ORIGINAL RESEARCH PAPER

Volume-7 | Issue-6 | June-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

MODERNIZED INTERACTIVE LEARNING AMONG MEDICAL STUDENTS THROUGH E QUERY UNIT: AN INNOVATIVE APPROACH

Community Medicine

Raghvendra Gumashta — Associate Professor, Department of Community Medicine, People's College of Medical Sciences & Research Centre, Bhopal;

Mohan P Joshi — Associate Professor, Department of Community Medicine, NKP Salve Institute of Medical Sciences & Research Centre, Nagpur;

Jyotsna Gumashta* — Professor, Department of Physiology, People's College of Medical Sciences & Research Centre, Bhopal. *Corresponding Author

ABSTRACT

Background: There is ever expanding need of interactive educational, research, training and capacity building environment among students and teachers in the medical colleges of developing nations. This is also required in view of information explosion, advancing knowledge base, current medical advances, structural designing inputs and importance of in-depth understanding of inter-stream technical initiatives in the larger interest of suffering humanity.

Methods: Semi-structured thematic quick verbal interviews of the randomly selected medical students visiting coffee shop of the college were held for 'need assessment' about their (a) felt requirement of additional educational assistance for problem solving & subject understanding, (b) practices related to usage of modern e-devices (like computers, laptops, mobile-phones), (c) interest for internet usage.

Results: 65.59% students had interest in additional educational assistance, whereas out of the total 93 students interviewed, 74.19% were frequent users of electronic devices, 69.89 % had an email account and 36.55% were daily users of internet. A model of intervention through resource networking and communication system strengthening has been developed.

Conclusion: Based on the requirements of the students, a simple website development based e-Query unit under MET cell has been conceptualized in thus devised model of educational assistance, which is easy & technically self supportive, requires small financial investment and has enormous potential of expansion for involving the students, teachers, resource persons, training, research and teaching institutions of varied medical & allied fields.

KEYWORDS

Dissemination, e-Learning, India, Medical Education Technology (MET), Problem-Solving, Sustenance

Introduction

The sharing of vast expertise, experience and educational horizons by medical teachers with medical students within specified time frame poses enormous specific and non-specific challenges. The existing means of communication viz. class lectures, seminars and clinic based learning have their own merits and demerits. Hence, there is need to develop an easy, smooth, ever available and personalized modern means of teacher-student communication to ensure greater, complete and interesting life time opportunities to students for resolving their generally unresolved or unanswered individual or common medical queries.

Advances in electronic technology have created opportunities for new instructional designs of medical curricula[1]. While most medical schools seem to recognize that explicit learning experiences are necessary to promote professional values and behaviors in medical students, the strategies used to achieve that goal appear inadequate[2]. E-learning technologies offer learners control over content, learning sequence, pace of learning, time, and often media, allowing them to tailor their experiences to meet their personal learning objectives. The integration of e-learning into medical education can catalyze the shift toward applying adult learning theory, where educators will no longer serve mainly as the distributors of content, but will become more involved as facilitators of learning and assessors of competency. [1] e-Learning will continue to evolve as new innovations and more interactive modes are incorporated into learning. [3,4,5]

Methodology

Semi-structured thematic quick verbal interviews of the randomly selected medical students visiting coffee shop of the college were held for 'need assessment' about their (a) felt requirement of additional educational assistance for problem solving & subject understanding, (b) practices related to usage of modern e-devices (like computers, laptops, mobile-phones), (c) interest for internet usage. All students visiting coffee shop on Mondays and Fridays during 8 AM to 9 AM, 1PM to 2PM and 5 to 6 PM on college days, participating voluntarily in the interviews, were included in the study.

Results

Among the MBBS students interviewed, 64 (68.81%) were boys and 29 (31.18%) were girls. Exhaustive verbal interviews were undertaken. While answering questions related to their felt need of additional educational assistance and the likely areas of desired assistance, 61 (65.59%) showed interest in getting some sort of additional educational assistance from the medical college. However, out of these 61 (65.59%) students, only negligible students (5.37%) were interested for educational assistance through class room teaching. 56 (60.21%) students among the interested students expressed their disinterest for class room based additional teaching. Most of the students denying interest in assistance through class room teaching have shown active interest in teaching through innovative means. Out of total students interviewed, 54 (58.06%) showed their interest for some sort of innovative teaching methodology. Out of those showing active interest in additional teaching, 50 (53.76%) have expressed their interest for e-communication based learning i.e. through mobile phone, internet etc. Interestingly, a larger group among the students interested in e-communication has shown eagerness towards obtaining greater 'subject understanding' (52.68%) as compared to 'problem solving' (19.35%), while using e-communication as a measure of interaction among teachers, guides, subject experts and students. **(Table 1)**

Majority of the students i.e. 69 (74.19%) have told to have been using mobile phones/internet and other electronic devices frequently, whereas 64 (68.81%) have actually been feeling comfortable in using the electronic devices of communication. **(Table 2)** Sixty five (69.89%) students have an email account, whereas 51 (54.83%) students are found to have been interested in communication for free of cost academic query resolution through question and answer sessions with the teachers and academic experts. **(Table 3)** While 36.55% students were found to have been operating their email account every day, 24.73% students have been using internet facilities every 2-3 days. But, the average time spent per log in has been found to be very high with 45 (48.38%), 12 (12.90%) & 8 (8.60%) informing their average per log in usage to be respectively more than 1 hour, 30 minutes to 1 hour and less than one hour. **(Table 4)**

It has been observed that if computer materials are to be provided as a learning resource for the basic medical sciences, provision must be made for the style of teaching of the course and the style of learning of

the students attending that course [4], and therefore, looking into the observations made in this study, a model of e-Query unit has been developed by us, as illustrated through Fig. 1, Fig 2 and Fig. 3. Many subjects taught in most medical education curricula contain anatomic, physiologic, and biomechanical concepts that are challenging for students to grasp and for faculty to teach, especially when instructional materials are limited to static media such as textbook diagrams and photographs. Properly designed materials make interactive learning more enjoyable for students and have been purported to increase students' long-term retention of materials. [6] Internet-based learning compared with no intervention has a consistent positive effect. [7] Thus this model, if implemented and amended from time to time as per advice, suggestions, observations and practical experience, shall help in multiplying the availability of the locally useful resources, medical settings, linkages to the useful websites, relevant literature, e-books, e-publications and above all, provision of a user friendly interactive platform of sustained learning cum almost live interactions.

It has been observed that the medical school of the future may be one that can successfully offer (in collaboration with other educational providers) a flexible menu of both face to face and self study modules from which individual students can select to meet their own unique requirements. Any other option, including staying as we are, may ultimately prove unaffordable. [8,9] Computer-aided learning (CAL) offers advantages over traditional methods of learning as it allows students to work in their own time and pace. [10]

This model proposes to set up an e-Query unit under the Medical Education Technology (MET) unit of Medical College, so that all aspects related to its set up, information, communication, expertise availability, maintenance and sustenance may be looked at with relative ease of expert inputs and monitored actions. The proposed model incorporates simplified use of easy available technological advances i.e. computer and internet. An e-Query unit is to be set up, which shall develop its own website while registering teachers and students based on their college library card numbers/identity card numbers. Each student shall be free to post maximum 2 queries per department per week, which shall be responded to by the teacher incharge, pre-identified and designated for each week day, by posting reference material, direct replies and suggestive readings etc. The e-Query unit may club together the questions of similar sort and all of those may be answered in one consolidated reply satisfying the queries of many students at a time. The replies obtained from teachers shall be posted by the e-Query unit on the website, which shall be visible to all the registered persons on the website. **(Fig. 1)**

An advisory body of e-Query unit shall have to be constituted under the chairpersonship of Dean of the Medical College. This e-Query unit will comprise of one Supervisory Officer (may be Director, MET), one Technical Support (may be any computer literate faculty of MET) and one Data Entry Operator (may be from the existing staff or employed on contractual/part time basis). In addition, every department of Medical College will be required to depute one In-charge officer (may be Professor/Associate Professor), 5 Resource Persons (one for each day, from Monday to Friday) and few other technically qualified experts (as alternatives to the Resource Persons, when they are on leave/busy elsewhere). Since the space, time and technical expertise shall mostly be derived from within the institution, there shall be no extra financial burden for setting up of this unit except seed money, the one time expense, of Rs. 20,000/- for website development & other one time grant needs, and yearly recurring expenses of Rs. 97,500/- towards maintenance. This recurring expense will have to be made towards salary of Data Entry Operator (D.E.O.) @ Rs. 6,000/- per month, Office Establishment cost @ Rs. 2,000/- per month and website maintenance cum miscellaneous expenses @ Rs. 1,500/- per month. **(Fig. 2)**

Conclusion

Electronic learning complements traditional teaching methods in undergraduate teaching. It has been observed that this usage is associated with improvements in class ranking.[9] Hence, the results of this study and proposed model of intervention shall have long term impact on the sharing, dissemination and quality of medical education. In the present study, students strongly feel that any additional educational assistance for their learning opportunity, which doesn't require visit to class room will be welcome. They are well versed with usage of more than one e-device as a means of communication. They mostly use internet facility.

Thus, we have developed a student friendly unique model of e-Query Unit of MET Cell of Medical College. This model will facilitate any time access to advice of subject expert of various medical fields, initially from Medical College having this e-Query Unit and later involving interested teachers of other medical institutions, through specially designed website based query submission, resolution and interest generation. These queries will surely facilitate greater interest of students in subject learning, real time problem-solving, better time management and quality performance in university examinations and practical-clinical understanding cum application.

Table 1: Felt need of additional educational assistance and their likely areas among students.

S. No.	Question	Yes	%	No	%
1A	**Do you feel that you have additional requirement of educational assistance from college :**	61	65.59	32	34.40
1B	If yes, will you like this assistance through class room teaching :	5	5.37	56	60.21
1C	If you are given this assistance through innovative means, will you like those :	54	58.06	7	7.52
1D	Will you like it through e-communication i.e. through mobile, internet etc :	50	53.76	11	11.82
1E	Will you like 'Problem Solving' to be the area of e-communication:	18	19.35	43	46.23
1F	Will you like 'Subject Understanding' to be the area of e-communication:	49	52.68	12	12.90

Table 2: Practice and comfort in use of electronic devices among students.

S. No.	Question	Yes	%	No	%
2A	Are you frequently using mobile phones/ computer/ other electronic devices :	69	74.19	24	25.80
2B	Do you feel comfortable in using electronic devices of communication :	64	68.81	5	5.37

Table 3: Usage of e-communication and its acceptance for academic interactions by students.

S. No.	Question	Yes	%	No	%
3A	Do you have an email account :	65	69.89	28	30.10
3B	Will you welcome any communication for academic queries through the use of internet for asking questions and getting answers free of cost:	51	54.83	42	45.16

Table 4: Frequency and average time spent on email and internet by students.

S No	Question	High	%	Moderate	%	Low	%
4A	How many days a week you are operating this account [High- Every Day; Moderate- Every 2-3 days; Low- More than 3 days]:	34	36.55*	23	24.73*	8	8.60*
4B	On an average, how much time you are there on the net every time you log in [High - More than 1 hour; Moderate- 30 min to 1 hour; Low- Less than 30 min]	45	48.38*	12	12.90*	8	8.60*
*Percentage of overall participants in the study							

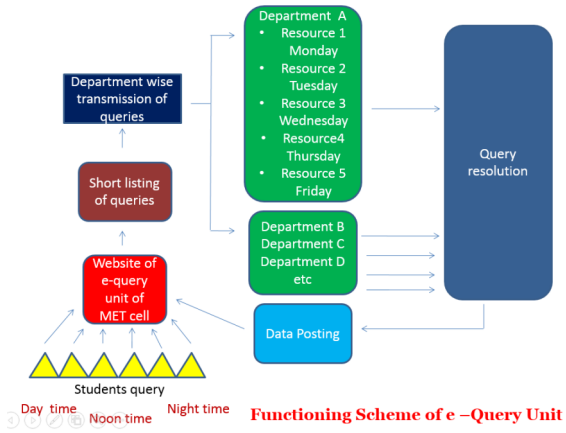

Fig 1: Interactive functionality and system of e Query Unit.

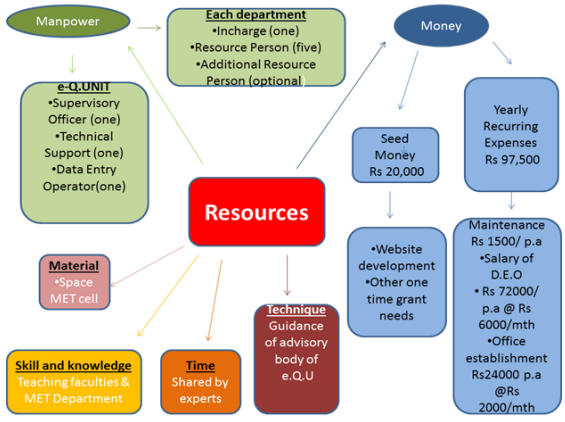

Fig 2: Resource Mobilization and Cost effectiveness of e-Query Unit.