emergence of new technology the physically attending libraries by students, faculty member and researchers have been minimizing. It shows the declining level of students as well as academicians presence in libraries. (SCONUL. 2015).

"The learning centers as like, libraries, museum and archives have vital role in disseminating the knowledge. These are venues for learning, creating and transforming information"(Paulus, 2011).

One may see such moves in new design, building structures, latest innovations and creation with a rapid increased towards community and joint base access to rendering services. Such challenges came under debate to a large extent to a group known as "library of future" arranged by the Research Council of UK (RCUK) Digital Economy Network between 2013 to 2015. The association took a wider definition of information technology uses for the purpose of investigation, safe usage and accessing technology through newly ad vented devices. It continued with the chain of workshops in which professionals from IT experts and other field related expert. This aims were that how to solve issues confronting in the area of academic librarian in connection to IT utilization.

Objectives of Study

The overall objectives of the study is to increase awareness level of librarians as well as other information professionals that how the IT has influencing the future librarianship. Other aims of the paper are as under.

1. To contextualize the debate around information technology within the broad context and historical development related to the sector.

2. To reflect and critically discuss impacts of these on the role and professional practice of the academic librarian staff.

3. To consider what is the future of academic library and librarianship?

Problem statement

Whatever knowledge, theories, conference proceedings and dissertations discussed in this work are based on previous works. As per the case of future libraries and IT role in transformation is concerned the researcher making

an endeavor to discuss emerging needs for library professionals their role challenges and contribution. The study does not mean for implementation but no doubt it would be a supportive path for professionals in order to equip themselves for future challenges in regard to increasing role of IT in libraries.

Hypothesis

The hypothesis of study based on the review of literature which would have come before researcher while planning the work consisting of various scholarly writings, institutional research, conferences, proceeding etc on world level. The most probable hypothesis of the study is,

1. Is the Information technology is only tool of giving academic libraries a new dimension?

2. With the rapid utilization of IT based technology the survival for traditional library staffs is difficult?

Literature Review

The development of academic library

All the academic activities and research activities in higher institutions are directly or indirectly linked to the public library. In absence of academic library academic activities ends without result. The libraries have been passed through a golden age while performed a very prominent role in advancement of inventions and innovations. They have a great history of achievements in the field of teaching and learning (Fiallbrant, 1997). Glance upon history and evolution of academic library make it clear that there emerged different academic libraries in various institutions and with a huge world's collections. The academic library mean, library within the boundary wall of institutions and no doubt these were often developed inside the higher learning centers. As compare to public library the former one has potential of as being of resilience institute as they have assumed new ways of progress in regard with social and political authorities" (Gilmour and Sapp, 2002; Weinner, 2005). It is worth to note that there was a time when much of debates were concentrated upon the cutoff of collections and there exist such libraries which did not have enough collection. The libraries of antiquity were dependent on manuscripts other middle relies on donation and artfact as like Bodlein at the Oxford University.

Academic libraries collections got more expending with the ending of 19th and early in 20th century and a sense of more and more collection vis a vis competition among them in term of amount size and importance of

collection. In earlier time, there seem abundant out comings of scholarly works and with the emergence of new technology in 1970 called for new system of retrieval of information so the modern librarianship also warmly welcomed it (Gilmour and Sapp, 2002).

These initiatives contributed in large in library sector in regarding with their rapid increase in scope and new technology. There were already challenges confronting library professionals with the emergence of digital library. It further motivated them to change the nature and functions of academic librarianship. Through the new automations the professional felt to adopt the modern IT techniques in order to prove their existence.

As the trend of scholarly literature were moving from traditional approach towards modern technology while creating a momentum and compelling academic librarians to assume "value added" services, because they have to go with the users demand, in case if they failed to adopt new changes not only would they lose their clients but also their professional existence will be at stake. Organizing e-services in academic surroundings is not without danger of losing entity. Apart from this their lies certain issues in which a library staff can perform a leading role to welcome and resolve it. As in earlier times the inventions in technology offer library professionals to make new role while assuming the paradigm shift in the way to reaching services to clients. One obvious sector in this is the easy accessible tools. Such technical roadmap is very crucial in helping users to know the reliability of scholarly literature and knowledge in a free and mediated digital surrounding.

Technical advancement is not the sole element that affected the services linked to academic library while the growing form of pedagogy in high level learning centers is also the main reason for change in amount of academic libraries. The paradigm shift is clear from this that there were silent sitting areas for learning but now instead of traditional sitting areas there seem social networking and open spaces. With the advancement of new technology such as group learning, illustration both on physical as well as open areas is considering the main source that compelling the users and professionals to revisit the academic libraries in connection with new changes.

On the other hand despite in development in techniques a large number of higher institutions have been facing challenges in financial issues with reduction in their funds. This has largely effecting the service delivering, even though the financial issues differ from country to country and region to region. "Librarians have been greatly contributing towards the self

services as well as modern technology rather than physical subscription" (RIN, 2010). Consistent economic strain along with the hope that the academic library would bear more and more duties as like hours to manage the data and open access are calling the role of academic librarians. This piece of work highlights the challenges and opportunities in detail.

Currently the open access is considered one of most important advancement in scholarly academic publications. As a result when the free level of various journals increased it strongly affected the new comers in the field of teaching and research and with the decrease in their number to a large extent bound the common access resulting clear hurdle to researcher and also in research work (Kingsley and Kerran, 2015).

In addition, need for open access to publication there lays certain rules and regulation around the data management. Academic literature is created and transferred in large amount which is main source of funding in public money as well as a huge source of progress of knowledge. It is quite clear that any piece of information considered to the part of managing data or data management occupies a main position in research work. It is the first entry point in the research cycle in order to achieving desired result (Whyte and Tedds, 2011). Needs for institutions while placing procedure for data management are being maintained by many factors containing the growing importance of data concentrated research and by requirement for journals and financing organizations in order to collect data and to make it available for other scholars to utilize. "Research work demands comprehensive efforts for management as JISC in its programme of 2011-2013 that a pressure trend emerging from institutional perspectives to expolite research data more and more and this has been generated through public " (Cox and Pinfield, 2014).

These new policies have had vigorous role in regard to research communication. It might lead the professionals in field towards a successful result. In rapidly changing circumstances the role of library will be more visible if it has capacity to regulate and adopt new technological instruments with in walls of academic library. Many arguments emerge that the modern technology consequently minimizing the active role of academic librarians, while on contrary to this there seems supportive argument that if the academic librarians espouse new ways of moving ahead and these innovations and inventions would likely further strengthen their contribution. With the passing of every movement the numbers of Institutional repositories are increasing where its main aims are to collect and store the management of data (Swan, 2011).

The various models of business related publisher have brought more complications of collection process in academic libraries. For instance, different institution/ organization led- journals, magazines and periodicals that take much amount in publication of articles which are cause of concern to check and validity of research work. The staffs from academic libraries required being capable of investigating the non similar approaches as well as being closed to discussing with academicians and other University administrators in order to decide that how materials will be allocated? (Arte and Collesa, 2014).

After bringing in considering above all factors the author came to a final point of view that the rapid access would have considerable advantages as well as impacts in a long period. On the other side such advantages will be fewer especially during the middle period (Houghton and Oppenheim, 2010; 13). Apart from the challenges "technical and logical" academic records, there lies as well possible issue for professionals in libraries to engage scholars while resolving other long term concerns regarding control over data and intellectual property, "if the research has to potentials for commercialization" or other relate issues such as the leakage of information which should not be open to the public. The academic library confronts with extra burden related to open access and data management at the time when pressure from financing bodies arises. And the lack of resources is also a main area in which professional suffering in academic libraries. A huge number of libraries in the World are suffering several technical and other issues in absence of qualified staff---mean the librarian working there are not qualified for position that has designated to them. They also face the lack of proper training and budgetary issues. These are the elements which are responsible for reducing the number of professionals in academic libraries. It is beyond doubt that new skills needed proper funding in order to cop the new challenges of the age. In absence of IT facilities a librarian would remain a traditional librarian (to issue and received books on a common register). There is need of both on "national and international level initiatives" in the way to financing, training and introducing IT based software.

Analysis and Discussion

Library, IT Uses For Changing Environment

 The demand of twenty first century that academic library should not be surrounded in walls, its resources should not be limited to those reach into the wall. With the rapid increase in internet broadband, open access, online internet transfiling instruments as well as through social networking, an

academic library must have potential to extend its services worldwide for the sake of its users. A librarian of new era must realize his/her duties that its materials will be on the screen of a computer on a student approach from anywhere. The ongoing scenario calling new users especially the academic libraries towards adopting of IT uses in order to make open access and utilization of online tools. There needed consistent changes and improvement to bring efficiency, flexibility and up to datedness in the shape of modern librarianship. "Users have increased expectation of ubiquitous digital access on demand and many University library also have to support a growing population of distance learning students who may never attend campuses" (Datig, 2015).

Meeting with these challenges need a way of openness and easy transfer access tools that take out a traditional library from old pattern to new one? An environment of collaboration, resource sharing and openness is very crucial for academic libraries "mediated information access more users central approach" will led them in the path of development. It is only way to face the academic librarianship of new era. A study by Applegate (2009) suggest that the use of RSS feeds, Web 2.0 tools, video broadcasting and blogs have made access very easy and in the utilization of every one.

Modern technology utilization has altered the search process as it turning down the traditional way of libraries. Furthermore, online material lists are available in academic libraries as an important tool for bringing new things that are helping researchers and students to search and read their own material of interest or books related to their courses.

In addition, now a librarian can order online library materials as stated in the users demand list. This has changed the pattern of new ones. "The need to improve communication between library staff and faculty need drawing from earlier research that identified asymmetrical disconnection between academic and the librarians of the past days have little understanding of their task and even less role in managing and setting of such lists" (Cameron and Saddall, 2015).

The libraries presenting the services of online e-book which is considered to be an important achievement, but still their lies ahead hopes as well as challenges in selection, authentication, management and promoting of these resources. These comprised that how to handle uniformity and new terminologies in obtaining licening. The Varity of different patterns are made accessible and various prospects of libraries teaching staff and e-books suppliers. Despite whole field related challenges the library professionals

have more capacity to prove themselves in regard to new inventions and technology.

New Medium of Information and Academic Library.

The emergence of modern technology brought itself, the mobile phones, ipade and other devices. Such electronic devices are part and parcel with every student and teacher. The invention of smart phone and iPad mean technology in the hands of every user. This mobile technology has a very cheap and easy access to Wi-Fi network or Data usage providing different network through different franchises in social networking packages to give access to every user without restriction of place where they can obtain information. These all are enough to make it clear that access to information technology is now not away from students, faculty member and researchers. The increasing demand from librarians not only to be part of new advancement but also more profound with such prospect is immerse (Wilder, 2005).

According to a survey "35000 8 to 18 years old young have much tendency on regarding thing on screen rather than printed form NLT, UK 2013). It is obvious that more than 85 percent of population of the World is using mobile phones. The right statement in this regard is that the academic library preference has been shifting from old ways to new technology as looking towards the demand the user that has habits of reading on computer screen. "the social mesia is also an easy mean of transforming knowledge among likeminded and field related professionals to share their ideas and thoughts which access them to establish new ideas to pave the ways for international networking" (Chu and Du, 2013). The academic librarian of today can create a network through social media while adding with up-to-date information of various disciplines. Have a glance upon the time before technological development the process of book keeping and accessing was quite difficult. But now with the rapid growth of technological tools users anywhere gaining benefits to it. The other social networking groups such as blog and wikis as well as open discussions on these forums have made access to information easier. These tools as like web 2.0 etc are best platforms for marketing of new products. Through exchange of information on social media there arise different debates and discussion and also resolve with the help of the professionals of field. Social media can also use beyond restrictions by users as knowledge browsing tools for discovering and storing new information. Users can ask questions via online and social media forums on different individuals and field experts. Such sources when used for information known as online social search.

"A study compared social search behavior of researchers who asked questions to a large number of respondents and new personally and their experiences of search for same knowledge through a web search engine" (Moriss et al, 2010). As compares to other means of medium the people now a day have more trust upon social media. Such networks appear helpful especially for one sided queries. Sometimes the comments or observations on these sites need conformity of outcomes.

Significance of DL in Context with Academic Library

In widespread digitization of information, the digital library is creating an environment of competition among the academic libraries. As earlier stated that a wide range of information is being offered at social networking sites are sometimes arising new issues while ending with a wrong perception when a large amount of various comments come on that, the professional from academic libraries also expect to keep themselves up-to-date with new arrivals. Various access means "for creating and sharing information", which are rarely favored in official academic milieu. These also considered as supportive for students as an indirect source of knowledge.

Ironically as in the age of digital knowledge, have made access easier and connectivity of people while in many areas it seems disengaging students as well. On account of such expansions it has also losing control over it.

In addition, the students acquire needed knowledge everywhere, at home or abroad. With the blessing of digital technology when their knowledge need will be fulfilled at home, they did not realize to visit libraries but on the other whatever search tools and techniques used by librarian is differ from the students and other uses simplistic search. Students go to sites and can access materials which are visible on goggle and other famous areas while library professionals in academic libraries have access to websites that are not publicly open. There have been numerous number of research conducted investigating the Google generation on the basis of less sophisticated and surface information searching techniques while there did not seems sufficient proofs of using of new generation. As Brewer (2002) stated that "search engines are being used worldwide through different academic and not only among the younger population". These are the paths which people utilizes in their searching and browsing. In addition, different studies also assumed that the online search patterns are not only used by younger population. This is clear that in scientific field the nature of search has been diverted from a journal to a specific article on the ground that accessing an article may be easier as compared to earlier. Research on Google generation illustrated that "We are not hinder through search engines as well as social

media as a google generation" ((Prensky, 2009). Apart from slow change different studies make it obvious that the search system is being directed from traditional ways conversion toward the famous digital tools. However the online reading does not mean that the publishing of standard books have been diminished. Still the huge part of population preferred to read books. Utilizing internet sources for knowledge gaining meant obtaining new sharp and useful pattern and it never meant that this information are not academic or inferior quality.

Looking with connection to academic library sphere of influence and the rapid changes indicate that there is an urgent need of tackling latest models of information services and going into depth that what is or will be roll of such changes in context to the academic librarianship in practical ground. The task of library staff has been developing rapidly and in this fast changing environment, the demand for new knowledge obtaining tools have getting momentum. In this scenario the librarian of the today adopt new tools of information seeking to be more connected to its users. "With emergence of new services delivery tools the duties of information professional have diverted from a gatekeeper to a facilitator or provider of information" (Currall and Moss, 2008).

Gap between Librarian and Academics

Different studies carried out on relationship and cooperation between librarian and academics indicated the wide gap. Still in many of higher institutions the library has not attained the centre of attraction if look in case of visits academics to library. It is fact that until and unless such gaps have been removed, the users would not be capable of using new information channels. The concept of blended librarianship is entirely based on that a librarian is main centre of attraction for all activities as like academic etc, while serving whole despite of their professional capabilities. (Shumakar and Taylor: Shank and Bell, 2011).

Suggestion arising from librarians that in every section/departments of higher educational institution a subject on Library and Information science is to be introduced in order to teach and guide the students and academicians that how to search as well as utilize library resources. The services of a librarian are mandatory to make them understand. On the other hand the professional in academic libraries must be equipped with the new emerging technology. An introductory class for students is very crucial in this regard. In this manner librarian may take part with zeal and enthusiasm in the development of academic courses. For this a list of course related curriculum must be prepared collectively by academics and librarian which should

assure the quality of information provided to the students as well as faculty members of the concerned institute. Their lies certain qualities as well as capabilities enabling librarians to perform his assigned tasks in connection to coordination with other in regard with making a new dimensions of partnership. (Bell and Shank, 2004).

With the framework of academic library works, particularly possible cooperation from open access making it confirm that the said work must be included in "Institutional Repository with correct Meta data". "The areas such as social media platform where a librarian may help a researcher through encouraging are very common in today's information age." (Shumakar and Talley, 2009). Such model of blended librarianship, no doubt presents few techniques and a very rare space for users but mostly away from physical space of library.

 As Shumaker 2012, gave many examples upon the "Importance of physical collections and estimated an high level of contribution if the library staff strive as a part of unit, a community, group and a way in which a librarian role diverted into a teamwork experts that needs collaborations and information related activities".

As a result information ability instructions will demand a better understanding of the students knowledge capability that how they have reviewing the present information era as well as whatever they are going to practice in daily life. There is also need to assess their approach level toward information collection. In addition, it gives more and more opportunities to academic library. This has providing new role for academic librarians in context of supporting advancement and increasing knowledge while raising the literacy level of students that they would be capable of learning in order to prepare them for upcoming challenges of new courses of various areas. This too means that libraries require being uptodateness with latest studies in the areas of information literacy while building up further relationship with academic staff.

Conclusion

The purpose of this work was discussed and summarized the main areas to some extent where information technology is influencing the field of academic libraries. As for the field of academic library and users of IT is concerned, the librarians in this sector seem more enthusiastic while making possible adoptability with innovations of modern era. No doubt the librarians of ongoing surrounding are seem engaged in obtaining new skills. The study of academic library makes obvious the tremendous role in open access. The International donor agencies must appreciate the moves in

connections to modern librarianship while expending their funds to academic libraries to installation of new technological equipments. In this regard the UNESCO has a prominent role to play.

As pointed out in the article that the traditional librarianship role has shifted to modern technology. The paradigm shift from a traditional librarianship to modern technology as like a librarian role as a gatekeeper should be transferred to a service delivery authority in a centre of learning. It must be enhanced his level of judgment, knowledge as well as understanding to deal with the matters of everyday life while coming out from the boundaries of physical presence. (Martzoukou, 2013). The expending library course at graduation level is also the main contribution of academic librarians. The Chartered Institute of Library and Information Professionals (CILIP) in UK stressed that the librarians should adopt the new skills beyond the traditional approaches. A librarian with IT expertise can only meet the challenges of new era. The librarian of today has been realizing his/her responsibilities. In current scenario the need of "exchange of information" is calling academic librarians to obtain the services of expert staff in order to develop more users' need-based libraries and a huge number of IT services will be focused. On the other hand the visits to the academic libraries are decreasing. Such advancement emphasizing academic librarians to equipped them in order to cope up with emerging challenges as well as opportunities. There is also need of more studies on IT utilities in libraries and a deep investigation is mandatory the relationship between IT managers in regard with librarian and academicians. The evaluation of upcoming changes and their impacts is very crucial. Within academic library, the space for library equipments and a place for trainings, seminar, workshops etc must be building up in order to enlarge the academic activities inside the library building. Academic library must make an annual or bi-annual progress report of library activities, expenditure, service deliver.

Within the rapid changing milieu of digitization a new role of academic librarian is emerging as well as increasing the expectations of users in shape of installation of new technologies, open access and data management. Despite of all these no one can deny the traditional role of academic librarianship. It is clear from said discussion that academic librarians have constantly turning their directions in adoptability as well as attached with changes to fulfill the demands of clients which are shown in new "users-centered approach" towards delivering near and modern services.

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