An Overview of Medical Libraries in Digital Era: Impact of Libraries on Academic Performance of Medical Students

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Abstract - The rapid proliferation of information in the present digital era has important implications for the education of health professionals including medical students.In medical education self-learning plays an important role to update the fast growing recent knowledge as faculty will not be able to impart all knowledge in class sessions.Over the years, librarians at academic institutions have tried to document that their efforts in the classroom, virtual or otherwise, bring about positive results and outcomes.The faculty is the person who can make the successful use of library by medical students. Instead of having traditional didactic lectures where students only learns from the teacher. He can adopt various other teaching methods which will make students to use libraries to gain the knowledge.In today knowledge explosion world library plays an integral part of any institution including medical colleges. Many institutes neglect the role of library and librarian in particular providing proper learning resources and thereby assisting students to perform well in their examinations.

Key words: Medical education, Library, Student, Librarian.

1. Introduction:

The rapid proliferation of information in the present digital era has important implications for the education of health professionals including medical students. Medical libraries as center of information resources play a pivotal role to develop lifelong learning skills among the medical students by providing them required resources [1].

The primary objectives and goals of higher education, is to have good academic performance by students and academic libraries plays an important role. To have better performance it is worthwhile to have coordination between faculty who teaches the content and library where further knowledge is kept. It is also pertinent that student plays an important role in acquiring the knowledge by proper utilization of resources. The faculty is the key for the successful use of library by medical students; the teaching method has major impact in this process either by encouraging them or sometimes by compulsions using interactive sessions [2].

In medical education self-learning plays an important role to update the fast growing recent knowledge as faculty will not be able to impart all knowledge in class sessions. Many a times the students obtain their knowledge from textbooks or from faculty lecture notes. This always provides insufficient knowledge to effectively take care of patient in the real scenarios.

Over the years, librarians at academic institutions have tried to document that their efforts in the classroom, virtual or otherwise, bring about positive results and outcomes. The academic library should facilitate the transfer of knowledge by providing reliable resources for all who work and study in the institution[3]. Medical education is often criticized for its failure to promote a sense of responsibility among medical students for their own learning[4]. One of the reason for this is faculty not using various teaching methods which allows students to use library resources to complete the task.

Academic staff should assist students to identify their study needs and students should learn effective ways to find the information sources that they need [5&7].

The library and information net-works in India were initiated in early eighties. The growth during this period can be linked to some of the policies that The Government of India pursued. Some institutions like DRDO, NISSAT, CSIR DAE, ICAR, SIRNET, ISRO, INFLIBNET, NICNET, MHRD and IIM libraries are actively working continuously to improve the present situation of libraries & Information *Resource* Centres. The Indian consortiums are helping to the libraries and information resource centers to provide better resources to the users by invest meager amount [8].

Prior research on undergraduate students' information behavior and library use:

Many studies were conducted across various countries about the effective use of library by various higher education students including medical schools. A few important studies have been outlined with emphasis on library and performance.

- In 1990s the use of library and information seeking behavior increased and stduents realized that libraries needed to understand and improve their knowledge[9].
- Study done in the Nordic countries showed that students were frequent library users with differences in utilization of different disciplines[10].
- Rankin noted that up until the early 1990s there were few library users[11].
- Studies centered on medical students despite the fact that research on 'information behavior of physicians' was an established field of research. Changes in medical education, notably the introduction of problem based learning, provided an incentive for investigating the information behavior of medical students [10].
- In India, Lal and Ingle found that although 97% of undergraduate students reported visiting the library, only 41% made regular visits. The majority of students (82%) only consulted textbooks[12].
- The authors concluded there was a need to train and motivate undergraduates to make better use of library resources. A similar study carried out by Chatterjee et al. found that the majority of interns (62%) visited the library to prepare for examination. Other reasons for coming to the library were: seminars (14%); to consult manuscripts / dissertation/project reports (12%); and lack of personal books (10%)[13].
- Studies also done to find the teachers visit library which showed, the majority (72%) came to the library to prepare lectures or for seminars; 42% came because they did not have their own books; and 39% were preparing manuscripts/dissertation/project reports.
- Thirty-nine per cent of teachers were using the library because they did not subscribe to many journals and were unable to find through online search.
- In Chatterjee's study, about one-third of both students and teachers found that the location was difficult to access [13]. So it important that location of library has great influence in its use.

2.   What is the role of library in medical education?

Library can be compared to sea of knowledge, where everyone can find the recent, relevant, appropriate and authenticated information required for their specific learning process. Librarian plays an essential role in providing this information to students by assisting students to locate and find the relevant information. Also in providing required content information asked by the faculty to complete the work. This will create a good rapport with librarian so that students will understand librarian is essential for obtaining the information. Information and communication technologies have provided opportunities for medical libraries to meet the needs of their users in a much better way. Various online resources such as e-journals, e-books, subject databases, such as HINARI, PubMed and evidence based tools are now available to increase and ease access to health information. But these online resources are so vast that student will not be able to find the relevant one rather find the unnecessary resource. The librarian should guide them to find the proper resources even its online.

Medical libraries have expanded their collections through acquisition of these electronic resources to build hybrid libraries that are expected to meet the information needs of the digital age users [14].

It is important to note that the value of a library's collection lies in its effective utilization by the user community. Until the students and teachers use the library properly the goal of setting a library will not be served. Library use involves the consulting, reading and borrowing of library resources. It also involves obtaining information from library staff. Library use can be in form of visit to library to consult the collections or remote access to library digital collections[15].

3.   Library for research work:

In medical field research work plays a major role in knowledge gaining process. Recent days more importance has been given to research work which both faculty and students take it seriously. Any research work involves the gathering of information of previous work in the form of journals, articles etc.

Also to be noted that, scholarly scientific, technical, and medical journal systems are undergoing tremendous change. With steady increases in the price of print subscriptions, the number of subscriptions has declined correspondingly.

Many studies show that there are now many alternatives sources to print journals, including electronic peer-reviewed versions of traditional journals from the same publishers, aggregated databases of separate articles, electronic print servers, institutional open archives, and author's personal Web pages.

In the print world, medical professionals have relied heavily on scholarly journals, placing importance on specific journal titles in their sub disciplines and reading more than people in most other disciplines. It is therefore interesting and timely to see how much of an impact electronic alternatives have had on medical professionals and to compare their information seeking, their reading patterns, and their adoption rates[16].

4. Digitalization of library:

Electronic resources (E-resources) have become highly important learning and teaching aids in almost every field of science. For its effective use, medical students need the guidance, awareness, skills for management of information and communication [17,18].
 E-resources are actually a boon to the medical students and attract them in the digital environments in their limited amount of time. Use of e-resources by medical student may provide up-to-date knowledge in their respective subject field and to improve the quality of learning, growing rapidly and play a vital role in education and research [19.]

5. Effects on academic performance:

Much of the things have been told about library but actually is there any effect on the performance of students in positive way. The answer to this can be explained with following studies.

- Study conducted by Wong and Webb used a sample of more than 8,000 students who had graduated from Hong Kong Baptist University to examine the correlation between the number of books and audiovisual materials checked out during the course of the student's study program and the student's graduation GPA [20] This study found that use of books and audiovisual materials was positively correlated with graduation GPA in 65 percent of the 48 subgroups (based on student major and level of study) examined.
- In a follow-up study, Wong and Cmor used the same sample and examined whether participation in library instruction workshops was positively correlated with graduation GPA [21].They found that programs that offered more library sessions to students also tended to show a positive correlation between student attendance at library sessions and graduation GPA.
- A number of studies indicated a correlation between academic library usage and perceived educational performance of students or academics[22-23.] Studies such as those of De Jager, (2002) investigated the effects of borrowing materials on academic improvement.
- Mainly in Australia, Great Britain, Germany and the USA, researchers have measured the correlation between the library use and educational performance. An early study was that of Barkey [26] who attempted to find out the relationship between students borrowing books and their grade point average at universities. A similar study conducted by Lane [27] explored the correlation between student characteristics and borrowing books.

6. Benefits of library usage [28]:

Students benefit from library instruction in their initial coursework.
1. Library use increases student success.
2. Collaborative academic programs and services involving the library enhance student learning.
3. Information literacy instruction strengthens general education outcomes.
4. Library research consultations boost student learning.

How to make effective use of library:
1. Library should be open without affecting the college hours.

2. Library should be used physically by students as well as faculty. The faculty plays an important role as role model to students.
3. The Health Sciences Library should have the strong collection of resources which meets the needs of its users. Basically both print and digital form.
4. Should encourage to students to use digital form resources through digitalization library.
5. Keep all updates books either print or electronic form up to date.
6. In medical library make separate rooms for students and faculty interaction sessions such as for assignment, research work.
7. Librarian should and must be part of student learning process by assisting students how to use the resources and where to find them.

7. Ways to make student use library regularly by faculty:

The faculty is the person who can make the successful use of library by medical students. Instead of having traditional didactic lectures where students only learns from the teacher. He can adopt various other teaching methods which will make students to use libraries to gain the knowledge. The various ways are,

Active learning: Is a process where student actively involved in learning processIn short, active learning requires students to do meaningful learning activities and think about what they are doing [29.]

Collaborative learningcan refer to any instructional method in which students work together in small groups toward a common goal[30.] As such, collaborative learning can be viewed as encompassing all group-based instructional methods, including cooperative learning.[31-35]

Cooperative learningcan be defined as a structured form of group work where students pursue common goals while being assessed individually.[31,36] The most common model of cooperative learning found in the engineering literature is that of Johnson, Johnson and Smith. (37,38) This model incorporates five specific tenets, which are individual accountability, mutual interdependence, faceto- face promotive interaction, appropriate practice of interpersonal skills, and regular self-assessment of team functioning. While different cooperative learning models exist[39,40,] the core element held in common is a focus on cooperative incentives rather than competition to promote learning.

Problem-based learning (PBL) is an instructional method where relevant problems are introduced at the beginning of the instruction cycle and used to provide the context and motivation for the learning that follows. The student will go through the pbjectives and search for answers in various books. PBL typically involves significant amounts of self-directed learning on the part of the students[41.] The student shares the knowledge gained with their group and thereby achieving their learning outcomes in meaningful way.

Team Based Learning (TBL): Parmelee and colleagues defined team-based learning (TBL) as "an active learning and small group instructional strategy that provides students with opportunities to apply conceptual knowledge through a sequence of activities that includes individual work, team work, and immediate feedback." [42]

Team-based learning (TBL) possibly relies on small group interaction more heavily than any other commonly used instructional strategy in postsecondary education. Team Based

Learning is a structured form of small-group learning that emphasizes student preparation out of classroom and application of knowledge in the classroom. Students are organized strategically into diverse teams of 5-7 students that work together throughout the class and can be used for large class strength also[43.]

Team-based learning is a form of cooperative learning that creates an environment that allows learners to develop higher levels of learning (ie, application, analysis, evaluation, creativity).

Book talk: In this the students are given common task on particular topics having small groups. But each group will use different books are resources to find the answers. Later they will have discussion among them about the questions posed by the faculty. The advantage of this is students will have information of different books in common session.

8. Conclusion:

In today knowledge explosion world library plays an integral part of any institution including medical colleges. Many institutes neglect the role of library and librarian in particular providing proper learning resources and thereby assisting students to perform well in their examinations. It's also to be stressed that librarian should change their attitude of keeping books in the shelf to providing resources to students.

Institute should involve librarians in academic teaching process in terms of giving orientation to new and old students at the start of their years and respective years to maximize then use of library resources. The faculty should also inculcate the teaching which requires the involvement of library resources which makes students to use library.

The librarian also plays a major role in the following ways:

- Providing a friendly environment in the library to students thereby students enjoy their stay in the library in terms of obtaining the knowledge.
- Involving in the orientation programs.
- Provide sessions about how to use the library effectively to students rather than just giving list of books available in the library.
- Giving them the outline of role of librarian and how students can maximize their knowledge gain by taking help of librarians.
- Upgrading the library with required books and digitalization.
- Remember librarian is not the person sits in library and watches students reading the materials. He should be made responsible in finding the resources by students and effective use of library materials to gain maximum knowledge by students which will be used in patient care.

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