

Preferences of Study Material Used with Advancement of Technology among Medical Personnel

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Abstract :

Introduction: With the advancement of technology there has occurred a magnanimous change in the way medical professionals access their study materials. Electronic media and other online software tools are increasingly foraying into the professional lives of healthcare professionals. There are various types of study materials for ex. Text Books, Online Drafts, Journals, Soft copies of Text Books etc. which are accessed by medical professionals worldwide as per the availability of technology. This study was conducted to assess the preferences of study materials used by medical professionals in order to know the trend of learning amongst the different groups. **Methods:** An online survey was conducted using Google forms. The subjects for this study included Undergraduates, Interns, Postgraduates and Teaching Faculty. The survey includes nine multiple choice questions with their responses being analysed and presented in the form of percentages and graphs. **Results:** 49.47% of respondents read daily; majority use textbooks (67.37%) and internet on mobile (50.53%) for routine reading and internet on mobile (32.58%) is the preferred source for reference reading. 65.48% respondents having smart

phones use medical software-applications. Textbooks were the most preferred (77.27%) and most accessible (49.44%) reading material; followed by soft copy of text book on mobile (33.71%). Smart phone (44.05) was the most preferred medium for sharing study material.

Conclusion: As the results show an increased use of e-learning, we can envisage a special software application and give wide publicity for its use by medical professionals.

Key words: Online Study, E Books, Medical Study, E-learning

Introduction:

It is now becoming "a truth universally acknowledged" that the medical education of UG & PG medical students will be enhanced through use of computers. Access to wide range of online options must surely make learning exciting, effective. This assumption is potentially but by no means absolutely correct. Deans of medical colleges often receive requests for the development funding for computer learning projects. Decisions to introduce these projects into the UG curriculum are generally justified.¹

E-learning is also called Web-based learning, online learning, distributed learning, computer-assisted instruction, or Internet-based learning. Historically, there have been two common e-learning modes: distance learning and computer assisted instruction.²

E-learning can be used by medical educators to improve the efficiency and effectiveness of educational interventions in the face of the social, scientific, and pedagogical challenges noted above. It has gained popularity in the past decade; however, its use is highly variable among medical schools and appears to be more common in basic science courses than in clinical clerkships.^{3,4}

As many studies conducted all over world previously mentioned the use of computer based learning methods in regular curriculum of UG medical students.⁵⁻⁹ With the current pandemic situation and non-availability of regular class based teaching, it is very important to assess the inclination of students towards e-learning.¹⁰⁻¹²

We conducted this study to evaluate the use of electronic media by medical students and teachers for studying medicine.

Methodology:

Aim: An epidemiological study to find out the preferences of study material used by medical personnel with the advancement of technology.

Objectives:

1. To find out the preference of study material used in medical personnel.
2. To find out various factors affecting preference of study material used in medical personnel.

Study Design: Cross-Sectional Descriptive Study. (In the form of an e-Survey.)

Study Area: DVVPP's Medical College & Hospital, Ahmednagar-414111, Maharashtra, India

Study Population: Medical personnel of DVVPP's medical college.

Sampling: Snowball sampling method was used. First 100 responses satisfying inclusion & exclusion criteria were used.

Inclusion criteria:

1. Those who are willing for study.
2. Age more than 18 years and both genders

Exclusion criteria:

1. Those with incomplete responses.
2. Those who are not willing for study.

Statistical Analysis: A predesigned pretested questionnaire was used to collect the data. The questionnaire was standardized from the institutional experts. Socioeconomic status of the students and doctors was evaluated by Modified Kuppusswamy socioeconomic scale. Data was entered in Microsoft excel, and analyzed using Epilnfo version 7.2.1. Data is presented in frequencies and percentages, charts and graphs. Chi-square test was used for association between the variables. Significance was considered at $p < 0.05$.

Results:

Majority of the participants were f age group 23 to 30 years (66%), some were of age less than 23 years (23%) and rest were of age more than 30 years (11%). There were 69 males (69%) and 31 females (31%).

Out of the respondents, majority were PG students

(40%), followed by Interns (28%), UG students (25%) and teaching staff (7%).

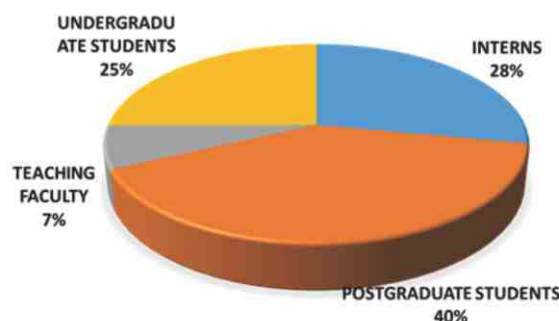


Fig 1: Education of respondents

When we enquired various modes for routine reading used were, majority used textbooks (67%), soft copies of books on mobile (59%), reference books (37%), internet and soft copies of books on laptops (33%) medical journals (20%). For reference reading, preferred mode was internet and soft copies of books chosen by 60% people as compared to reference books by 40% people. 63% of the participants had medical reference applications on smartphones while rest 37% didn't have it. 22% respondents spent more than 3 hours of study/week using internet and soft copies of books. Most accessible mode of books was hard copy of text books in 49% followed by soft copy on mobile in 35%.

Table 1: Association between hours per week of internet or soft copies of books read and socioeconomic status

			SOCIOECONOMIC GROUP		Total
			HIGHER (1,2,3)	LOWER (4,5)	
HOURS PER WEEK OF INTERNET OR SOFT COPIES OF BOOKS READ	>3 HOURS	Count	19	3	22
		%	86.4%	13.6%	100.0%
	0-3 HOURS	Count	37	41	78
		%	47.4%	52.6%	100.0%
Yates Corrected Chi-Square = 9.03, df = 1, p = 0.001					

Significant association was seen between the hours per week spent on internet or reading soft copies of books and socioeconomic status of the participants. ($p = 0.001$)

Higher socioeconomic status participants spent more time (86.4%) as compared to lower socioeconomic status participants.

Table 2: Association between hours/week of internet usage and soft copies of text books read and having medical software on mobile

		MEDICAL SOFTWARES		Total
		NO	YES	
HOURS/WEEK OF INTERNET AND SOFT COPIES OF BOOKS READ	>3 HOURS	4 (18.18%)	18 (81.82%)	22 (100%)
	0-3 HOURS	33 (42.30%)	45 (57.70%)	78 (100%)
Yates Corrected Chi-Square = 3.312, df = 1, p = 0.034				

Significant association was seen between the hours/week of internet usage and soft copies of text books read and having medical software on mobile ($p = 0.034$).

Those who had specific medical application software n smartphones, spent more time as hours/week of internet usage and soft copies of text books (81.82%) as compared to those who didn't have these software.

Discussion:

For Reference Reading, Many of the Respondents (60%) use Reference Books, Text Books and Medical Journals while others (40%) use Internet and Soft Copies of Text Books. Majority (63%) were using specific Medical Software- Applications for knowledge, rest of them (37%) didn't have any specific Medical Software-Applications. Males (24.63%) spent more time in reading soft copies of text books and Internet on electronic media (more than 3 hours / week) than Females (16.12%).

Almost two thirds (63%) of the respondents read text books for more than 3 hours / week, while some (22%) of them use internet and soft copies of text books for reading more than 3 hours / week. Most preferred form of books read is Text Books (80%) (Hard Copies), while few among the respondents also prefer Soft Copies of Books on Laptop (9%), Mobile (6%) and Tablet (4%). This shows that text books are still most commonly used medium for reading.

Link **TM et al**¹³ reported that almost all students (94%) have access to a private PC, which is either owned by the students themselves (74%) or shared with family or roommate. The type of Internet access differs according to gender. Males tend to have faster Internet access

while older technologies were more common among women. About 10% of the students have never used any of the e-learning programs or softwares.

Text books (49%) are the most accessible form of books for the majority, while Soft copies of Books on Mobile (35%) are second most accessible form. This shows increased trend of medical personnel towards using Electronic Media even for routine reading, taking into consideration the easy availability, accessibility and affordability of soft copies of study material. The Increased trend of sharing of study material from Hand Written Notes and Hard Copies (17%) to Smart Phone Sharing (51%) is observed in this study, other methods used for sharing of material observed were through e-mail (22%) and Sharing of Text Books (10%).

R Goupp et al¹⁴ also found similar results. Where text books was preferred more for routine learning than electronic media. But for case-based learning, they found interactive e-learning course was more effective.

Positive correlation is seen between Hours / Week spent on Internet Usage and Soft Copies of Text Books read with higher socioeconomic status. (p value = 0.001), indicating more affordability and accessibility of higher socioeconomic level respondents of the more advanced electronic devices and inclination over their usage. Similar correlation is also seen between Hours / Week spent on Internet Usage and Soft Copies of Text Books read with respondents having Medical Soft-wares on their Smartphones (p value 0.038), indicating their knowledge and attitude about preferring electronic media for studies. **M Jawaid et al**¹⁵ in Pakistan reported similar findings where students from higher socioeconomic status had better computer literacy and tendency towards e-learning.

The intensity of computer use and previous experience with CBT/WBT has the greatest effect on students' attitudes towards e-learning. The explanation for this could be a general discomfort with the technology that makes students who lack experience with ICT express themselves cautiously about its use in education.¹⁶ It could also be explained by the relative novelty of e-learning and students' difficulties in integrating CBT/WBT into their way of learning.¹⁷

Conclusion:

- Our study conducted showed that even if text books are the most preferred medium for medical knowledge, people are also using more of electronic media for the same.
- Smart phones, tablets and laptops are being used not only for reference reading through internet but also for routine reading using Soft Copies of Text Books on the same.
- The easy availability and accessibility to various form of study material through electronic media should be considered and it should be given wide publicity.

Source of funding: This was a self-funded project

Conflict of interest: None

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