

Use of Mobile Devices for Accessing E-books by Medical College Students in Karnataka: A Study

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Abstract - The present paper assessed the usage of technical tools offering updates in medical information through various medical devices, database, apps, etc. The advancement in learning process aided by newly designed tools, viz. various devices, applications and databases are now within the reach of students. The new trend of dealing with e-books, audio books, etc., is an asset to the spectrum of education. Especially, students pursuing professional courses like medicine, etc., should make the maximum use of these new peripherals in technology. Nowadays, a change in reading pattern has been observed – a shift from traditional books to e-books and audio books. This paper significantly brings out the usage pattern of various mobile devices, database meant for medical education and various apps for e-book reader and audio books. The data from 1150 students belonging to 16 medical colleges in Karnataka were obtained through questionnaire, interview and observation techniques and the findings were elaborated with the help of suitable statistical techniques.

Keywords: Mobile Device, E-Books Reader, Medical College, E-Resource, E-Book, Audio Books Apps.

I. INTRODUCTION

Over the past two decades, mobile devices have become popular owing to factors like portability and low weight; some devices even fit into pocket or palm (Fojtik, R., 2015). The statement gives strength to affirm that mobile devices play a vital role in academic work in general, and for students in their pursuing education process in particular.

The intensification of mobile devices' popularity (Bicen, H., & Kocakoyun, S., 2013) and use of applications have considerably changed the learning pattern of students. Mobile learning can lengthen the learning spaces to places beyond traditional classrooms, libraries and homes (Lam, P. et al., 2009). Most of the students are carrying their mobile devices for reading the e-books (Sung, Y. T., Chang, K. E., & Liu, T. C., 2016). Subba Rao (2003) explained that e-books are "text in digital form, or digital reading material, or a book in a computer file format, or an electronic file of words and images" (86 p.). Further, mobile devices are voluminous memories that help students to store huge amount of e-books instead of carrying them; also, e-books are downloadable anywhere anytime. (Burdette, S. D., Herchline, T. E., & Oehler, R., 2008)

Recent studies indicated the frequent use of mobile devices for accessing the reference resources, e-books and information management tools in clinical practice among medical students (Wallace et al., 2012). Hence, during the last three decades, health sciences libraries have been focusing in providing e-resource collections for their users and subsequently, many printed books and journals are successfully replaced by e-journals and e-books (Aronsen, K., Johansen, A., & Rein, J. O., 2016; Folb, B. L., Wessel, C. B., & Czechowski, L. J., 2011). While using the mobile devices, the medical students need to adapt to the new reading pattern, particularly they need evidence-based e-resources for updating clinical skills. With the emergence of technological developments, many students are opting e-reading pattern for academic studies because the advanced facilities available in mobile devices such as bookmarks, suggested readings, digital graphics, hyperlinks to further studies, etc. Hence, this study attempts to present a comprehensive and updated overview of the access of e-books through mobile devices by medical students in Karnataka. In 1929, the first medical college in Karnataka was started at Bangalore. In 1996, the Government of Karnataka started a new university called Karnataka University of Health Sciences at Bengaluru, which was later renamed as Rajiv Gandhi University of Health Sciences (RGUHS). The main objective of this university was to maintain the consistency in curriculum in affiliated colleges and to have a common entrance test for all under graduation studies. The other aim was to share electronic resources through HELNET consortium with all affiliated colleges at a minimal price as it was funded by RGHUS.

II. OBJECTIVES OF THE STUDY

1. To find out types of mobile devices used by medical college students
2. To determine the frequency of mobile device usage
3. To find out types of e-book database used by medical college students
4. To identify types of e-book reader apps used by medical college students
5. To find out the types of e-book audio apps used by medical college students

III. SCOPE AND LIMITATION OF THE STUDY

The present study is confined to students pursuing MBBS in colleges affiliated to Rajiv Gandhi University of Health Sciences (RGUHS), Bangalore during the year 2015 - 2018. Hence, the study is geographically limited to Karnataka and empirically limited to 16 medical colleges.

IV. METHODOLOGY

The sample collection for this study was based on stratified random sampling technique. Out of the total 52 colleges under RGUHS, 16 medical colleges that were functioning for 25 years were selected for the study. The study was based on survey method. A structured questionnaire consisting 65 questions was executed to collect data from 1150 selected sample students of 16 medical colleges in Karnataka (Appendix-1).

Besides collection of data, interview and observation techniques also were used to confirm the responses to elicit accurate result. For this study, 1600 questionnaires were distributed among the medical college students. Out of 1600 respondents, 1150 (71.87%) filled questionnaires were

received and 1036 respondents were found accessing e-books in their mobile devices.

V. DATA ANALYSIS AND INTERPRETATION

The data obtained from respondents were presented with suitable statistical techniques for analysis interpretation.

A. Types of Mobile Devices

The below given analysis presented in pie diagram describes different types of mobile devices used by the sample. It showed that 99.7% (1144) 'smartphones'. The next preferred device was 'laptop' by 93.9% (1078) of the total sample while the third type of mobile device used was the 'tablet' by 71.3% (819). The least used was 'PDA' by 7.3% representing only 84 of the total sample. This analysis exhibited that the smart phone and laptop were more preferred compared to other types of mobile devices, reason being the smart features render user-friendly and ease-at-use factors, and items on one's lap were generally of much comfort and adorable.

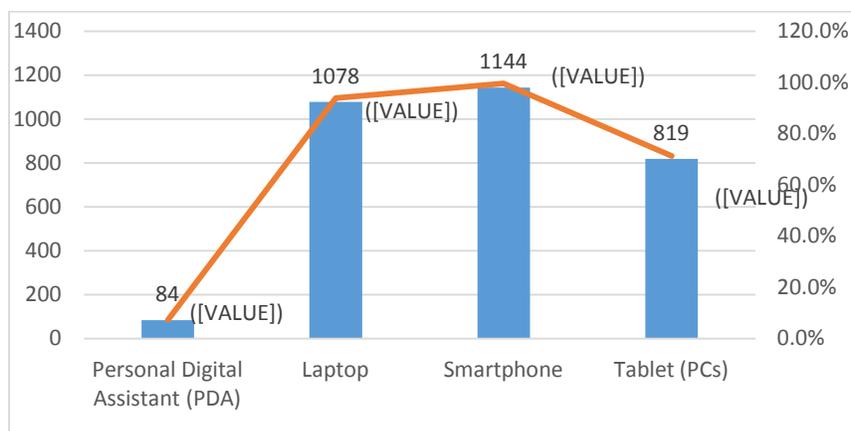


Fig.1 Types of mobile devices

B. Access frequency

The graphical presentation (Figure 2) elaborates the frequency of accessing e-books in mobile devices. It interprets that 540 (52.2%) students accessed e-books 2 to 3 times in a week, 344 (33.2%) students accessed e-books every day; and 90 (8.7%) students accessed e-books once in a week. 36 (3.4%) students and 26 (2.5%) students accessed monthly once and monthly twice or thrice, respectively.

Majority sample used mobile device in the frequency of '2 to 3 times in a week'. A good number of samples used the device daily. And least number of sample used were '2 to 3 times in month'. That means the rest sample were spread over between these two frequency ranges giving an image of good frequency of use of mobile device. However, the

overall usage of sample was found on higher frequency usage practice.

C. Database for E-books (HELVET Consortium)

The statistical presentation in Figure 3 reflected analysis of the data to know the access of e-books from database by medical students. The data explain that 1008 (87.65%) sample accessed e-books from 'Springer e-books database' for reading purpose. 896 (77.91%) used 'Jaypee e-books database to access e-books in their work. 881 (76.6%) sample accessed e-books from 'Oxford University Press' and 864 (75.13%) sample downloaded e-books from 'MD Consult' database, respectively. Less sample, i.e. 70.6% used 'Informa (Taylor and Francis Group)' database to access e-books.

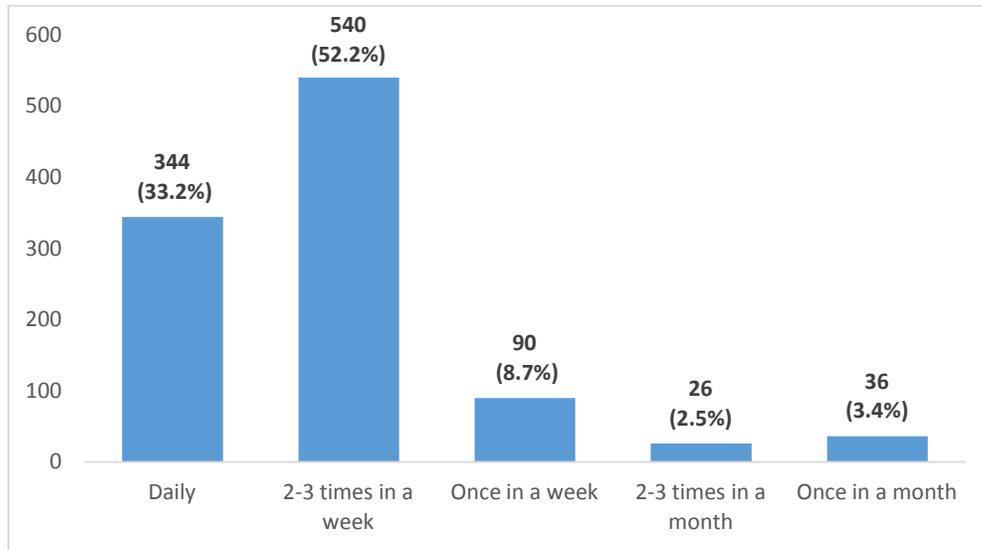


Fig.2 Frequency of accessing e-books

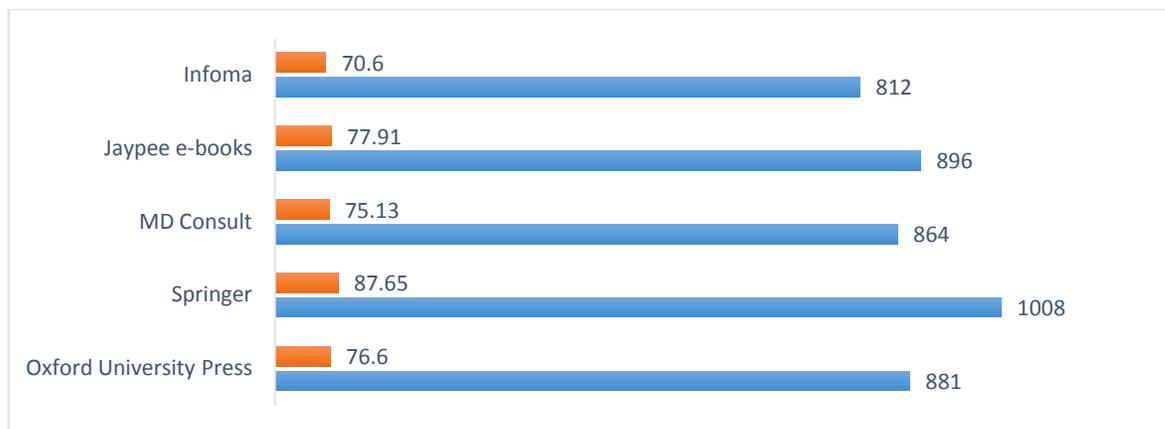


Fig.3 Access of e-books from database

The result of medical students’ usage of e-books database provided by HELNET consortium for academic purpose proved that the Springer database was the ‘highest’ used among different databases provided in the consortium. The reason was confirmed through an informal interview with sample from different colleges, which revealed that the Springer provided updated information instantaneously with authenticity and accuracy when compared to others.

D. E-book Reader App Usage

The below given statistical table describes the types of e-book reader apps used by the selected sample. A total of 964 medical students representing 93.05% of the sample used ‘Blue fire Reader’ application. The next highest used app by 934 (90.15%) sample students was ‘Amazon Kindle’ followed by usage of ‘Adobe Digital Editions’ by 785

(75.77%) sample. ‘Aldiko Book Reader’ was used by 715 (69.03%) of sample; and 713 (68.82%). used ‘Cool Reader’ and ‘FB Reader’ respectively. Less sample, i.e. 362 (34.94%) used ‘iBooks’ application.

This analysis has the peculiarity that each app was used by a minimum 50% of the sample students except one. Reasons were made clear in observation during their usage practice that different issues cropped up whenever used. This question has the tendency to collect multiple answers due to the reason that a student could use any number of apps. Hence, multiple apps were selected by each sample leading to the situation of showing multiple factor analysis. Hence, each data collected was in adherence with the total sample study.

TABLE I TYPES OF E-BOOK READER APPS

E-Book Reader Apps	Total N=1036	Percentage
Amazon Kindle	934	90.15
Aldiko Book Reader	715	69.02
Cool Reader	713	68.82
FB Reader	713	68.82
Ibooks	362	34.94
Bluefire Reader	964	93.05
Adobe Digital Editions	785	75.77

E. Audio Book Apps Usage

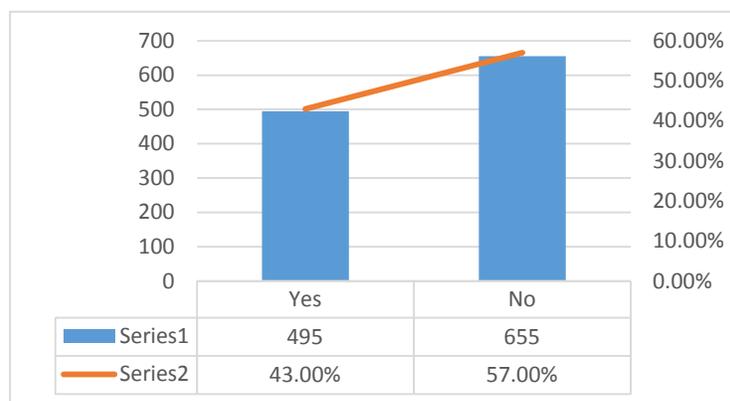


Fig.4 Audio book apps usage

The collected data demonstrated that only 43% sample used audio book apps for academic purpose and the rest 57% did not use audio books. Majority of the sample were not using audio apps due to two reasons. Some students could not follow the accent in audio and some were not much interested in listening to audio books.

F. Type of Audio book apps

The below mentioned table (Table 2) gives the analysis of usage of audio book apps by the sample used audio apps only. It was observed that 362 (73.13%) students used ‘I Books’ audio book app for listening medical related books. Similarly, 169 (34.14%) used ‘Google Play Books’ app in mobile device. 113 (22.82%) and 108 (21.8%) students installed and used ‘LibriVox’ and ‘Audible’, respectively. Only 85 (17.17%) medical students used ‘Libby’ audio book app for listening to medical-related contents.

TABLE II TYPES OF AUDIO BOOKS

Type of Audio book app	(n-495)	Percentage
Google Play Books	169	34.14
Audible	108	21.8
LibriVox	113	22.82
Libby	85	17.17
Ibooks	362	73.13

Out of the 495 sample used audio apps, it was further analysed to know the types of audio apps used by them.

Highest used was ‘Ibooks audio app’ and the least used was ‘Libbyapp’. The informal interview gave interesting aspects

of the apps, i.e. there are apps available with combination of e-book reader and audio book. This facilitates easy switch over from reading to listening without changing the app.

VI. FINDINGS

Analysis of a part of research to understand e-book access through mobile device by medical students gave the following findings:

1. Smartphone and laptop were the most preferred devices among all other tools for usage.
2. Majority sample used their device for 2 to 3 times every week to access e-books for information updates.
3. Highest sample used 'Springer e-book database' followed by 'Oxford University Press' as next major used database.
4. 'Blue fire Reader' application was the most preferred app to read e-books than 'Amazon Kindle' and other applications. However, Amazon Kindle was also used by many but not as many as the above-mentioned app.
5. 'iBooks' audio books app was used by majority of the sample using audio apps. The next preferred app used by sample was 'Google Play Books' but it worked out to less than 50% (46.68%) usage of ebooks users. The variation found in usage of devices, tools, apps, databases, etc., certainly depends on comfort, number of features, easy access and others.

IV. SUGGESTIONS AND CONCLUSION

In general, students might aim to achieve degrees but besides this, in pursuing any profession, knowledge and skill should go hand in hand. Moreover, this formula is mandatory in medical profession, as they need to deal with living beings in future. The present day students are blessed with several sources having enormous information and the need of the hour is finding the channels of continuous information flow to catch up the same through technological tools. To support them in this regard, medical colleges have to switch over from the traditional teaching methodology to technically empowered learning sources. This would necessitate the college governance to involve information technology in students' learning process. The faculty and other associated teaching community should be brought under technically oriented programmes. The developmental methodology in teaching provides boosting techniques to students to choose the best reliable technically sound systems. The necessary workable environment with necessary database, apps, etc., should be provided free to students for their professional growth. Medical colleges need to involve their college libraries to make this happen by continuous skill-based programmes for librarians. Given the recent shift in reading pattern, librarians must give feedback to publishers to bring out more content in digital format.

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Appendix-I

1. Adichunchanagiri Institute of Medical Sciences
2. Bangalore Medical College & Research Institute
3. BVV Sangha's S. Nijalingappa Medical College
4. Dr B.R Ambedkar Medical College
5. Father Muller Medical College
6. J.J.M. Medical College
7. Karnataka Institute of Medical Sciences, Hubali
8. Kempegowda Institute of Medical Sciences
9. M.R. Medical College, Sedam Road
10. MS Ramaiah Medical College
11. Mysore Medical College & Research Institute
12. S.S. Institute of Medical Sciences & Research Centre
13. Sambhram Institute of Medical Sciences & Research
14. Shridevi Institute of Medical Sciences & Research Hospital
15. St. John's Medical College
16. Vijayanagar Institute of Medical Sciences.