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Academic Library's Responses to the Emerging Trends in Higher Education

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ABSTRACT

The New Media Consortium (NMC) Horizon Report 2014 made certain predictions about the emerging technologies and trends in higher education worldwide. The article reviews academic library's position with reference to the predictions made by the Report. The articles briefly refers to selected trends in higher education, mentioned in the Report and reviews and discusses academic library's present and future responses. The review and discussions are based on literature review. The articles finds that academic libraries are responding to the emerging trends in higher education through innovative practices and services. It concludes that in spite of their efforts, there is still scope for the academic libraries to improve their role in the changing higher education scenario and to prove their value.

Keywords: Academic library's responses to emerging trends, academic libraries, emerging trends in higher education, NMC Horizon Report

1. INTRODUCTION

The world itself is a changing phenomenon. Everything in it keeps changing. Therefore, it is said that change is the only constant phenomenon. This is certainly applicable to the twin fields, i.e., higher education and libraries. Like all other fields there are constant changes in higher education too. But this time there are staggering changes in higher education due to the multifold, accelerated, and wide affecting developments in the educational technologies.

The emerging educational technologies, including internet, web technology, computer-based educational games, wearable data capturing devices, software and hardware developments are all forcing changes in the every facet of higher education. These technological changes are particularly affecting the teaching-learning and assessment process in higher education. Libraries have been an inherent component of the higher education ecology. It becomes inevitable for libraries to change so as to respond positively to the changes in the higher education. The New Media Consortium (NMC) and the EDUCAUSE Learning Initiative (USA) published 11th (Higher education) edition of the NMC Horizon Report1 in 2014 predicting immediate and future changes in higher education. The NMC Horizon Report is much known as 'Horizon Report'. The two institutions (i.e., NMC and the EDUCAUSE) every year conduct a research to examine emerging technologies, their potential impact and use in primary, secondary and higher education. To compile the NMC Horizon Report the producers used Delphi technique and collected opinions from international panel of experts in the relevant field. The NMC Horizon Report is published at the beginning every year since 2002. It identifies key trends, significant challenges and important developments in the educational technology as applicable to higher education. This article is based on 11th edition of the NMC Horizon Report published in 2014.

2. OBJECTIVES

This articles aims to review academic library's responses to emerging trends identified by the NMC Horizon Report, 2014. The objectives of the present research are to:

- Identify which technological trends noted in the NMC Horizon Report 2014 applicable to or have influenced academic libraries.
- Find the responses of academic libraries to these technological trends.

3. METHODOLOGY AND SCOPE

The present research article is a 'literature review' article. For this the author has searched relevant literature by going through the *LISA* (Library & Information Science Abstracts), *Emerald, Science Direct and Google Scholar* databases. To review only the current responses, the author the search

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was restricted to the literature published during 2011 to 2014. To maintain currency of information few 'in press' articles available for early cite in various databases are also reviewed. However, only selected literature is cited as evidences for current and expected responses from academic libraries to the emerging trends in higher education. The NMC Horizon Report 2014 identified total 18 trends. The author believes that eight of them have or will have direct or indirect influence on academic libraries. Therefore, only those eight trends are reviewed and discussed.

4. TREND PREDICTED AND ACADEMIC LIBRARY'S RESPONSE

Under each section the article briefly mentions the concerned trend under the same heading as used by the NMC Horizon Report[1]. Below each trend heading the article reviews and discusses how the academic libraries are presently responding to the trends. It also discusses how the academic libraries should respond in future. Both, present (actual) and future (expected) responses are discussed under the heading 'academic library's responses'.

4.1 Trend predicted: Growing Ubiquity of Social Media

Under this tagline the NMC Horizon Report mentions that within next one to two years social media will be available ubiquitously. The extended availability of internet facility and the innovations in internet accessibility tools like smart phones, tablets, etc., will certainly help realize this prediction. The Report cites that more and more students and faculties in higher education are using social media like YouTube, Facebook, etc. According to the Report the use of social media will further accelerate in the next one to two years.

Academic library's responses: The growing ubiquity of social media can be used by libraries for creating awareness about the library's usefulness in teaching-learning activity. It can also be used for imparting information literacy skills. Some efforts are already made in this direction. For example, Colburn and Haines[2] studied how libraries are using YouTube for outreach purposes. For this study the authors identified and analysed library promotional videos on YouTube and found that library professionals comprise a significant portion of viewers for library promotional videos. The authors suggested that libraries can increase viewership of the intended audience by frequently and strategically featuring online video contents on websites, local or campus communication vehicles and social media environments. Del Bosque, Lief & Skarl[3] explored the usefulness of social media in libraries and for library professionals. They studied responses of randomly sampled 296 library professionals under the University of Nevada, Las Vegas to know use of Twitter by library professionals. The authors found that Twitter enabled the library staff to reach and interact with library users effectively by sharing basic information and resources, conversing with patrons, and providing assistance in a quick, and useful way. Similarly, Chu & Du[4] studied the use of social networking tools in academic libraries, examining the extent of their use and library staff's perceptions about these tools. The authors found that 71 % library professionals used social networking tools. Most library staff had positive perceptions on the usefulness of social networking tools. This study offers insights for academic librarians to make informed decisions in applying social networking tools. Bhardwaj[5] studied how library and information science professionals working in higher education institutions in India integrate social networking sites (SNS) into their routine work. The study revealed that the information professionals use SNS to socialise, keep themselves up-to-date, find jobs, and acquire information about conferences and seminars in their respective fields. The author suggested that to increase the use of SNS, the social networking applications must be incorporated into the curriculum of master's degree courses of library and information science. The present author believes that most of the present LIS curricula worldwide have included social networking applications in their courses.

While further identifying the scope for use of social media in libraries Grace, *et al*.[6] expressed that opportunity exists for librarians to join the 'conversation' (among students) and to impart information literacy skills via social media. For example, Facebook can be used to inspire discussions among relevant interest groups and for academic interaction and participation in a more personalised way. YouTube can be used to introduce new information, concepts and services at the point of need. From the above review it could be asserted that the social media is used by students, library users and library professionals as information source, and as a media for effective communication. Romero[7] affirms that in the world of libraries the use of social networks has been institutionalised, as a communication tool. The author further believes that by using library's website and its' profiles on Facebook and Twitter, the library has reduced the cost of marketing and advertising. The author expresses that there is scope for libraries to use the so-called loyalty clubs and communities as well as social and collaborative reading for cost-effective library marketing and advertisement.

The growing ubiquity of social media and the increasing contents on these media is a matter of rejoices as well as concerns. It is a matter to rejoice because the social media is making available

large amount of contents in great variety, in easy and quickly accessible manner. At the same time it is a matter of worry because the quality and trustworthiness of the social media contents is beyond anybody's control. This situation of plenty of unevaluated information on the social media has job cut for librarians. Library professionals have skills and competencies to search, evaluate, organize and make available right information to the right users at right time. To display their information searching and filtering abilities libraries should plan and provide services such as 'social media service'; 'social media search and evaluation service', etc., to make available evaluated social media information to the academic library users.

Since the origin of higher education libraries have been making available various types of documents to teachers and learners. Libraries have been at the forefront in acquiring, organising and making available any new form of document. Using this strength the academic libraries now have to develop ways and means to track useful information/sources from social media. In other words, libraries have to develop and use new apps for finding relevant contents from the social media.

4.2 Trend predicted: Integration of Online, Hybrid and Collaborative Learning

The NMC Horizon Report predicts that in the coming one to two years there will be increasing integration of online, hybrid and collaborative learning. This will drive massive changes in higher education.

Academic library's responses: Libraries have played, are playing and will be playing great role in teaching-learning process. Library's role was relevant in the traditional teaching-learning environment. It is and will be relevant in the hybrid, online and collaborative teaching-learning environment also. With the increase in the online courses including MOOCs (massive online open courses) and the open educational resources (OER) there are apprehensions whether libraries will be relevant in this era? Whether they will be able to sustain in this emerging technological storm? Whether they will be able to cope up with the process of disintermediation? However, the literature indicate that libraries have always been able to cope up with the challenge of disintermediation. Libraries are responding positively to the emerging trends of online, hybrid and collaborative learning by way of (a) supporting the MOOC and (b) by developing information commons.

MOOC is one example of fast growing online higher education. According to Mazoue[8], MOOC represents a postindustrial model of teaching and learning and it has the potential to undermine and replace the business model of institutions that depend on recruiting and retaining students for location-bound, proprietary forms of campus-based learning. MOOC courses are becoming popular and they are offered in many subjects including library and information science[9]. Academic libraries are supporting the MOOCs and there is further scope for them to enhance their support. For example the North Carolina State University (NCSU) developed a course-based widget system called 'Library Course Tools' (http://www.lib.ncsu.edu/course/) to dynamically generate student-centric views of library resources and tools for all courses taught at NCSU.(http://www.lib.ncsu.edu/dli/projects/courseviews).

Library associations and experienced library professionals have realised the inevitability of MOOC's entry and its success in the higher education. To ensure library's role in MOOC they are making positive suggestions to libraries. For example, the ACRL's 'Environmental Scan'[10] report identifies current and emerging factors that impact academic libraries; describes the broader context in which these libraries operate; and outlines related implications for library resources, services, and personnel. The report is prepared to support the planning and positioning of academic libraries for the future. The 'Environmental Scan' report suggested that libraries should remain involved in the development and delivery of MOOCs. Similarly, Kerry Wu[11] explored the impact of MOOCs on academic libraries, and appealed academic librarians that they should be fully engaged in the discussion and action on their own campus related to MOOCs. With rapid increase in MOOC, the academic libraries have an opportunity to develop packages/portals that provide access to 'course-based additional resources' or 'e-content packages' for MOOC learners.

Academic libraries are also responding to the emerging online, hybrid and collaborative learning by developing information commons. Learning commons, creative commons, learning landscapes, research commons, etc., are some other terms used to refer to the facility of information commons. In fact these different names indicate that information commons are developed to serve the emerging online, hybrid, and collaborative learning situations. With information commons, libraries are able to provide computers with internet facility, discussion space for students, research scholars and faculties. Considering the value of information commons in collaborative learning, faculties are also cooperating and collaborating with librarians in developing and using information commons[12].

Evidences prove that through information commons the academic libraries are actively supporting online, hybrid and collaborative learning. For example, four university libraries in UK designed and developed learning spaces so as to support collaborative

learning[13]. Talvé[14] reported that internationally the library has emerged as a facility inter-woven of digital, social and aesthetic values and has generated new loci for solitary and collective learning and interaction. Beagle[15] also traced theoretical origins through real-world examples the philosophy of the commons extension across physical, virtual, and cultural domains and the development of the learning commons as collaboration among multiple learning support units, including libraries.

Presently the facility of information common is available only in very few academic libraries. The message of the trend foresighted in the NMC Horizon Report is that now all academic libraries have to provide the facility of information commons. This facility will enable students and teachers to take advantage of the online, hybrid, and collaborative learning processes. Libraries which are unable to develop immediately, information commons per se should at least make available a small 'discussions/deliberations/debates/innovation' space in libraries. Such spaces may innovatively be named as 'collaborative learning zone'; 'academic discussion zone'; 'research interaction zone', 'talking zones', etc. Such facilities should be made available in addition to the 'silence zones' in the libraries.

To enable and encourage online and collaborative learning academic libraries should also develop 'online reader clubs'. Through such clubs libraries will be able to establish interactive communication between themselves and the readers. Such clubs will enable readers to share information about their library activities, reading activities and library experiences. The online reader clubs created and maintained by libraries will help promote interdisciplinary studies also. Many universities are now offering interdisciplinary learning environment through the 'cafeteria approach'. The online reader club will enable libraries to distribute reading material across disciplines by serving the students taking benefits of the cafeteria mode of curricula. 'Online teacher-learner clubs' should also be established by libraries to share teaching-learning material to both the teachers and students. Such clubs established by library will also help teachers to identify and distribute learning material to students.

4.3 Trend predicted: Rise of Data-driven Learning and Assessment

There is a growing interest in using new sources for data personalising and learning experience and for performance measurement. The education field has been always involved in developing and using innovative assessment techniques and tools. The NMC Horizon Report states that 'as the students and educators generate more and more data, especially in online environments, there is growing interest in developing tools and algorithms for revealing patterns inherent in those data and then applying them to the improvement of instructional systems'. New data driven assessment techniques and tools are recognised as learning analytics. The NMC Horizon Report states that learning analytics' is an educational application of big data. Learning analytics analyses learning data to inform decisions made on every tire of the educational system, leveraging student data to deliver personalised learning, enable adaptive pedagogies and practices, and identify learning issues and time for them to be solved. The Report discusses various types of data that can be collected and analysed by using learning analytic techniques. It also lists benefits of learning analytics.

Academic library's responses: Like the teaching community, libraries also serve students. Students learn from teaching community. Similarly, they learn from library's reading material and information services. As such, like teachers, libraries should be able to use 'student's library use data' to measure student's learning performance. This data can also be used to prove library's value. The following literature illustrates how libraries are trying to collect and use 'student's library use data' to calculate return on investment (ROI) and to prove library's value. The literature also suggests how the libraries can benefit from this data driven approaches. In other words the literature indicates that there are and there should be further efforts to develop 'library analytics', i.e., library application of big data'.

Libraries are developing criteria to calculate ROI so as to prove library's value. The criteria generally revolves around measuring student's grade point average, faculty's improved publication rate and higher impact factor and *h*-index, accreditation grades received by the academic institution, etc. The trend predicted by the NMC Horizon Report provides libraries an opportunity to use the students' learning data to calculate ROI. For example Kingma & McClure[16] adopted contingent valuation method to measure ROI of the Syracuse University library. The economic and environmental value of the Syracuse University library showed an ROI of $4.49 returned to the university for every $1.00 spent each year. LibQUAL+ROI is another model that is being used by more and more academic libraries to calculate RIO.[17]Soria, et al.[18] studied the impact of library usage on retention and academic success of first-time, first year undergraduate students of University of Minnesota. They found that students who use library have a higher GPA (Grade Point Average) for their first semester and higher retention than non-library users. Academic libraries are also employing instructional strategies, and assessment methods to

help students achieve their learning goals, increase their level of academic success, and progress further and faster through coursework.[19]

Many learning management systems provide facility to gather data about students' learning activity, which can be used to identify students at risk. The emerging technique of learning analytics will help libraries in knowing well-doing as well as the struggling students. Results of learning analytics will be useful for academic libraries in developing 'personalised information services'. Results of learning analytics could also be used by academic libraries to develop 'reader development index' as well as 'information/reading packages for challenged/ exceptional students'.

E-science librarianship, research data services (RDS), data curation, etc., are the other activities in which libraries can make use of data driven learning environment. For example, Pollock[20] cited the demand for more advanced skills in searching, data visualisation, data mining and analysis and claimed that librarians have larger role in data curation. Considering this new role of librarian's Pollock called them 'science informationist', i.e., librarians who are involved in science data curation. Science informationists build systems through their collaboration with those creating knowledge and they work with publishers to improve standards, platforms, and publication models. This activity of collecting, organising, storing, retrieving and serving science data is also referred to as 'e-science librarianship'.

Scope for managing big data and similar activities is increasing day by day because of emergence of 'data-intensive sciences'. Data-intensive sciences create challenges for researchers and demand a data management skill set that likely was not part of the scientist's education and for which scientists likely do not have time or training. Tenopir[21], *et al*., believed that the emergence of data intensive sciences has created a unique opportunity for academic libraries to provide consultancy services related to research data management and curation; to provide the infrastructure, or at least the front-end, for data storage and curation and to support librarians becoming active members on research and grant proposal teams as data curation consultants. In this data driven higher education environment academic libraries should provide RDS. According to Tenopir[21], *et al*., RDS are services that are offered to researchers in relation to managing data and can include informational services (e.g., consulting with faculty, staff, or students on data management plans or metadata standards; providing reference support for finding and citing data sets; or providing web guides and finding aids for data or data sets), as well as technical services (e.g., providing technical support for data repositories, preparing data sets for a repository, deaccessioning or deselecting data sets from a repository, or creating metadata for data sets).

In 2012, the ACRL (Association of College and Research Libraries) Research Planning and Review Committee[22] prophesied that libraries will play valuable role in this collaborative learning environment as data curation challenges are increasing as standards for all types of data continue to evolve; more repositories, many of them cloud-based, will emerge; librarians and other information workers will collaborate with their research communities to facilitate this process. It is expected that in future tools such as 'Data Asset Framework' (http://www.dcc.ac.uk/resources/repository-audit-and-assessment/data-asset-framework) will be developed for assessing student's performance. Such a framework will also be useful to libraries in identifying, locating, describing and assessing research data.

In 2012 , ACRL initiated a programme named 'Assessment in Action (AiA)[23] which specially aims to develop the professional competencies of librarians to document and communicate the value of their academic libraries primarily in relation to their institution's goals for student learning and success. It also aims to contribute to higher education assessment work by creating approaches, strategies, and practices that document the contribution of academic libraries to the overall goals and missions of their institutions. Both these aims indicate that libraries are responding actively to the emerging data driven scenarios of higher education.

4.4 Trend predicted: Shift of Students from Consumers to Creators

In next three to five years students will be producing huge amount of information. It specifically mentions that 'campus libraries increasingly host … publication services'. That means in the future students will not only information consumers but they will become information producers.

Academic library's responses: Students produce information by way of their research articles and project reports. Libraries can help students in producing and publishing information produced by them. Evidence shows that libraries are actively helping students to publish their research. For example, Hensley, et al.[24] conducted a survey of library support for formal undergraduate research programmes and found that libraries are strongly supporting students for disseminating undergraduate research. The researchers believed that this has given libraries an opportunity to provide information literacy instructions to engage undergraduate researchers on issues of intellectual property, copyright, open access etc. Another exciting initiative is the Library Publishing

Coalition. This coalition is working in collaboration with the Educopia Institute[25]. Over 50 academic libraries have joined in this coalition to advance the field of library publishing. Students are also helped in publishing information produced by them through library's wikis. As asserted by Herther[26] new roles and changing visions for academic libraries to enter into the field of online publishing and create contents using open-access model is gaining momentum. Such activities will enable libraries to prove their value in assisting students in producing and dissemination their own contents. The ACRL Research Planning and Review Committee[22] appreciates new opportunities and also warns them saying that 'new scholarly communication and publishing models are developing at an ever-faster pace, requiring libraries to be actively involved or be left behind'.

Libraries have been helping the faculties for publishing their research by guiding them in ethical use of other's literature and by in identifying appropriate journals for publishing their research. Continuing this tradition, libraries should now help students in identifying e-journals to publish their creative thoughts and research. Libraries should also guide students in using other's information ethically and legally. They should also help them in using e-research tools such as 'Google Scholar' for creating their research profiles, computing impact factor and *h*-index. Libraries should help students in using facilities such as 'Google Docs'(docs.google.com), 'SurveyMonkey' (www.surveymonkey.com) etc., to gather data for their research. Libraries can instruct students in the use of 'reference management tools' such as Zotero (www.zotero.org), RefWorks (www.refworks.com), etc. Imparting information literacy programmes will be of high value in case of novice students who want to create information for the first time.

4.5 Trend predicted: Agile Approach to Change

Agile approach is an approach of thinking or acting easily, quickly and intelligently. The Report predicts that in the next five or more years the higher education institutions will be adopting change more quickly, easily, and intelligently. It is natural that to survive and succeed, the higher education institutions have to rapidly change their courses, syllabi, teaching techniques, delivery of learning material and assessment methods. Institutions which will not adopt the agile approach to change will not be able to sustain in the ever changing world.

Academic library's responses: Along with the fast developments in the higher education institutes their libraries are also developing fast. The academic libraries have always responded positively to the changes in the higher education and have accordingly made changes in their policies, programmes and services. Adopting the agile approach to changes in higher education, academic libraries are computerised, and are increasingly acquiring and serving electronic reading material, are providing internet-based services, are renovating their buildings, furniture and other infrastructure. These are some of the indicators of academic library's adoption of agile approach to changes in higher education.

Adoption of 'agile approach to change' is further affirmed by Brian Mathews[27] who in his white paper entitled 'Think like a startup: A white paper to inspire library entrepreneurialism' said that librarians have always adopted the agile approach to change. He further says that 'our jobs are shifting from doing what we've always done very well, to always being on the outlook for new opportunities to serve an unmet need which will advance teaching, learning, service and research'. Nevertheless, academic libraries have to continue to adopt this approach.

4.6 Trend predicted: Flipped Classrooms

'Flipped class model is a part of a larger pedagogical movement that overlaps with blended learning, enquiry-based learning, and other instructional approaches and tools that are meant to be flexible, active and more engaging'. Such flexible education, NMC Horizon Report predicts, is going to be in practice within next one or less than one year duration. Academic library's response trend is already there in practice in the form of online learning facilities.

Neshyba[28] defined flipped classroom as, 'flipping' is a teaching technique that involves abandoning the traditional lecture (or not just relying on it so much) and replacing it with interactive approaches that experiment with technology and require students gather information outside of class and be prepared to engage the material in class, rather than sit passively listening to a faculty member talk'. A study carried out by Daley[29] at the University of North Carolina-Chapel Hill reported that 86 % students preferred flipped classrooms. This indicates that the flipped classrooms will be more in demand in future higher education. To serve the students of flipped classroom there is a need of flipped librarians[30].

Academic library's responses: It is now the turn of academic libraries to convert themselves in to 'flipped libraries' i.e. libraries offering flexible service hours, flexible membership regulations, off campus access, etc. The flexible approach in every facet of librarianship will help libraries to respond the emerging flipped classroom trend positively. Librarians too have to be in flipped roles. In their flipped roles they will have to simultaneously serve as 'database search experts', 'reading advisors/ consultants', 'advisors for ethical use of literature', 'publishing advisors', 'information source advisor' 'data curators', etc.

4.7 Trend predicted: Game and Gamification

Traditionally games have been recognised as the great entertainment facilitators. However, of late the educators have been eying the educational value of games. With the development in the computing technology the value of games as educational tools has increased considerably. Gamification is application of principles and mechanics of games to enhance the effectiveness of an activity. The Report predicts that within next two to three years the games and gamification will be one of the major innovative facets of higher education.

Academic library's responses: Libraries are responding to gamification in higher education. For example, Fusich[31] et al., reported that the Henry Madden Library at California State University-Fresno (Fresno State) created an online orientation game named HML-IQ to familiarise students with library resources and services. Also the North Carolina State University (NCSU) Libraries gamified traditional library instruction by creating a mobile scavenger hunt that has met with great success and resulted in an increase in the number of library instruction sessions for ENG 101 classes[32]. How gamification can be used for effective information literacy instructions is further explained by Becker[33]. The University of Huddersfield Library in the UK has built a social online game called 'Lemontree' that allows library patrons to earn points and badges through their usual library transactions such as borrowing a library material and to display those badges in their social networks such as Facebook or Twitter[34]. While explaining the current and future use of gamification in libraries Kim[35] asserted that gamification in libraries is at a very early stage of development ... a clear goal, careful planning, and skillful execution are necessary for the success of a gamification project (in libraries).

Considering the educational value of games, academic libraries should acquire educational games of all variety and make them accessible. Academic libraries should also develop a portal of educational games containing both free and subscription based games. Providing quick and easy access to educational games to learners in higher education will certainly help enhance value of academic libraries in higher education.

4.8 Trend predicted: Quantified Self

The Report predicts that within next four to five years there will be considerable technological innovations that will enable leaners to track data about their daily activities through wearable devices such as watches, wristbands, necklaces, glasses etc. The process of capturing data through such technological precision devices is named as 'quantified self'. It predicts that the quantified self will enable educators to collect data about student's every minute learning activities. Such data will be useful to the educators for evolving effective educational practices.

Academic library's responses: Like the educators the library professionals are also interested in understanding user's daily library use patterns and study patterns. The technology meant for the quantified-self purpose will be certainly useful to libraries in studying and understanding student's information seeking behaviour and library use behaviour, including their daily reading behaviour. Considering the value of quantified-self and the emerging tools for these purpose library professionals should explore the applicability of quantified-self technology in understanding their users so as to serve them better. Currently, however, one has to wait for some time to find evidences of application of quantified self in academic libraries.

5. FINDINGS

Some of the most noteworthy findings are:

(a) Total 18 emerging trends in higher education have been identified by the NMC Horizon Report 2014.

(b) Out of those 18, eight trends have direct or indirect influence on academic libraries.

(c) As far as the responses of the academic library's to the emerging trends is concerned it is found that the academic libraries are responding very positively.

(d) The research could find many examples of the responses where the academic libraries are using the emerging technologies to improve their services and to bring innovativeness.

6. CONCLUSIONS

The article reviews and discusses academic library's current and expected response to the emerging trends in higher education predicted by the NMC Horizon Report 2014. This review and discussions will be useful to the academic library practitioners in understanding the emerging technological trends. It will also help them assess their current position and plan their future responses. The discussions will be of value to the library practitioners in designing and implementing befitting technology literacy programmes for faculties and students in colleges and universities, and will also be useful to the library and information science educators in revising their curricula to cope up with the emerging technological trends in academic libraries. The LIS educators can make use of these discussions to explore new teaching and assessment techniques. Libraries as usual are serving the changed needs of the higher education students and teachers and they are simultaneously

preparing themselves to serve any further changes in the higher education. Incidentally, three of the top ten trends identified by the ACRL Research Planning and Review Committee[22] match with the trends predicted by the NMC Horizon Report. These three trends are 'communicating (library's) value, (library's role in) scholarly communication and data curation. They match respectively with NMC Horizon Report's predictions about 'data driven approach', 'students as producers of information' and 'self-quantification'.

This matching of the NMC Horizon Report's predictions with the trends identified by a library association confirms that libraries are prepared to respond positively to any emerging technological trends in higher education. Extended skills to adopt educational/information technology and increasing use of technology are the strengths of present academic libraries. Favourable innovations and demographic growth in higher education is an opportunity of academic libraries. With this strength and opportunities as well as the research published in peer review LIS journals and the scholarly deliberations in LIS conferences indicate that today's academic libraries are serving satisfactorily and will serve more effectively in future.

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